

# Emotional and Behavioural Implications of Overshooting 1.5°C

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Looming above Union Square in downtown Manhattan, a clock is ticking. The Climate Clock, a project of artists Gan Golan and Andrew Boyd, is counting down the time before the effects of global climate change become irreversible. This deadly deadline is defined by projections of when the planet is set to hit 1.5°C of warming above pre-industrial levels. A bit like the target it portends, the Climate Clock implores urgency and attention without directly delineating what one might do to stop the timer in its tracks. Passersby may glance nervously at the countdown and see an anxious call to action, or they may see just another reminder that so much of the world lately seems doomed and out of our control. The targets to limit global warming below 1.5 and 2 degrees celsius mark crucial tipping points in climate change and provide broad goalposts for emission cuts. They have become the global shorthand for everything that needs to be done to face the climate crisis and all that we are failing to accomplish. These targets represent both a motivational instrument and a menacing omen. But what happens when the very information meant to motivate change leaves us feeling like there is nothing to be done?

In the 2015, 195 nations signed the Paris Agreement, a treaty pledging to “pursue efforts” to keep global warming below 1.5 degrees celsius (2.7 degrees Fahrenheit) and limit warming to “well below” 2 degrees celsius (3.6 degrees Fahrenheit) by the year 2100. These degree targets are measured based on the average global surface temperature over a ten-year period, as compared with pre-industrial levels. The targets were determined based on assessments of the global effects of climate change at different degrees of global warming.

The purpose of these thresholds has been to provide a universal goal post for national and global efforts to limit global warming. Aiming for such an ambitious target in such a limited timeframe would ideally drive swift, dramatic changes in emissions and energy consumption. Some meaningful legislation, such as the 2022 Inflation Reduction Act in the U.S.,<sup>1</sup> has already been passed in attempts to adhere to the guidelines of the Paris Agreement. However, it is no secret that the 1.5°C and 2°C targets, along with decades of other urgent warnings, have failed to prompt sufficient action and many scientists now believe it may already be too late.

A recent report by climate and social scientists declares that overshooting the 1.5°C target is “fast becoming inevitable.”<sup>2</sup> According to the UN’s 2023 Emissions Gap report, we are currently on track to hit 3°C of warming by the end of this century.<sup>3</sup> While certain individuals, communities, and countries have made significant changes to meet the Paris Agreement’s goals, the level of collective response needed

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<sup>1</sup> United States Congress. Public Law 117-169.

<sup>2</sup> Bustamante, Mercedes, et al. “Ten New Insights in Climate Science 2023/2024.” *Global Sustainability*, 1 Dec. 2023, pp. 1-58.

<sup>3</sup> United Nations Environment Programme. “Emissions Gap Report 2023: Broken Record – Temperatures Hit New Highs, yet World Fails to Cut Emissions (Again).” *Knowledge Repository*. UNEP. 2023.

to realistically maintain a global temperature within the desired range has not yet been achieved. As a result, behavioural psychologists have begun to assess how these targets, and our looming inability to meet them, might influence individual and collective actions as the climate crisis continues.

In a 2022 paper on rule-governed responses to climate change, Cynthia Pietras outlines a wide variety of ways that guidelines like those of the Paris Agreement may be causing us to miss the mark.<sup>4</sup> By viewing climate warnings, reports, and models as rules, in that they describe what might happen if certain actions are carried out, Pietras applies behavioural analysis to current climate responses. One possible cause of insufficient action she identifies is a rule's "incompleteness." To be considered complete, a rule must clearly outline the problem in need of addressing, the behaviour needed to fix that problem, and the consequences of either performing or not performing that behaviour. While the Paris Agreement's target temperatures define the problem and its consequences, it fails to clearly identify what meaningful actions must be taken and by whom. In short, the intentional vagueness of the Paris Agreement's goals, which allow it to apply to all of its ensigned countries, may be one culprit of the current failure to sufficiently respond. The global nature of the goal allows it to apply to everyone, but in applying to everyone, it disperses the responsibility to a degree that individuals often feel little direct impetus to act.

According to Pietras, other contributors to poor rule following in the face of global warming could include lack of media acknowledgement and lack of public understanding of the rules and their meanings. With each tenth of a degree that the global temperature increases, the impacts felt around the world will become increasingly severe.<sup>5</sup> As a result, climate issues may march farther toward the forefront of global discourses. However, the acknowledgment of global warming and the prevention of further warming are two different things, and the effects of climate change may be felt too late in industrialised nations for adequate action to take place. Therefore, the 1.5°C and 2°C targets encourage us to reconcile the differences between what is possible and what is plausible. From a practical perspective, the kinds of change necessary to avoid passing 1.5°C would likely require cultural and societal shifts in key polluting nations that are not considered feasible. Hence, if these targets are possible but not plausible—if, as many argue, we are already doomed to fail—the question becomes what this failure will mean in the context of continued action.

