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Global Environmental Governance: Taking Stock, Moving Forward

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institutions, interlinkages, international environmental politics, transnational regimes

Abstract

This article provides a focused review of the current literature on global environmental governance. In the first part, we differentiate between three usages of the term “global environmental governance,” which we describe as analytical, programmatic, and critical. In the second part, we highlight three key characteristics of global environmental governance that make it different, in our view, from traditional international environmental politics: first, the emergence of new types of agency and of actors in addition to national governments, the traditional core actors in international environmental politics; second, the emergence of new mechanisms and institutions of global environmental governance that go beyond traditional forms of state-led, treaty-based regimes; and third, increasing segmentation and fragmentation of the overall governance system across levels and functional spheres. In the last section, we present an outlook on future study needs in this field.

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1. INTRODUCTION

“Global environmental governance” has become a key term in environmental and resource politics. This reflects the generally high popularity of the governance concept today: Whereas the Internet in 1997 had only 3418 references to global governance, in January 2008, ~589,000 sites mentioned the term. Almost any process or structure of environmental politics that transgresses national boundaries has been described as part of global environmental governance. Whether it is the influence of nongovernmental organizations on environmental policy making, the role of expert networks or the increased relevance of transnational environmental institutions, global environmental governance generally serves as overarching conceptual orientation. Yet what global environmental governance eventually means, and what the key elements of this recent concept are, often remains ill defined.

This article aims to contribute to this debate through a structured, focused review of

the literature on global environmental governance. In the first part, we differentiate between three usages of the term “global environmental governance,” which we describe as analytical, programmatic, and critical. In the second part, we highlight three key characteristics of global environmental governance that make it different, in our view, from traditional international environmental politics. In the last section, we present an outlook of what we see as future study needs and core questions that may guide renewed research efforts in this field.

2. WHAT IS GLOBAL ENVIRONMENTAL GOVERNANCE?

Despite the rather recent origin of the concept of global environmental governance, much of what is framed today under this term has predecessors, dating back to studies of international environmental cooperation around the 1972 United Nations Conference on the Human Environment in Stockholm (1–2). The most relevant precursor of the current debate is the research program on international environmental regimes of the 1980s and 1990s (3–5). The important questions then were the creation of environmental regimes, their maintenance, and their eventual effectiveness (6–13). Other earlier research addressed intergovernmental environmental organizations (14–15) and nonstate environmental organizations (16–18), both of which have received fresh attention in the current global governance discourse.

The concept of “governance” itself stems from national debates, where it is often used for new forms of regulation that differ from traditional hierarchical state activity (19). The governance concept generally implies some degree of self-regulation by societal actors, private-public cooperation in solving societal problems, and new forms of multilevel policy. In development policy, the governance concept has also gained relevance in the 1990s, frequently with the contested qualifier “good governance” (20). The more recent notion of “global governance”

builds on these earlier debates among political scientists working on domestic issues and tries to capture similar developments at the international level. Clear definitions of global governance, however, have not yet been agreed upon: Global governance means different things to different authors (21–22). At present, one can differentiate three broad usages of the term “global governance,” which are also relevant for the narrower notion of global environmental governance.

First, many authors use the term “global governance” analytically, to make sense of current sociopolitical transformations. In this usage, global governance highlights distinct qualities of current world politics, such as non-hierarchical steering modes and the inclusion of private actors, both for profit and non-profit. Within this body of literature, studies generally differ according to the breadth of their definitional scope. Some writers restrict the global governance concept to problems of foreign policy and more traditional forms of world politics. Young, for example, sees global governance as “the combined efforts of international and transnational regimes” (13, p. 11). Finkelstein defines the concept as “governing, without sovereign authority, relationships that transcend national frontiers” (23, p. 369). One challenge with these narrow phenomenological understandings of global governance is the need to distinguish the term from traditional international relations, because it is often not clear what we gain by using the term “global governance” instead of “international relations” or “world politics.”

Other writers address this problem by broadening the term to encompass an increasing number of social and political interactions. Rosenau, for example, contends that “the sum of the world’s formal and informal rules systems at all levels of community amount to what can properly be called global governance” (24, p. 4). When transferred to the global level, however, such all-encompassing definitions hardly leave room for anything that is not global governance. Given increasing international interdependence, few political rules will have no reper-

cussions beyond the nation state. In this broad usage, the concept thus threatens to become synonymous with politics, and therefore rather useless.

A second understanding of global governance starts from a perceived inadequateness of political responses to globalization. In this perspective, global governance is first and foremost a political program, to regain the necessary steering capacity for problem solving in the postmodern age. Writers in this line call for the construction of new “global governance architectures” as a counterweight to the negative consequences of economic and ecological globalization. They often develop and promote new institutions, such as multilateral treaties and conventions, new and more effective international organizations, and new forms of financial mechanisms to account for the dependence of current international regimes on the goodwill of national governments. The UN Commission on Global Governance (25), for example, elaborated a plethora of reform proposals to deal with problems of globalization. Global governance is seen here as a solution, as a tool that politicians need to develop and employ to solve the problems that globalization has brought about.

