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Governance by and of Imagination: Outlining the Uses of Imagination within Urban Environmental Governance

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Environmental governance must engage with and intervene within complex and frequently contradictory imaginative structures and relations. Navigating the tensions and opportunities within collective and individual imaginations requires attention to how different governance techniques and strategies integrate, draw on, and target ways of seeing, valuing, and making sense of the world. This article outlines a theory of imaginative governance and distinguishes between two broad forms imaginative governance can take—one in which imagination is a tool of governance and another in which imagination is an object of governance. This approach to conceptualizing imaginative governance is applied to efforts to address urban environmental issues. The article concludes by highlighting ways in which human geography can contribute to better understanding how, why, and through what means imaginative governance unfolds, as well as exploring possibilities for more just and transformative governance approaches. **Key Words:** environmental governance, imagination, transformation, urban governance.

Preventing catastrophic climate change and adapting to unavoidable hazards within urban regions requires deliberate transformation (Ziervogel, Cowen, and Ziniades 2016; Romero-Lankao et al. 2018). As detailed within the introductory essay of this focus section (Chhetri, Ghemire, and Eisenhauer 2022), such deliberate transformations require foresight, creativity, and imagination. Indeed, a growing stream of scholarship within both the fields of climate change adaptation research and human geography presents the challenge of climate change as fundamentally one of imagination (Bai et al. 2016; Galafassi et al. 2018; Nightingale et al. 2020; Beck et al. 2021; Vogel and O'Brien 2021). These engagements with imagination highlight the transformative possibilities imagination can open up (Ziervogel, Cowen, and Ziniades 2016; Galafassi et al. 2018; Moore and Milkoreit 2020; Vogel and O'Brien 2021) and the need for novel ways of imagining humanity's place within the world (Nightingale et al. 2020; Potter et al. 2022). Efforts to operationalize imagination within governance of climate change risk has included conceptualizing the ability to imagine and enact desirable futures as a component of "transformative capacity" (Ziervogel, Cowen, and Ziniades 2016; Vogel and O'Brien 2021), using the creative arts to foster "imaginative capacities" within coproduction efforts (Vervoort et al. 2015; Galafassi et al. 2018), and deploying imaginative storytelling and visioning processes to chart governance pathways toward transformed futures (McPhearson, Iwaniec, and Bai 2016; Iwaniec et al. 2020).

This article contributes to ongoing efforts to integrate imagination into urban climate governance by providing a definition of imaginative governance

as well as outlining two broad forms of imaginative governance by drawing on scholarship on the connections between imagination and governance from geography, science and technology studies, and political theory. By doing so, I provide analytic clarity to how imagination can be used within efforts to address climate risks and hazards while moving toward transformative and just futures. Next, I provide a general definition of imaginative governance and identify some strengths of and challenges to efforts to explicitly connect imagination and governance. In particular, I highlight the relevance of agency, transformation, and politics within imaginative governance. Following this, I outline two broad forms of imaginative governance based on how the connections between imagination and governance are conceived. These forms of imaginative governance are distilled through an engagement with literature examining climate governance within urban settings. In one form, which I label *governance by imagination*, the imaginative capacities of people are framed as a tool or medium of governance; in the other form, which I call *governance of imagination*, imagination is understood as the target or object of governance. I draw on critical scholarship within geography to highlight some blind spots and weaknesses of emerging attempts to combine imagination and governance. I conclude the article by pointing toward ways in which critical geographic research can further untangle how, why, and where imaginative governance unfolds—and with what consequences—as well as how more just imaginative outcomes could be achieved.

