

COMMENT OPEN



Legitimacy in the trans-scalar governance of climate adaptation

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Climate change adaptation is increasingly being addressed by public, private, and hybrid governance institutions across global, regional, national, sub-national, and local scales. Strengthening emerging forms of trans-scalar adaptation action is critical for addressing urgent climate risks. However, critics point to growing climate injustices and public legitimacy perceptions of the emerging forms of trans-scalar adaptation governance remain in question. As scholars of legitimacy repeatedly tell us, legitimacy is crucial for effectively addressing policy problems. Adaptation governance will only work well when groups affected by climate change, as well as state and non-state actors, have confidence in global governance institutions and so feel it is worthwhile engaging with them, taking notice, discussing, participating, and accepting the norms and rules they promote. This commentary argues that we need more research on legitimacy in trans-scalar adaptation governance. Despite the importance of legitimacy for governing adaptation effectively, assessments of sociological legitimacy—i.e., legitimacy in the eyes of different stakeholders—are scant. Existing contributions on the issue of sociological legitimacy typically focus on climate governance institutions in general or in the area of mitigation, but not in the area of adaptation. The social science research community could significantly improve data and research on legitimacy in adaptation governance, in particular by investigating how climate justice may generate legitimacy perceptions in adaptation governance. In turn, this knowledge can be used to assist policymakers in enhancing legitimacy in trans-scalar adaptation governance.

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Heatwaves, wildfires, and intense rainfalls—contemporary societies are being confronted by increasingly frequent and severe extreme weather events. Human-induced climate change, including more frequent and intense extreme events, has caused widespread losses and damages to nature and people, beyond natural climate variability. The Intergovernmental Panel on Climate Change (IPCC)'s 2022 report makes clear that these adverse impacts of climate change will become even more severe in the future, particularly in the developing world¹.

Although effects of climate change such as floods or droughts are often perceived to be localized, their impacts can spread to distant places. This means that adaptation can also have far-reaching consequences, making it a transnational policy challenge². An example is declining crop yields in the agricultural sector of one country as a result of climate change, which can then have severe repercussions on global food systems³. A failure to adapt to this climate risk therefore has consequences that go far beyond the particular country in which the declining crop yields are seen. Similarly, a failure to deal with climate risks which are connected to conflict can trigger human displacement and migration across borders⁴.

It is urgent to step up trans-scalar adaptation action, in addition to addressing localized climate risks and to accelerating mitigation, for mainly two reasons. First, adequate adaptation governance will avoid *maladaptation*, which occurs when an adaptation intervention—often unintentionally—exacerbates vulnerability⁵. Second, it will promote *climate justice*, a condition under which marginalized groups and future generations that have done little or nothing to cause the climate crisis are recognized, empowered to adapt, and can participate meaningfully in climate adaptation

governance⁶. This governance of adaptation challenges requires both substantial local ownership over the adopted policies, as well as national, international, and transnational governance⁷.

In this commentary, we use the notion of trans-scalar adaptation governance to refer to private and public rule-making in response to climate risks that is carried out at varying scales, by intergovernmental organizations globally and regionally, but also by national, sub-national, and local authorities acting at different scales. More broadly, climate adaptation in human systems refers to any human action in response to climate risks¹. An important trend in the trans-scalar governance of adaptation is the increasing engagement of non-state actors in governance, such as private companies, civil society organizations, and scientists^{8,9}. Together these different elements form the regime complex for climate change^{10,11}.

In this regime complex, the various trans-scalar adaptation governance institutions, be they public, private, or hybrid, have increased their exercise of authority over adaptation issues in recent years⁷. For instance, a particularly notable development is that the engagement of the 40 largest intergovernmental organizations with adaptation has grown apace¹². Figure 1 illustrates the average adaptation engagement by select intergovernmental organizations with considerable authority in their respective issue area over the period 2007–2017. The Adaptation Engagement Index ranges from 0 to 100 and indicates that, among the selected organizations, the World Trade Organization had the lowest engagement with adaptation during the selected period, whereas the European Union had the highest engagement.