This use of the term is popular especially in continental Europe. A commission of inquiry of the German Parliament, for example, defined global governance as the “problem-adequate reorganization of the international institutional environment” (26, pp. 415, 450). French analyst Smouts (27, p. 88) argued that global governance is not an “analytical reflection on the present international system [but a] standard-setting reflection for building a better world.” Yet this understanding of global governance as a political program is not restricted to European discourses. Also some U.S. academics, such as Gordenker & Weiss (28, p. 17), see global governance as “efforts to bring more orderly and reliable responses to social and political issues that go beyond capacities of states to address individually.”

Third, some writers have adopted the programmatic definition of global governance, yet

without its affirmative connotation. We describe this literature here as the critical usage of the global governance concept. For example, some neoconservative writers see global governance as the attempt of the United Nations and other international organizations to limit the freedom of action of powerful states, in particular the United States. Writers in the tradition of post-Fordism and neo-Marxism view global governance as a project of ruling elites to deal more effectively with economic and political crises that result from post-Fordist neoliberal social transformations (29). Other writers view global governance through the lens of North-South power conflicts. The Geneva-based South Centre, for example, cautioned in 1996 that in “an international community ridden with inequalities and injustice, institutionalizing ‘global governance’ without paying careful attention to the question of who wields power, and without adequate safeguards, is tantamount to sanctioning governance of the many weak by the powerful few” (30, p. 32).

There is no clear solution to this conceptual diversity. Yet the current coexistence of analytical and programmatic uses of the term is no problem per se as long as authors retain clarity as to what definition they employ. As for the analytical usage of the concept, we prefer a more restrictive usage that focuses research on the new phenomena that make world politics today different from what it used to be. We see in particular three new broad developments at the core of the current phenomenon of global (environmental) governance: first, the emergence of new types of agency and of actors in addition to national governments, the traditional core actors in international environmental politics; second, the emergence of new mechanisms and institutions of global environmental governance that go beyond traditional forms of state-led, treaty-based regimes; and third, increasing segmentation and fragmentation of the overall governance system across levels and functional spheres.

3. THE NEW ACTORS OF GLOBAL ENVIRONMENTAL GOVERNANCE: DIVERSITY THROUGH INCLUSION

Global environmental governance describes world politics that are no longer confined to nation states but are characterized by increasing participation of actors that have so far been largely active at the subnational level. This multiactor governance includes private actors, such as networks of experts, environmentalists, and multinational corporations, but also new agencies set up by governments, including intergovernmental organizations and international courts. Novel is not simply the increase in numbers, but also the ability of nonstate actors to take part in steering the political system. In our reading, agency—understood as the power of individual and collective actors to change the course of events or the outcome of processes—is increasingly located in sites beyond the state and intergovernmental organizations. Many vital institutions of global environmental governance are today inclusive of, or even driven by, nonstate actors. Nongovernmental organizations have joined governments to put international norms into practice, for example, as quasi-implementing agencies for development assistance programs administered by the World Bank or bilateral agencies. Private actors, both for-profit and nonprofit, also participate in global institutions to address environmental problems without being forced, persuaded, or funded by states and other public agencies, for example, in the area of forest and fisheries governance. This “agency beyond the state” sets global environmental governance apart from more traditional international environmental politics.

There are three elements to this new development. First, the number of actors and the degree of their participation in global environmental governance have increased substantially over the past decades. Second, the variety of types of organizations increased too.

Next to governments, intergovernmental organizations, nongovernmental organizations, and business actors, novel forms of organizations have emerged, such as private rule-making organizations and public-private partnerships in issue areas ranging from forest management to biodiversity conservation. Third, established organizations have adapted new roles and responsibilities. For example, many intergovernmental organizations have acquired a higher degree of autonomy from their principals (i.e., the governments that have established them), and many nongovernmental organizations today engage in agenda setting, policy formulation, and the establishment of rules and regulations.

Especially, the growing role of nongovernmental lobbying organizations in environmental politics has been acknowledged and analyzed in much detail. Activist groups, business associations, and policy research institutes now provide research and policy advice, monitor the commitments of states, inform governments and the public about the actions of their own diplomats and those of negotiation partners, and give diplomats at international meetings direct feedback (31–32). Carefully orchestrated campaigns of environmentalists have proved able to change foreign policy of powerful nation states.

In addition, networks of scientists have assumed a new role in providing complex technical information that is indispensable for policy making on issues marked by analytic and normative uncertainty. Although the new role of experts in world politics is evident in many policy areas, it is particularly prevalent in the field of global environmental policy (33). New transnational networks of scientists and experts have emerged, in a mix of self-organization and state sponsorship, to provide scientific information on both the kind of environmental problem at stake and the options for decision makers. Such scientific advice for political decision making is not new in world politics; negotiations on fishing quotas, for example, have long been assisted by the International Council for the Exploration of the Sea. These early exam-

ples, however, have significantly increased in both number and impact, which is mirrored in the substantial academic interest in global scientific networks in recent years (34–40).