Outlining Imaginative Governance

Governance refers to the changing boundaries and relationships between public, private, and civic components of society that constitute patterns of rule (Kooiman 2003). The concept of governance highlights the increasingly plural, hybrid, networked, and fluid processes that unfold through collective problem solving (Kooiman 2003; Bevir 2011). This shift has also been explored within environmental management (Lemos and Agrawal 2006; Ostrom 2010; Young 2017). Importantly, the concept recognizes that the state operates in novel ways and takes on new responsibilities and roles (Jessop 2011). Governance is a never-ending process of policymaking and decision making that requires significant coordination between diverse actors from a variety of sectors, incorporates both formal and informal rules and norms, and is a power-laden process. Within such processes, beliefs, narratives, and traditions play an important role in informing how actors interpret and evaluate dilemmas and issues (Bever 2011). Thus, governance always involves imagination and interpretation, even if the connections between the two are not always explicit.

Scholarship on the concept of imagination is similarly diverse. Within human geography, Yusoff and Gabrys (2011) defined imagination as “a way of seeing, sensing, thinking and dreaming that creates the conditions for material interventions *in*, and political sensibilities *of* the world” (2). Similarly, Appadurai (1996) contended that “the imagination has become an organized field of social practices, a form of work, ... and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility” (31). Thus, agency and imagination are intimately entwined. This is especially the case in regard to the ways in which individuals and collectives imagine the future (Appadurai 1996, 2013). Agency and imaginative capacities are not uniformly distributed, however—instead they are conditioned by both experience and sociopolitical structures (Appadurai 2013). At the same time, Moore and Milkoreit (2020) cautioned against assuming that the uneven distribution of the capacity to imagine follows “the well-known patterns of inequality present in societies” (11). In other words, although all human actors have the capacity to aspire and imagine better futures, it should not be assumed that this capacity is evenly spread socially and spatially, nor should it be assumed that imaginative capacity is less developed within marginalized groups. This uneven distribution of the capacity to aspire has important implications for governance, as explored more later. Exploring individual and collective imagination, therefore, can elucidate the ways in which agency is both shaping and shaped by existing political systems, as well as how governance

interventions can foster agency (Charli-Joseph et al. 2018; Ziervogel 2019; Moore and Milkoreit 2020).

Jasanoff and colleagues’ recent work on the concept of sociotechnical imaginaries integrates the influence of science and technology on ways of imagining. Jasanoff (2015) defined a sociotechnical imaginary as the “collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (4). Moreover, sociotechnical imaginaries are embedded within broader material and infrastructural networks. For instance, Levenda et al. (2019) showed how historical and ongoing socioeconomic differences in Portland, Oregon, and Phoenix, Arizona, shaped the emergence of distinct regional sociotechnical imaginaries regarding energy innovation. This connects to what geographers Jessop and Oosterlynck (2008) referred to as both the path-dependent and path-shaping aspects of imaginaries. Dominant imaginaries shape institutions and infrastructures, which in turn also play a role in structuring imaginaries. This coevolutionary process contributes to a path dependency that can make both institutional and imaginative change harder (Jessop and Oosterlynck 2008; Jasanoff 2015). Especially during moments of crisis, though, alternative imaginaries and visions can proliferate—creating the potential for path-shaping moments in which new trajectories are possible (Jessop and Oosterlynck 2008). This potential for both “lock-ins and transcendence” (Jasanoff 2015, 322) within the relationships between imaginaries, institutions, and infrastructures creates constraints and opportunities for governance.

Bringing together these insights from research on governance and imagination, I define imaginative governance as efforts to respond to and plan for emerging environmental and social problems by focusing on the creative and imaginative capacities of individuals and collectives to achieve desirable and plausible futures. This definition builds on Moore and Milkoreit’s (2020) “understanding of imagination as a potential capacity of agents and communities pursuing sustainability transformations, given its role in creating, shaping, and informing deliberation and decision making across social-ecological scales and ultimately its crucial contribution to creating alternative sustainable and equitable realities” (2). In particular, and of relevance to human geographers, imaginative governance brings to the fore crucial dynamics in regard to agency, transformation, and politics. First, by making the connections between governance and imagination more explicit, it is possible to identify new possibilities to actively and creatively use the human capacity to anticipate surprising outcomes, envision radically different arrangements, and creatively engage with