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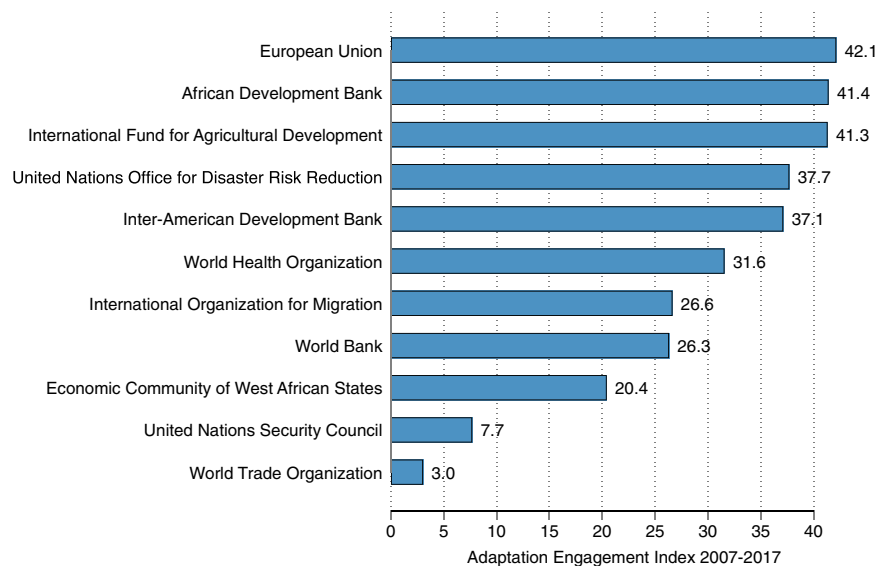


Fig. 1 Adaptation engagement index, by intergovernmental organization. “Adaptation engagement” refers to the degree to which intergovernmental organizations address adaptation in the context of their core mandates by organizing different activities, such as publishing scientific case studies and implementing adaptation programs. The composite index is based on scores on four variables capturing the frequency of a specific adaptation activity of each of the organizations in a given year: prioritization, time horizon, funding, and staffing. The final index score is the sum of all scores on these four variables, averaged for each organizations in a given year. For further details on measurement, see the replication data for Kural et al.¹². Note: Own illustration based on data from Kural et al.¹².

Given the increased authority of trans-scalar adaptation governance institutions, the amount of legitimacy that these institutions have has become ever more important¹³. *Sociological* legitimacy refers to the public’s belief that a political institution exercises its power appropriately. In contrast, *normative* legitimacy refers to the right to rule based on conformity to certain values and principles, such as justice, established by way of philosophical reasoning¹⁴. Sociological legitimacy, the focus of this commentary, has considerable implications for the ability of any kind of political institution to govern effectively, including for the exercise of adaptation governance that is focused on here. The literature has provided convincing evidence that legitimacy is crucial for effectiveness, although it has proven challenging to establish causality (see ref. ¹⁵, ch. 10, for a discussion). When relevant stakeholders—which in the context of adaptation are primarily those most affected by climate change but also other state and non-state actors—do not support governing institutions, those institutions can struggle to secure funding, attract participation, enforce decisions, and generally advance with handling critical adaptation challenges¹⁴.

Despite the importance of sociological legitimacy for governing adaptation effectively, there have been few assessments of legitimacy beliefs in adaptation. Previous research on popular legitimacy has focused on transnationally active non-state actors and policy elites’ beliefs about the legitimacy of international climate governance *in general* (e.g., refs. ^{14,16,17}). There has also been research into legitimacy beliefs about climate governance aimed at *mitigation*, mostly about the legitimacy of the United Nations Framework Convention on Climate Change (UNFCCC), although the UNFCCC mandate also extends to adaptation^{13,18,19}. However, we know little about the legitimacy beliefs regarding trans-scalar adaptation governance and the sources of these beliefs.

Adaptation governance is different from that focused on mitigation because it faces greater epistemic ambiguity, meaning that there is uncertainty about how to define and measure adaptation²⁰. The conceptual ambiguity of adaptation means that it can be challenging to collect comparable data about the

perceptions of adaptation and beliefs about organizations governing this adaptation²¹. For instance, in the context of food production, key actors might talk about crop efficiency or improved irrigation systems, but without referring to climate adaptation. There is therefore a need to better understand how different societal groups define and relate to adaptation across issue areas that are inextricably related to adaptation, such as finance and health^{12,20}. This knowledge can then be used to evaluate what forms of adaptation governance are perceived as legitimate, and why (or why not).

