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The politics of climate risk assessment

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Almost 25 years ago, sociologist Anthony Giddens wrote that 'risk and responsibility are in fact closely linked'[1]. Extending this to climate risk, this perspective paper argues that climate risk assessment is not just a scientific endeavour but also deeply political. As climate risks become more complex and demand more science- and policy-driven integration across sectors and regions, assessments may involve significant political constraints that impede effective and just climate adaptation. Using a framework of integration challenges, this paper uncovers political constraints that may arise in developing integrated climate risk assessment. It argues that the framing and structuring of climate risk assessment may yield political constraints such as biases towards certain groups, sectoral incoherence, decisions not aiding the most exposed, distributional conflicts, and ambiguous responsibility in managing complex climate risks. Left unaddressed, such political constraints may hamper climate adaptation rather than enable progress.

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INTRODUCTION

Amidst the growing urgency of dealing with the climate crisis, the Intergovernmental Panel for Climate Change (IPCC) underscores a pressing concern: the ever-increasing complexity of climate change impacts and risks, making them harder to address effectively. The heart of this challenge lies in the emergence, evolution, and interaction of what experts term 'complex climate risks'[2]. These risks, characterised by cross-border, cascading, and compound effects, demand comprehensive climate risk assessments by both the public and private sectors.

While complex climate risks extend the scope of traditional climate impact assessments, current climate risk assessments may still not be broad enough from a political perspective. Despite the inherently political nature of climate risk assessment, evaluations might still be falling short in considering political constraints associated with integrated approaches to assessing risk.

From its early stages, climate risk assessment has required balancing a tension between scientifically identified climate risks and socio-political considerations by being purpose-driven and responding to the desired outcomes and choices at hand[3–5]. Climate risk assessment encompasses both technical analysis and policy-driven deliberation, as both elements contribute to the characterisation of risks[6–9]. The process, described as 'the formal analysis of the consequences, likelihoods, and responses to the impacts of climate change and the options for addressing these under societal constraints'[10] (p. 1), inherently embeds political dimensions. In this intricate position between science and politics, climate risk assessment must include both complexities of contemporary climate risks as well as social and political processes and outcomes.

Nonetheless, current assessments often underestimate the role of political constraints in the path towards climate adaptation. The IPCC, for example, highlights the need for integrated approaches and identifies numerous constraints in adapting to the changing climate but leaves political constraints largely uncharted[11,12]. Science- and policy-driven integration across sectors and regions is, however, a process characterised by uncertainty that introduces both political opportunities and political risks. One way to define political constraints is using a procedural definition of political risk. These political risks, from hereon constraints, defined are 'about more than just dangerous external risks […, but] a way of dealing with all issues and policy within a context of political uncertainty'[13] (p. 39). Against this background, this perspective highlights that climate risk assessment is as much of a political exercise as a scientific one. It identifies political constraints that may arise in the process of developing integrated climate risk assessment using an existing framework of integration challenges. Left unaddressed in climate risk assessments, such political constraints may significantly impede climate adaptation, and specifically, adaptation that is effective and just.

DEVELOPING INTEGRATED CLIMATE RISK ASSESSMENT

Today, a growing literature discusses how climate risk assessment must be advanced to address complex climate risk[2,14–18]. For example, Simpson et al.[2] showed how the Cape Town climate risk assessment in 2018 had to consider climate-induced drought that compounded with response-driven risks such as desalination and groundwater abstraction and cascading risks to health, economic output, and security. For cross-border risks, focusing the assessment on risks confined to, for example, local food production ignores risks to imported commodities or increased costs deriving from crop failure elsewhere. In turn, such an assessment would also neglect risks to the supply chain. Complex climate risk thus implies that narrowing the assessment to merely a single or small set of issues can create significant adaptation gaps.

Another aspect of climate risk assessments is that complex climate risk increasingly connects policy issues across sectors[19]. Such interconnections have been referred to as policy issue linkages (sometimes 'nexuses', 'externalities', 'issue interdependencies', 'synergies and trade-offs', or by the IPCC, 'sectoral policy interactions')[20]. For example, carbon abatement measures implemented in one country may not only affect domestic sectors but could also affect carbon leakage in manufacturing or energy trade flows in other countries[20] (p. 1318). Outside this example, there is a large literature describing policy issue linkages (for a full overview, see ref. [21]), with cases focused on climate[22,23]. These 'horizontal' linkages are not static but also involve feedback and