unexpected events as climate change contributes to the emergence of novel and surprising environmental hazards and conditions. The imaginative capacities of actors are a result of their agency and open up new possibilities for agency. Yet, as Moore and Milkoreit (2020) contended, “Imagination is not necessarily distributed equally among the components of a system nor is it homogenous within different actors or communities” (10). As such, imaginative governance can help meet the need for fostering transformative agency within urban climate governance (see Ziervogel, Cowen, and Ziniades 2016; Charli-Joseph et al. 2018). Second, the recognition that governance always involves telling stories, creating narratives, and planning for the future can help identify openings for new governmental approaches and practices to changing the story and creating new narratives. Documenting the ways in which spatially and socially situated commitments and contingencies play a role in structuring current governance arrangements can make it clearer that many path dependencies are social myths (see O’Brien 2018). Creatively exploring the path-shaping potential of imaginative governance to transcend existing institutional infrastructure can create opportunities for transformative change (Moore and Milkoreit 2020; Beck et al. 2021; Vogel and O’Brien 2021). Third, imaginative governance makes evident that pursuit of transformational change informed by visions of a desirable future must still resonate with and gain purchase in existing values, visions, and aspirations. This raises crucial political questions related to whose imaginations and which imaginaries are being deployed or targeted within imaginative governance, as well as how the capacity to imagine the future is distributed.

Distinguishing Governance by and of Imagination

There are two broad ways of conceptualizing the relationship between imagination and governance. First, imagination can be understood as a medium through which governance unfolds—governance processes and strategies draw on the imaginative capacities of actors. Second, governance can influence, shape, or structure imagination through intervening within social life—governance interventions can be designed with the explicit purpose of altering the ways in which individuals and communities conceive of themselves and the worlds they inhabit. Thus, on the one hand, imagination can shape governance; on the other hand, governance can shape imagination. These two broad forms can be used to analyze the aims, practices, and politics of more specific governance strategies. Specifically, they can elucidate the ways in which imagination becomes bound up within

different governance projects as a tool (governance by imagination) or target (governance of imagination).

Governance by Imagination

By drawing on the imaginative capacities of actors, governance by imagination aims to both envision alternative, plausible futures and craft strategies for arriving at them. A number of approaches that fall within the category of governance by imagination have been employed and refined in recent years. For example, scenario planning aims to use human imagination to explore plausible futures (Vervoort et al. 2015; Bennett et al. 2016; Raudsepp-Hearne et al. 2020) and design competitions seek to challenge creative professionals and citizens to craft novel solutions to pressing challenges (Hajer and Versteeg 2019), and urban living labs and other experimental approaches allow for inventive tinkering, exploration, and learning (Bulkeley et al. 2016; Elmqvist et al. 2018). Although these approaches deploy a range of practices, they share a tendency of being contextual, participatory, and future-oriented. That is to say, they are often place-based, are oriented toward a specific set of problems, involve stakeholders, and imagine what the future could be like if action were taken in the present or near term.

Scenario planning, which Vervoort et al. (2015) framed as aiming to “unleash the human imagination to explore and embrace the future, rather than to simply endure it” (62), is one prominent example of this. By bringing together a range of stakeholders to explore what the future could be like, scenario planning is commonly framed as a way to envision a broad array of plausible futures, identify constraints and barriers that might hinder effective policy interventions, and design transition pathways that move toward positive futures (Vervoort et al. 2015; Bennett et al. 2016; Iwaniec et al. 2020; Raudsepp-Hearne et al. 2020). Iwaniec et al. (2020) provided a case study of how participatory scenario planning within the Central Arizona–Phoenix Long-Term Ecological Research program was able to draw on the creative capacities of participants to develop plausible and desirable visions of the future. Key to their approach was drawing on the creative capacity of participants to imagine a range of possible solutions to urban resilience challenges and craft plausible stories about how to achieve those futures (Iwaniec et al. 2020). Other approaches include the use of urban living labs and other experimental approaches to infrastructure planning. Elmqvist and colleagues (2018) described a practice of “urban tinkering” in which “playful imaginative experimentation” (1555) is used to “transform the use of existing and design of new urban systems in ways that diversify their functions, anticipate new uses and enhance adaptability, to better meet the social, economic and ecological needs of cities under