The physical repercussions of overshooting our targets have already been modelled and explained by groups like the Intergovernmental Panel on Climate Change (IPCC). According to the IPCC, overshooting 1.5°C would mean losing 70-90% of the world's coral reefs, a steep increase in extreme weather like storms and heat waves, and 1 to 3 feet of sea level rise threatening coastal communities across the globe.<sup>6</sup> The projected consequences for overshooting our goals are dire, but what remains to be seen is what the psychological and emotional impacts of overshoot could be.

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<sup>4</sup> Pietras, Cynthia. "Rule-Governed Behavior and Climate Change: Why Climate Warnings Fail to Motivate Sufficient Action." *Behavior and Social Issues*, vol. 31, 2022, pp. 373-417.

<sup>5</sup> IPCC. "Summary for Policymakers." *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by H. Lee and J. Romero, 2023, pp. 1-34.

<sup>6</sup> IPCC. "Summary for Policymakers." *Global Warming of 1.5°C: IPCC Special Report on Impacts of Global Warming of 1.5°C above Pre-Industrial Levels in Context of Strengthening Response to Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*, Cambridge University Press, 2022, pp. 1-24.

Along with the stress of embodied impacts of global warming, an apocalyptic mindset can alienate members of the public, leading them to shut out climate information rather than taking it more seriously. In the present, the seeming inevitability of overshooting the only global climate targets that have been set can prompt feelings of hopelessness that stop individuals from engaging with climate issues. In the future, missing these targets might further resign people to the idea that climate change is a lost cause, particularly individuals in industrialised countries who will not feel the impacts of global warming as keenly or immediately as more vulnerable groups. For the nations whose very survival is threatened even by the 1.5°C target, the privilege of giving up hope is not an option, and these targets need to remain the guiding star for global efforts in spite of the shrinking odds of success.

The ambitious yet ambiguous goal of limiting global warming within these targets does more than provide a deadline for disaster. It also outlines what metrics we use to measure the progress of climate change. Global temperature is a useful tool for indicating the scale and urgency of the issue. However, framing the climate crisis based on an amorphous global measurement can alienate and disempower individuals, provide space for governments to shirk blame, and contribute to a sense of despair that, while understandable, can only be seen as counterproductive. The targets also situate climate change temporally with a cutoff date of 2100. Some scientists have argued for a need to expand the timeline on which we consider climate change, accounting for the changes that might occur up to the year 2500 to adequately show the long-term impacts at stake.<sup>7</sup>

The current targets place valuable focus on the need for preventative efforts, but to the public they may obfuscate the hard work of adaptation that will no doubt be necessary if overshoot does occur. In a 2010 paper on climate change evidence and possible solutions, Lonnie Thompson identified three possible human responses to climate change: prevention, adaptation, or suffering.<sup>8</sup> The goal of the Paris Agreement degree targets falls under prevention, stopping the disastrous impacts of global warming from happening in the first place. However, if the current temperature goals cannot be met, it will be crucial to adapt and prevent as much suffering as possible.

The solution to current inaction can take various forms, and the severity of inaction's consequences warrant taking on multiple approaches at once. First, the goals of the climate thresholds can be made as complete as possible by outlining specific high-impact actions and who needs to take them. Pietras proposes an improvement of specificity in describing and prioritising actions, along with improving communications about how climate rules can be followed.<sup>9</sup> But while we bolster global efforts at prevention, contingency plans must be made for maintaining hope even past the point of no return. By pairing global prevention targets with local adaptation goals, and no longer sounding the alarm without also explaining steps we can take to put out the fire, the productive panic required to continue acting can remain within reach.

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<sup>7</sup> Lyon, Christopher, et al. "Climate Change Research and Action Must Look Beyond 2100." *Global Change Biology*, vol. 28, no. 2, 24 Sept. 2021, pp. 349-361.

<sup>8</sup> Thompson, Lonnie G. "Climate Change: The Evidence and Our Options." *The Behavior Analyst*, vol. 33, no. 2, Oct. 2010, pp. 153-170.

<sup>9</sup> Pietras (n 4) *supra*.

Hope is perhaps the most valuable tool individuals can harness in the fight against global warming. Hope defends against complacency. Without it, we erase the possibility of prevention or adaptation and resign ourselves and others to suffering. A key aspect of maintaining the effectiveness of these threshold targets lies in our ability to hold two competing truths at once: that the outlook is bleak and that there is still reason to hope and, most importantly, to act. As the deadline for global warming approaches, hope that acknowledges the pressure of the targets at stake, but also persists beyond the clock striking zero, will have to become our behaviour of choice.