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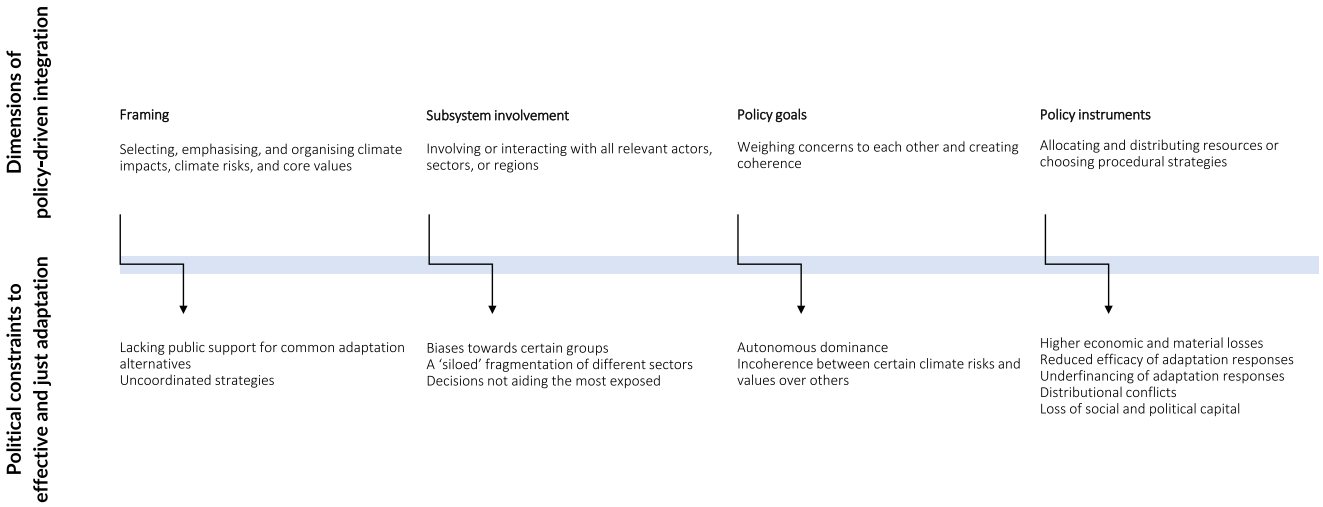

Fig. 1 Dimensions of policy-driven integration and potential associated political constraints that may impede adaptation. These dimensions, deriving from ref. [27], are largely coherent with the steps of the climate risk assessment process, involving not only scientific analysis but also political considerations.

non-linearities. For example, adaptation responses constitute both drivers of risk yet can also be understood as interlinked policy issues in themselves. Together, this body of work supports the view that policy issue linkages must be accounted for in climate risk assessment, and that systemic effects also concern human action.

Given risk interactions and policy issue linkages, a trend in climate risk scholarship over the last decades is to exhort integrated climate risk assessment[10,24,25]. The concept of integrated assessment can be traced back to the 1990s, then defined as 'an attempt to provide a broad evaluation of impacts, costs, benefits and response options associated with multiple aspects of particular environmental issues'[26] (p. 23). This scholarship established that for an assessment to be integrated, it must reach beyond sectors. Yet until only recently, there has been critique that current assessments still treat risks in isolation by ignoring sectoral and geographic linkages[19,24]. On the other hand, there has also been progress based on a better understanding of what elements should be integrated. Particularly, scholars have described that integration in climate risk assessment refers to both 'science-driven integration', focused on the physical characteristics of climate risks, and 'policy-driven integration', focusing on societal context characteristics, such as specific policy issues, management options, and regulatory sectors[6]. Clearly, both dimensions condition integrated climate risk assessment, by including key elements for integration.

Still, how to develop integrated climate risk assessment is a more unresolved question that unlocks further considerations for the analyst that are not merely scientific, but also political. In particular, policy-driven integration has been described as a process full of its own challenges[27,28]. As recognised by Jordan et al., the challenge of intervening in all sectors 'is very likely to provoke issues and choices that are of an even more political nature than the first thirty years of climate policy making'[29] (p. 9). Thus, policy-driven integration in particular introduces political constraints that, if unattended to, may disrupt the implementation of adaptation strategies[30].

THE RISK OF POLITICAL CONSTRAINTS FROM THE INTEGRATION PROCESS

Thus far, this paper has defined integration as a process in which climate risks and policy issues are assessed across sectors and regions. Now, it will turn to an investigation of political constraints deriving from that integration process. It is perhaps worth noting first, however, that part of the difficulty in assessing complex climate risks includes merely the new political considerations they introduce. Complex climate risk may intensify political value judgements in the climate risk assessment. This is not a constraint, per se, but a situation where assessments must consider a greater diversity of climate risk situations than ever before, and therefore, require more of their analysts. For example, since complex climate risks are less confined to specific regions or sectors, it may be harder to establish what should be measured as loss and where. Complex climate risks may also introduce further value judgement about how to prioritise actions related to both local and cross-border risks, and how to address feedback effects in other groups, sectors, or regions than those targeted by the assessment.