conditions of deep uncertainty about the future” (1550). For instance, they described a case study from Japan in which a traditional land management system—called *satoyama*—was used within the urban periphery to achieve sustainability goals. Thus, an existing imaginary of traditional, rural landscapes was tinkered with to apply to more urban areas (Elmqvist et al. 2018). These approaches demonstrate a key assumption within governance by imagination approaches: Prevailing ways of imagining the world and humanity’s place within it offer resources for devising new and more effective governance approaches.

Governance by imagination approaches are often somewhat ambivalent about what the solutions to environmental problems might be. Although it is common for general goals to be articulated early on, such as becoming more sustainable or resilient, there is usually freedom for participants to define what those objectives entail in practice. This bottom-up approach to imaginative governance means that although governance approaches deployed within governance by imagination might be the same across different social and ecological contexts, the resulting solutions and governance arrangements are likely to be different—and sometimes radically so. In other words, the same approach to scenario planning might be used in two different locations and result in two different sets of visions of the future and policy prescriptions. This highlights that who participates plays a significant role in shaping what aspirations and anxieties are included, what visions of the future are created, and what pathways of policies are charted.

The political and power-laden dynamics of imagination are frequently overlooked or underplayed across governance by imagination processes, however. Indeed, Beck et al. (2021) argued that many of the challenges within efforts to transition to sustainability “can be linked to prevailing imaginaries of sustainability which preempt political contestation and consideration of alternative futures” (143). Thus, they contended that it is crucial to interrogate “how imaginaries of sustainable futures may enable or limit the scope and spaces of political action for societal transformation” (Beck et al. 2021, 144). Within efforts to govern by imagination, often the need for and value of diverse perspectives are highlighted—especially of historically disadvantaged communities. The financial and cultural barriers to participation are rarely discussed, though. As research in political ecology has demonstrated (i.e., Leach, Mearns, and Scoones 1999; Nagoda and Nightingale 2017), without addressing such factors, participants are more likely to be those who can afford to attend and are socially positioned to be seen as possessing valid views. Moreover, governance by imagination frameworks typically follow a race-neutral and apolitical approach in which

historical and ongoing racialized discrimination and prejudice are not explicitly addressed, which can contribute to further entrenching such inequalities as well as marginalizing more radical imaginaries and visions (see Pulido and De Lara 2018; Kaika 2019; Anguelovski et al. 2020). Due to this tendency to not fully consider the political dimensions of participation, governance, and imagination, there exists a real risk of entrenching unjust and maladaptive imaginaries and institutions.

Governance of Imagination

Governance of imagination can be thought of as an attempt to cultivate ways of imagining differently. By this, I mean efforts to intervene within prevailing ways of imagining the world are attempts to foster new ways of imagining. Either explicitly or implicitly, this entails a critique of current ways of imagining. Sometimes this critique entails a questioning of capitalist economic systems—particularly commitments to consumerism, growth, and technological optimism (i.e., Asara et al. 2015; Escobar 2015; Longhurst et al. 2016; Brand, Boos, and Brad 2017; Strand et al. 2018; Kaufmann, Sanders, and Wortmann 2019). Examples of governance of imagination include efforts to create circular economies in which waste is removed through reducing and reusing waste (Fratini, Georg, and Jørgensen 2019) and smart cities in which information and communication technology is utilized to use and manage assets more efficiently (Kitchin, Cardullo, and Di Felicianantonio 2019), the degrowth movement to remove the centrality of economic growth from society (Brand, Boos, and Brad 2017), and postdevelopment efforts to decolonize and radically democratize governance (Escobar 2015). Once more, reviewing these approaches fully exceeds the aims of this article, but a few key commonalities can be identified in that they tend to present idealized, sometimes utopian, futures that are, in some ways, distinct from the present while remaining, in other ways, recognizable and desirable within the present. In this regard, governance of imagination approaches must balance the amount of transformation embedded within a transformed future with the necessity of securing support in the present.

