



Perspectives in global environmental governance

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1 An interconnected world

There is a rising consensus about the increasing interconnectedness of countries, nations and societies. The Sustainable Development Goals (SDGs) and the Paris Climate Agreement are examples that countries recognize their interconnected interests and goals. This is particularly evident in global environmental issues, as they require global policy making. Since the alert of *The Limits of Growth* (Meadows et al., 1972) and the first high-level global conference focusing on environment held in Stockholm in 1972, the world has been experiencing various environmental problems as well as related economic and social impacts (Glemarec & Puppim de Oliveira, 2012). The emergence of global environmental issues, such as climate change, marine pollution and biodiversity loss, has created new challenges for governance and requires political support for and innovation in global public policies.

Many of the drivers of decision-making are now global, melding with domestic interests yet not questioning the “sacred” right of national sovereignty. We do not have a state-like global public policy for environmental issues, as the implementation of global agreements rely on domestic policies, supported by international mechanisms such as climate finance (Qian et al., 2023). There are also other forms of interactions between global and domestic institutions that drive policies, such as markets (Chen & Xie, 2023) and paradiplomacy of non-state actors (Macedo et al., 2023). However, new global environmental governance frameworks and policy mechanisms are needed to coordinate the local and global public interests as climate policies are not moving in the speed we need to avoid uncertain consequences of global environmental change. We face quite a few obstacles to fulfill these attempts since a successful global solution involves many actors and factors. For example, countries may be reluctant to bear significant costs to avoid pollution that affect their

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neighbors (Ali & Puppim de Oliveira, 2018). There is also an asymmetry to power in decision-making. Small island states are among those most vulnerable to climate change, despite having insignificant emissions, but they have limited influence in international climate negotiations.

This special issue aims to gather contributions that analyze the governance of global environmental issues at local, national and international levels, with a particular focus on multilevel governance and innovative public policies. A set of interdisciplinary empirical papers on relevant topics combine different theoretical and methodological approaches. They introduce novel ideas and evidence-based policy lessons to improve global environmental governance.

2 Challenges in global environmental governance

Environmental governance becomes much more complicated within the global context than it is limited to one country (Lemos & Agrawal, 2006). One of the core difficulties faced by global environmental governance is how to find solutions that can effectively eliminate the negative externalities globally. Unlike governing environment within a country, global environmental governance has two intrinsic challenges that make it hard to achieve the true “global solutions”.

The first challenge is actors’ unwillingness to take collective actions. In practice, there lacks a global authority that can impose enforceable rules to change all actors’ incentives and the corresponding actions. The interests of local actors are also different from those of global organizations (Pinto & Puppim de Oliveira, 2008). Collective actions only exist in small- to medium-scale groups and free riding problem is still the main concern. During the past decades, scholars seek to apply polycentric governance theory to find alternative solutions to the failure of global commons (Carlisle & Gruby, 2019; Ostrom, 2010). As a result, it is worthwhile to study the current practices in an individual country or within a group of countries.

The second challenge is actors’ limited understandings of complex ecosystem and societal dynamics. In addition to the free-rider problem, knowledge gaps among actors with different backgrounds, experiences, and interests will affect the effectiveness of collaborative environmental governance (Bodin, 2017; Guttman et al., 2018; Young, 2021). For example, addressing long-term environmental problems, such as climate change, needs establishing sustained collaborative networks involving a large group of actors with different backgrounds to lead to the cultivation and maintenance of common norms and routine deliberation (Dietz et al., 2003). While in addressing transient environmental problems, more-centralized collaborative and participatory networks with some specific actors can provide rapid responses (Bodin, 2017; Puppim de Oliveira, 2005). The dynamics of collaborative governance regimes has to be better understood (Ulibarri et al., 2023). Therefore, there exist urgent needs to bring people with different knowledge backgrounds together to find future solutions for global environmental governance (Jabbour & Flachsland, 2017).

Since the adoption of 17 Sustainable Development Goals (SDGs) by all United Nations Member States in 2015, the global environmental governance has stepped

into a new era (Agrawal et al., 2022). The conventional struggles in environmental governance mainly lie in making trade-offs between environmental protection and economic growth (Zhang, 2021). Under the new global development framework, environmental governance, thus, faces more challenges required by different SDGs (Li & Puppim de Oliveira, 2021). Public administration, and the area of public affairs more broadly, has been slow in discuss sustainable development (Puppim de Oliveira et al., 2015) Therefore, main targets of global environmental governance should not only focus on the efficiencies of different solutions but also shift towards to equities across countries, especially across developing and least developed countries. For example, there are a rising number of studies that draw attention to global environmental governance's co-benefits on poverty and inequality (Campagnolo & Davide, 2019), health (Laurent et al., 2022), and social economy (Singh et al., 2021).

3 Trends in global environmental governance

The papers bring interesting insights on global environmental governance by looking at different aspects of the governance regimes and actors at various levels.

