

## GLOBAL CARBON EMISSIONS REFLECT BUREAUCRATIC CAPACITY

By Gus Greenstein & Diego Salazar Morales, 29<sup>th</sup> April 2026

### Summary

To what extent does effective climate change mitigation rely on capable government bureaucracies? We examine how bureaucratic professionalism—defined as the presence of meritocratic recruitment, career stability, and insulation from political interference in government bureaucracies—shapes national CO<sub>2</sub> emissions. Drawing on data for 125 countries over the 2012–2020 period, we find that higher levels of bureaucratic professionalism are associated with substantially lower CO<sub>2</sub> emissions. Evidence suggests that the main mechanism underpinning this link is enhanced policy implementation, not policy creation. Moreover, bureaucratic quality may be an even stronger determinant of carbon mitigation than policy stringency, defined as the count of climate laws and policies in existence. These findings suggest that professional bureaucracies are critical to effective climate governance. Building such institutions should be a priority alongside setting ambitious emissions targets.

### Motivation

This project focuses on understanding how the professionalism of national bureaucracies affects national carbon emissions. Why is this an important question? Bureaucratic professionalism has been shown to have large effects on bureaucratic performance in fields beyond climate/environmental policy, and there are reasons to believe professionalism could be particularly important in the context of climate policy. Yet, to our knowledge, no existing research seeks to quantify the effect of bureaucratic professionalism specifically. Understanding this link may thus help us craft more effective strategies for institutional reform geared at climate change mitigation.

### Approach and methods

We linked data measuring bureaucratic professionalism across 125 countries over an eight-year period with data on national carbon emissions. We then performed a regression analysis on these data, controlling for potential confounding variables such as various measures of GDP, population, and levels of democracy. To explore the nuances of the professionalism-emissions relationship, such as whether its strength varies according to contextual features and which mechanisms might explain it, we use interaction terms and incorporate data on climate policy stringency.

### Key findings

- Bureaucratic professionalism is associated with lower carbon emissions. A standard deviation increase in professionalism is associated with an approximately 28% decrease in CO<sub>2</sub> emissions. For context: only 16 countries (out of 125) reduced carbon emissions more than 28% during the 2000-2020 period.
- We find no evidence that the professionalism-emissions relationship varies based on level of state territorial authority or civil society density.
- Bureaucratic professionalism may impact national carbon emissions even more strongly than the degree of climate policy stringency.
- Evidence suggests that the main mechanism linking bureaucratic professionalism and carbon emissions is enhanced policy implementation.

## Insights and interpretation

This research offers three main contributions. First, we identify bureaucratic professionalism as a specific and actionable dimension of state capacity, distinct from aggregate governance quality indices that conflate multiple institutional features. This specificity points to more actionable avenues for institutional reforms compared to oft-repeated calls for strengthening “governance” or building state “capacity.”

A second contribution of our study is its comparative scope. While much of the existing literature on bureaucratic capacity and climate governance relies on single-case studies or limited regional comparisons, our analysis spans 125 countries over a decade. This broader perspective allows us to draw more generalizable insights into the institutional conditions that foster successful climate action, while also exploring how the effectiveness of these conditions varies across a range of local contextual features.

Third, we shed light on how bureaucratic quality policy interacts with policy characteristics to affect environmental outcomes. We find that when bureaucratic professionalism is accounted for, the effect of policy stringency on emissions is substantially attenuated, while the influence of professionalism remains robust. Studies that find positive effects of policy stringency without controlling for bureaucratic quality might therefore overestimate policy effects. This could foster misplaced confidence in policy reforms that lack the administrative infrastructure to be effective.

## Recommendations

While climate governance scholarship has focused heavily on the politics of policy adoption, investigating the determinants of ambitious targets and laws, our results suggest that implementation—and the specific bureaucratic machinery needed to realize it—deserves equal attention. As climate legislation has proliferated globally, the distance between ambitious targets and the administrative capabilities needed to realize them has greatly increased. Attention to implementation infrastructures has arguably never been more important.

## Acknowledgements

Gus Greenstein  
Diego Salazar-Morales  
Institute of Public Administration, Leiden University

**Contact person for follow-up:** Gus Greenstein ([g.h.greenstein@fgga.leidenuniv.nl](mailto:g.h.greenstein@fgga.leidenuniv.nl))

**Attribution:** This Research Brief is an output associated with the ClimateFiGS Speaker Series. It was shared in relation to the session “Why Bureaucracies Matter for Climate Action” on 29<sup>th</sup> April 2026; ClimateFiGS did not fund, commission, or edit the underlying paper.



Funded by  
the European Union



European Research Council  
Financed by the European Commission

ClimateFiGS is funded primarily by the European Union (ERC, ClimateFiGS, 101117670). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Council. Neither the European Union nor the granting authority can be held responsible for them.