For instance, Brand, Boos, and Brad (2017) argued that both the degrowth movement in Europe and the post-extractivism movement in South America present visions of alternative futures that “are a transformative questioning of modernization and growth approaches requiring different imaginaries of the present and of the future” (38). Other approaches present futures in which capitalism is structured in sustainable ways to vastly reduce negative social and environmental externalities—key examples of this include visions of circular economies, smart cities, and resilient cities in which a sustainable

capitalist economy is frequently preserved. Regardless of the stance of the long-term validity of capitalism, governance of imagination shares a sense that new ways of imagining the world and humanity's place within it are needed. In other words, imagination becomes a target or object of governance.

In this regard, governance of imagination can be seen as an attempt to address some of the challenges of imaginative governance. If climate change and other forms of socioecological transformation are unthinkable and unimaginable within current cultural and social arrangements (i.e., Ghosh 2016; Haraway 2016; Heise 2016; Leichenko and O'Brien 2019), then interventions to shift collective imaginaries are needed. Unlike governance by imagination, these approaches tend to be more top-down and less context specific. Visions of a circular economy, degrowth, or smart cities have a more defined identity that share certain attributes no matter where they are pursued. That said, there is still some flexibility in how they might be instantiated within a particular context—one smart city in North America and one in East Asia would share some key characteristics while also remaining unique in other ways. The 100 Resilient Cities network is a prominent example of this, as the Rockefeller Foundation created an approach to building urban resilience that has been applied through a network of cities across the globe (Croese, Green, and Morgan 2020). Thus, a broad vision or imaginary of what a resilient city entailed was developed and then localized to specific contexts. Through this effort, new ways of thinking about and planning cities have proliferated—including within the United Nations Sustainable Development Goals (Fitzgibbons and Mitchell 2019; Croese, Green, and Morgan 2020).

The degree to which governance of imagination engages with the political dimensions of seeking to alter prevailing ways of imagining varies greatly. Some approaches, such as postdevelopment (Escobar 2015), are explicitly political in their framing. Others, however, such as many articulations of smart cities or circular economies, have a tendency to present depoliticized visions of the future based on a technological optimism that assumes innovation will solve problems. Nonetheless, across all governance of imagination approaches, there is a risk that democratic choice will be limited to questions of how to arrive at a particular destination and not fundamental questions of what destination to pursue. As Strand et al. (2018) stated, "The realization of the imagined future depends either on the use of force, or, if by voluntary process, that the citizens somehow come to accept the facts and values of the systems sciences and the ecological movement" (1852). In other words, there is a danger within governance of imagination that idealized visions of the future could become framed as the only option, marginalizing alternative aspirations and hopes.

Comparing Governance by and of Imagination: Existing Strengths and Pressing Needs

Governance by and of imagination share some general characteristics. They both suggest a fundamental need to explicitly connect imagination and governance to rethink the present and envision the future to foster agency for deliberate transformational change. In this, they both move beyond a purely technical framing of environmental problems. Instead, they frame the emerging environmental challenges of climate change as being problems that relate to the visions, values, and expectations of people. Thus, although technical and scientific knowledge remains crucial within imaginative governance, the need for integrating creativity, cultural engagement, and speculation is prioritized. Moreover, both forms of imaginative governance share a broad sense that transformational change is necessary to secure a livable future. In short, both forms of imaginative governance provide useful openings for capitalizing on the capacity of individuals and communities to envision alternatives to the status quo. Identifying strategies for bringing together approaches from both governance of and by imagination could further advance efforts to envision and instantiate more sustainable futures. The possibility for tensions between governance of and by imagination also needs to be further examined, as efforts to draw on existing ways of imagining the world and ones that seek to shift collective imaginaries can conflict with each other—narrowing the chances for desirable change. In situations where transformation is necessary, it is likely that navigating the tensions between simultaneously drawing on the imaginative capacities of people and shifting the ways in which people imagine their place in the world will be necessary.