Political constraints, however, may derive from procedural challenges and uncertainties in the integration process[27]. Following ref. [27], four dimensions of policy-driven integration are applied to the case of climate risk assessment to identify associated political constraints (Fig. 1). These dimensions are largely coherent with the steps of the assessment process. First, political constraints may arise from the framing of climate impacts, climate risks, and core values. Based on how these elements are perceived, selected, emphasised, and organised, climate risk assessments foreground predictors of damage. For example, analysts may define damage by setting thresholds to probabilistic measures for loss[31], which may play a key role in determining redistribution of adaptation financing (for example, in the case of the Loss and Damage Fund, launched as a financial assistance initiative for most vulnerable nations at the United Nations Climate Conference, there is still a need to define the actual scope of loss and damage[32]). It is thus essential for analytic-deliberative processes to consider how measurements translate into problems and decisions that are then formulated and perceived by various parties. Dissonant framings may feed mismatches in knowledge between sectors and jurisdictions, which constitute one of the core challenges to integration[33]. The absence of an integrated framing may also result in a lack of public support for common adaptation alternatives or impede coordinated strategies.

Second, political constraints may stem from subsystem involvement, i.e., involving or interacting with all relevant actors, sectors, or regions targeted by the assessment. For example, in Latin American climate adaptation, indigenous people have lacked influence over the institutional design of governance instruments and have been excluded in the domestication of

global instruments, reproducing environmental injustices to those groups[34]. Participatory methods may identify climate risks unknown to experts[35], but assessments are still often expert-driven rather than including the groups most impacted by climate change. Despite participatory approaches, assessments may also still be sector-specific. For example, a participatory climate risk assessment in Vietnam's Mekong River Delta involved local experts and officials assessing risks specifically to the rice sector[36]. Altogether, these challenges introduce political constraints such as biases towards certain groups, the assessment reflecting a 'siloed' fragmentation of different sectors, or that decisions do not aid the most exposed.

Third, political constraints also exist in the coordination of policy goals, or more broadly defined, specific concerns or benefits. Applied to climate risk assessment, attempting to balance different concerns introduces the political constraints of autonomous dominance, or incoherence between, certain climate risks and values over others. Again, in Latin American climate adaptation, policy incoherences were shown to constrain decision making for indigenous groups, since the interacting impacts between climate change and mining activities affecting those groups were not included in national adaptation plans[34]. In climate risk assessment, different climate risks and core values are always weighted against each other; methodologically, strategically, or even sometimes unintentionally. Weighing informs the relative importance of risks and values, but often relative importance is not factored against time. For example, present-day and future people's attitudes towards short-term economic gains versus future climate risks will likely diverge[37,38]. Furthermore, climate risks that are difficult to quantify or characterised by deep uncertainty ('missing risks') may receive less attention in climate risk assessments, and can be harder to integrate[39].

Fourth, political constraints also pertain to assessing and assigning policy instruments. Here, political constraints may arise from an uneven allocation and distribution of resources or disproportionate use of procedural strategies. For example, key political constraints may arise in the allocation and distribution of responsibility[40]. A clear challenge for assessing complex climate risk is the unclear or absent ownership of complex climate risk[41]. For example, the European Union is currently developing its first EU-wide climate risk assessment, focusing specifically on cross-border, cascading, and compound risk, with the aim of developing methods, mapping knowledge needs, and building on previous EU projects and reports to identify adaptation policy priorities and supporting policy development[2]. 'Risk ownership' is an emerging concept that will be used in the assessment to describe who should be taking which action when and where, and who is/are responsible and accountable. Risk ownership for adaptation to single hazards is mostly straightforward, but in cross-border, cascading, and compound climate risks, it is not. Lacking risk ownership often stems from risk propagation not being fully addressed, but risk ownership is rarely analysed in in-depth assessments of risk governance. Instead, risk management is often determined by an intricate distribution of pre-established responsibilities and managerial roles. Unknown risk ownership may result in political constraints such as higher economic and material losses, reduced efficacy of adaptation responses, and responses being underfinanced[42,43]. Distributional conflicts may further result in a loss of social and political capital, which could significantly impair the implementation of adaptation strategies[30].