First, there are strong interactions between international governance regimes and local institutions and organizations. International governance regimes influence domestic policies. For example, when donor countries make some international political commitments, their behavior towards climate aid changes (Qian et al., 2023). International commitments, thus, are important drivers of changes in domestic policies. Also, those interactions between domestic and international institutions lead to different policy developments at the country level because of the variation in economic, social and political local contexts. Japan, Singapore and Hong Kong have used a distinct set of mechanisms to pursue climate neutrality (Liu et al., 2023). In Japan, fiscal and financial mechanisms and regulatory reforms are the main approaches to climate neutrality, while Singapore relies more on commercialization mechanisms and investments.

Second, governance institutions interact with each other in a complex dynamics that shapes governance but still not fully understood. For instance, Voluntary Carbon Markets (VCMs) and Compliance Carbon Markets (CCMs) maybe be created independently but over time they interact. It seems that the hard regimes, like CCMs, shape and even absorb or squeeze out softer governance regimes such as VCMs (Chen & Xie, 2023). The governance mechanisms led by non-state actors in paradiplomacy interact with countries' governance building efforts, such as to negotiate agreements and implement policies to tackle global environmental problems (Macedo et al., 2023).

Third, where multilevel action is key for effective policies, lack of integration among domestic regimes exist, undermining the capacity of countries to respond to global challenges. International regimes trigger domestic responses through different mechanisms of interaction between global and domestic institutions. In Brazil, many local governments and cities interact with national and international networks of cities. This shapes local government responses to climate change, but those responses are not integrated with responses at the federal level (Macedo et al., 2023), leading

to lost opportunities for joint coordinated actions. In Pakistan, intergovernmental relations (IGRs) are problematic due to the political difference among governments (Mumtaz, 2023). Local institutions, which are key to climate adaptation policies, are not clear about their roles and responsibilities.

Fourth, the polycentric response to climate change can improve the effectiveness of domestic organizations to respond to global environmental challenges through different mechanisms. Transmunicipal networks of cities can build capacity in sub-national governments bringing resources and knowledge from global institutions directly to local actors (Picavet et al., 2023). Brazilian municipalities seem to have developed capacities to respond to climate change through the interaction with ICLEI-Local Governments for Sustainability (Macedo et al., 2023). Civil Society Organizations (CSOs) have important roles in bridging intergovernmental relations (Puppim de Oliveira, 2019). In the case of Pakistan, CSOs have facilitated joint actions between national and province governments to implement policies to adapt to climate change (Mumtaz, 2023).

4 Future research challenges in global environmental governance

With the increasing complexities in environmental governance studies, there is a call for emphasis on interdisciplinary research that scholars investigate scientific, behavioral, social, and political factors believed to shape governance models and regimes (Rodela & Gerger Swartling, 2019). Articles published in this special issue discuss the global environmental governance from various perspectives. Analyses from Macedo et al. (2023) develop the interdisciplinary conceptualization of diplomacy. Chen and Xie (2023) conduct a comprehensive study of the interactions between two types of regimes of carbon markets. Mumtaz (2023) identifies key challenges for intergovernmental relations. These three studies all make the attempts to contribute to the existing literature from the perspective of environmental governance mechanism. Liu et al. (2023) focus the rise and development of carbon neutrality policies from the public policy perspective. Study conducted by Qian et al. (2023) incorporates both political and economic factors in explaining the determinants of international climate finance. From the methodology perspective, researchers are, thus, required to learn and adopt more advanced methods to address the interdisciplinary research questions (O'Neill et al., 2013). Moving forward on from this special issue, there exists huge opportunities and challenges in interdisciplinary research focusing on the global environmental governance.

Most studies in the existing literature tend to conduct environmental governance analyses within one country or a group of countries, and then generalize the findings to broader situations. In this special issue, two papers focus on single county's practice. Macedo et al. (2023) focuses on cities' climate actions in Brazil, and Mumtaz (2023) studies climate adaptation actions in Pakistan. Other three papers focus on more than multiple countries. Liu et al. (2023) compare the carbon neutrality policies in three economies in Asia-Pacific region, Chen and Xie (2023) compares different carbon markets across the world, and Qian et al. (2023) focus on certain traditional donor countries. In future research, we still need more analyses that can

provide insights from practices at different scales. Moreover, it is also important to conduct in-depth studies about the roles of international organizations, institutions and agreements in global environmental governance in the future (Dimitrov, 2020; Hale, 2020; Mitchell et al., 2020).

Lastly, various new global environmental issues are emerging which bring huge challenges to the academia. This special issue's focus is on climate change, an increasingly important global environmental issue in the past decades. The theoretical contributions and policy implications achieved from this special issue can shed light on improving the global environmental governance. However, there is no one-size-fits-all solution, different types of global environmental issues definitely need specific approaches according to their unique features. For example, the global marine environmental governance issue is different from the climate change issue in that it involves conservation of biodiversity in addition to pollution control (Grip, 2017). The Fukushima disaster also raised challenges for the marine governance of nuclear wastewater discharges (Xu et al., 2022). Moreover, global economic activity induced environmental issues including e-waste management and Arctic development also need new wisdoms to find potential solutions (Zagrebelnaya, 2022; Zeng et al., 2017). We hope this special issue can be a good starting point which can contribute to the academia to find solutions for global environmental governance.

Data availability Not applicable.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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