Increasing synergies within imaginative governance while reducing unjust and unsustainable outcomes can be achieved through critical attention to agency, transformation, and politics. Imaginative capacities and the capacity to aspire to desirable futures are central to envisioning and enacting equitable and sustainable urban governance systems. Yet such capacities are not evenly distributed, nor do existing political, economic, and social systems make it possible for all actors to deploy their capacity to imagine. Consequently, the design and implementation of imaginative governance processes should consider the broader societal structures that shape, foster, and hinder the agency for differential situated actors. Such attention raises the possibility—even likelihood—of needing to transform fundamental aspects of existing political and economic conditions. Moreover, this leads to inherently political questions of winners and losers, of whose imaginative capacities are being fostered and drawn on, and of whose aspirations are being pursued. Explicitly and

carefully working through such issues and questions can help elucidate how existing imaginative capacities can be used to reimagine urban worlds in ways that are just, sustainable, and vibrant. In the concluding section, I outline the role that human geographers can play in this endeavor.

Moving Forward with Imaginative Governance

Broadly, imaginative governance can support deliberate transformation within urban areas by addressing both the need to imagine different futures and the need to imagine the future differently. Governance by imagination draws on the creative and imaginative capacities of people to envision and articulate a range of possible futures in which environmental and social problems are solved to identify more effective policy trajectories. Governance of imagination targets prevailing ways of imagining the world and humanity's place within it to shift the expectations, aspirations, and practices of people in more sustainable ways. Although significant differences exist between these forms of imaginative governance, a few commonalities do exist. First, imaginative governance explicitly connects agency to imagination by framing the human capacity to creatively engage with the unknown and speculate about the future to be a crucial resource in managing the deep uncertainty associated with climate change. Second, imaginative governance operates under the assumption that transformational change is necessary to achieve a future in which people and the environment are able to thrive. Third, imaginative governance frames environmental challenges as more than technical problems and requiring attention to fundamentally political questions of unsustainable and unjust sociocultural dynamics. In this regard, imaginative governance provides an array of techniques and approaches that could help move efforts to address the emerging challenges associated with climate change beyond the technocratic, top-down approaches that have dominated environmental management for decades. Imaginative governance is not a panacea, however, especially as currently configured. There are significant tensions between efforts to draw on current imaginative capacities (governance by imagination) and ones seeking to transform prevailing ways of imagining the world (governance of imagination). Navigating these tensions and taking advantage of possible synergies will take significant care and effort. Moreover, all too frequently, the concept of imagination is taken for granted and treated as a neutral terrain bereft of power dynamics and inequalities.

Geographers are well positioned to both explicate the political assumptions embedded within imaginative governance approaches and elucidate opportunities for reimaging the future in ways that are more

inclusive, just, and vibrant. As described earlier, imaginative governance brings to the fore issues of agency, transformation, and politics—three topics that geographers have long been attentive toward. In particular, approaches to imaginative governance could be strengthened through more refined and explicit attention to work explicating the spatial and social dynamics of categories of difference and critical environmental justice principles. For instance, imaginative governance approaches could be combined with abolitionist, restorative, and reparative approaches to environmental justice emerging within geography that explicitly grapple with and address the social and material legacies of racism and discrimination (i.e., Pulido and De Lara 2018; Anguelovski et al. 2020; Heynen 2021). Moreover, critical scholarship focused on environmental and climate governance within Black geographies (i.e., Ranganathan and Bratman 2021; Wright 2021), political ecologies of race (i.e., Goodling 2021; Van Sant, Milligan, and Mollett 2021), and postcolonial geographies (i.e., Bonilla 2020; Rhiney 2020; Long and Rice 2021; Robin and Broto 2021) could further elucidate how categories of social difference shape and are shaped by imaginative capacities. Such understandings would further enhance the potential for imaginative governance interventions to accomplish deliberate transformations toward sustainable and just futures. ■

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