The lack of research into the patterns and sources of legitimacy of trans-scalar adaptation governance implies that several important questions remain unanswered: How do different groups across the public and private sectors, as well as in civil society, understand adaptation and its legitimacy? To what extent do the procedures and outcomes of adaptation governance benefit different people in different parts of the world, and what are the implications of the perceived (in)justice of this distribution of benefits for governance organizations’ legitimacy? How can the legitimacy of adaptation governance institutions be strengthened? These crucial questions can only be addressed if we have better theory and empirical evidence regarding the legitimacy of trans-scalar adaptation governance.

Theoretically, much work on sociological legitimacy in climate governance examines public perceptions of governing institutions and the social structures within which such perceptions are formed, as drivers of legitimacy beliefs¹⁴. However, we need better integration of climate justice as a potential factor shaping the legitimacy of adaptation governance institutions. It is not enough to examine institutional-level drivers of legitimacy beliefs, such as the perceptions of institutional procedures and outcomes¹⁸, or societal-level drivers of legitimacy beliefs, such as cultural norms¹³. Climate justice has become omnipresent in discussions about how to handle the climate crisis. The notion of “climate justice” problematizes the inequitable impacts of climate change and is often invoked when evaluating whether adaptation governance alleviates or exacerbates existing injustices^{6,22}. For example, adaptation actions have been criticized for being designed in a

top-down fashion without giving affected social groups the opportunity to participate in a meaningful way, leading to procedural injustice^{23,24}. In turn, perceptions of procedural injustice have been shown to feed into the contestation of climate governance¹⁴. By implication, we expect public perceptions of climate justice to shape sociological views about whether adaptation institutions are legitimate or illegitimate. This expectation warrants more research into the relationship between climate justice and legitimacy perceptions.

Empirically, one way in which suitable data could be collected to study this relationship is through the use of interactive research methods. Using such methods would enable researchers to interview, observe, survey, and co-produce knowledge with the beneficiaries and stakeholders of adaptation programs, civil society, and public and private governing actors. More than only a coordinated data collection effort, this could generate knowledge about actor perceptions about adaptation governance comparable across different contexts. Studies of adaptation in the context of specific institutions, issue areas, and geographical spaces, might miss out on the opportunity to identify broader patterns and to understand adaptation processes in their larger context. There is extensive literature focusing upon the often superficial integration of local communities and Indigenous Peoples' knowledge in climate adaptation initiatives^{24,25}. Some of these studies use participatory methods that have contributed to developing community-based vulnerability assessments and new forms of co-production of knowledge, which can contribute to building trust and to involving different local actors in the collection of data²⁶. While this literature rarely engages with the notion of legitimacy and tends to be highly context-specific, it yields rich insights into the significant mismatches between local realities and external adaptation interventions, which can lead to maladaptation and thus exacerbate the vulnerability of marginalized groups²⁴. To better understand how different stakeholders perceive the justice and legitimacy of trans-scalar adaptation governance, such studies need complementing by other types of interactive methods yielding comparable data across governance institutions, across issue areas, and across geographical spaces.

The collection of comparable data on justice and legitimacy perceptions could stimulate research exploring the complex patterns and sources of legitimacy in adaptation governance. Establishing better evidence about legitimacy in trans-scalar adaptation governance is an important first step toward more legitimate adaptation action. Such data is a precondition for other cornerstones of legitimate governance, including meaningful participation, transparency, and accountability. To be sure, better data is no silver bullet. There is certainly a risk that some methods that are useful for generating comparable data, such as surveys, are simply used to collect data without involving survey participants, which might exacerbate potential concerns among study participants that their voices are not being heard. To avoid such adverse effects, it can be useful to combine surveys with other interactive methods, such as interviews, focus groups, participant observations, and the co-production of knowledge^{13,26}. In addition, procedures and platforms for sharing and discussing the research findings with both participants and policymakers ought to be put in place. Ultimately, such efforts can contribute to bring different actors together in discussions about how climate risks can be addressed in a more legitimate way.

All told, this commentary has described the need for a better evidence base regarding the sociological legitimacy of trans-scalar adaptation governance. However, this is just part of the solution. It is governing institutions in the end, be they public, private, or hybrid, which are the locus of power and which need to make

better use of data and research results to improve the legitimate governance of transnational climate risks.

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