These challenges extend further. For example, a key question for climate risk assessment will be to define what constitutes confined versus shared risk when the risk origin is not the same as the receiver. Since responsibility for complex climate risks lies beyond the control of single institutions, complex climate risks can only be managed by cooperation among actors and institutions. While international organisations, public-private partnerships and network governance are often mentioned as solutions in cases of shared responsibility[44–47], it is uncertain whether such arrangements actually emerge, evolve, and perform to match complex climate risk (i.e., adhere to an 'institutional fit'[48–50]). Thus, political constraints also pertain to cooperation, which often has its own challenges[51]. These challenges may be further aggravated in case of low sociological legitimacy of adaptation governance institutions[52].

LOOKING FORWARD: RECOGNISING POLITICAL CONSTRAINTS FOR A JUST REDISTRIBUTION OF COSTS AND RESOURCES?

In summary, there is much evidence that climate change presents a diversity of new risk situations. There is pressure yet also momentum to advance climate risk assessment towards more integration thereof. Yet while some climate risk assessments have started to recognise cross-border, cascading, and compound climate risks, they still only hint at elucidating political constraints. This perspective has argued that political concerns are fundamental in the framing and structuring of climate risk assessments, and increasingly so with complex climate risk. Accordingly, the paper has highlighted political constraints that may emerge in developing integrated climate risk assessment. Taken together, these reasonings can contribute new perspectives for research and practice focused on the barriers to effective and just adaptation.

With complex climate risk, analysts will increasingly be tasked to assess resilience and risk management capabilities, select potential external or internal shocks, as well as identify potential risk propagation pathways (e.g., global food supply chains or financial contagion). Realistic climate scenarios and well-constructed counterfactuals constitute the basis for stress tests, which evaluate the performance of societal systems to respond to shocks, and robustness tests, which use scenarios to test policy options[53]. Such tests should combine critical risk drivers beyond those related to climate, since such combinations could identify non-linear responses and lead to lasting structural changes. To follow, climate risk assessments may want to contemplate policy considerations that build long-term institutional arrangements and policy mixes that can respond swiftly to shocks, bring adaptation policy nearer to economic, trade, and social policy and create common protocols for the framing and structuring of climate risk assessment.

Drawing attention to political constraints in climate risk assessment raises additional questions: what does the complexity of climate risks mean for the possibility of engaging with issues in a political fashion? Is it possible to manage political constraints? While these questions warrant deeper discussion, it is important to acknowledge that issues are already assessed and managed in a political way—whether political constraints are made explicit in the assessment or not. Not only including but also excluding a specific risk, sector, or region is ultimately a political decision. Thus, assessments cannot avoid political considerations but must acknowledge that every choice has implications. One task confronting analysts is therefore to increase the transparency of supporting evidence and justification for the framings, actors, concerns, and instruments involved in the assessment. Such transparency may result in a shared underpinning of the choices made. In addition, analysts could learn from research on problem framing and debates around post-normal science that offer perspectives on participatory processes in situations of scientific uncertainty, competing values, and expert knowledge[54].

Without the consideration of social and political processes and outcomes, climate risk assessments may hobble climate action in inertia rather than enable progression. Just like ignoring complex climate risks, ignoring political constraints can also create adaptation gaps. Certainly, there are also other political risks that may impede adaptation, such as interstate or intrastate militarised conflict, religious and ethnic tension, political instability, and

myopic decision-making, among other things. The mere complexity of a government may be a challenge in itself[55]. Left unattended, neglecting political constraints may thus create tensions in subsequent policy on adaptation and, in the worst case, instigate conflict.

The climate risk assessment has a unique position in linking risk and responsibility. The EU's new recognition of the need for clarity around risk ownership shows that climate risk assessments are evolving to consider both climate risks and political constraints. Still, to assess risk ownership, there may be a need for improved transparency to address limited access to remote data[24,56], and better instruments for negotiation when ownership is unresolved. Clearly, complex climate risk demands additional assumptions about responsibility; assumptions that will be critical for redistributing costs and resources to support the most vulnerable groups. Such assumptions could be fruitfully guided by ethical discussion, as well as by instruments that reveal real distributive outcomes of climate risks and proposed adaptation measures. Furthermore, risk ownership is not only about who should take responsibility, but of what, how, and where. These debates are still new territory for climate risk assessments.

Indeed, integrated climate risk assessment can become the base for a just redistribution of costs and resources between groups, sectors, and regions. By recognising that political constraints may arise from choices and decisions made in the integration process, future climate risk assessments may play a fundamental part in supporting effective and just adaptation. In that way, climate risk assessment may open the path towards ameliorating injustices and creating political feasibility around climate action.

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ADDITIONAL INFORMATION

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