Also business has taken a more prominent direct role in international environmental decision making. Again, the influence of major companies on international affairs is not new. However, in the past, the corporate sector usually influenced decisions indirectly through national governments. Today, many corporations take a more visible, direct role in international negotiations as immediate partners of governments, for example, in the framework of the United Nations and of the Global Compact, which major corporations have concluded with the world organization (41–43). Recent research has scrutinized the power of business in global environmental governance and provided a nuanced assessment of corporate influence in global environmental governance (44–45).

Furthermore, global environmental governance is marked by an increasing influence of intergovernmental organizations. In the field of environmental policy, more than 200 international organizations have been set up in the form of secretariats to the many international environmental treaties concluded in the past two decades. Recent scholarship has highlighted the autonomous role of many of these international organizations in creating and disseminating knowledge, shaping powerful discourses on environmental problems and adequate solutions to them, influencing negotiations through ideas and expertise, and implementing solutions on the ground (46–47). Different degrees of such influence on the structures and processes of global environmental governance have been critically assessed (48). Biermann & Siebenhüner (47), for example, suggest that the overall problem structure and internal factors of organizations, such as leadership and staff composition, can explain much variation in the influence of international bureaucracies.

In addition, global environmental governance is characterized by the increasing relevance of public actors at the subnational level.

Cities, for example, have gained prominence in global environmental governance, in particular through their collaboration on climate change mitigation. In the Cities for Climate Protection Campaign, more than 800 local governments work together with a view to adopting policies and implementing quantifiable measures to reduce local greenhouse gas emissions, improve air quality, and enhance urban quality of life (49).

The increasing role of nonstate actors has not gone without friction, and it has indeed become the center of major political reform debates. Developing countries, in particular, often object to increases in the influence of nongovernmental organizations in international forums because they view these groups as being more favorable to Northern agendas, perspectives, and interests. Developing countries argue that most nongovernmental organizations are headquartered in industrialized countries, that most public and private funds donated to their cause come from the North, and that this situation influences the agenda of these groups to be more accountable to Northern audiences (30). This critique is often justified. However, the suspected biases in the work of nongovernmental actors should not, we argue, lead to a decrease in the participation of civil society, but rather to the establishment of mechanisms that ensure a balance of opinions and perspectives.

One such mechanism is the recent institutionalization and formalization of the advice of scientists on climate change. The key institution here is the Intergovernmental Panel on Climate Change (IPCC). The evolution of the IPCC is typical for the functioning of global environmental governance: It has been initiated not by governments but by international organizations—the World Meteorological Organization and the UN Environment Programme (UNEP). It is composed of private actors—experts, scientists, and their autonomous professional organizations—which are nonetheless engaged in a constant dialogue with representatives from governments. For example, the final conclusions of IPCC reports

are drafted by scientists but are reviewed line-by-line by governmental delegates.

Typical for global environmental governance has also been the continuous struggle for influence in this body, especially between industrialized and developing countries (37, 50–55). When IPCC was set up in 1988, only a few experts and scientists from developing countries were actively involved. This has led, as many observers from developing countries argued, to a substantial lack of credibility, legitimacy, and saliency of these reports in the South. Continuous complaints from delegates from developing countries led to a number of reforms, which resulted in an increasing institutionalization of the involvement of private actors of North and South in this subsystem of global governance (51). For example, IPCC rules of procedure now require each working group of scientists to be chaired by two scientists, one from a developed country and one developing country. Each chapter of assessment reports must have at least one lead author from a developing country. IPCC's governance structure now has a quota system that resembles some purely public political bodies that are governed by North-South parity procedures, such as the meetings of parties to the Montreal Protocol, the executive committee of the Multilateral Ozone Fund, or the Global Environment Facility.

4. THE NEW INSTITUTIONS OF GLOBAL ENVIRONMENTAL GOVERNANCE: TRANSNATIONAL REGIMES, PARTNERSHIPS, AND NETWORKS

The increased participation of nonstate actors has given rise to new forms of institutions in addition to the traditional system of legally binding documents negotiated by states. More and more nonstate actors become formally part of norm-setting and norm-implementing institutions and mechanisms in global governance, which denotes a shift from intergovernmental regimes to public-private and increasingly private-private cooperation and global policy

making (41–43, 56). Private actors became partners of governments in the implementation of international standards, for example as quasi-implementing agencies for many programs of development assistance administered through the World Bank or bilateral agencies. At times, private actors venture to negotiate their own standards, such as in the Forest Stewardship Council or the Marine Stewardship Council, two standard-setting bodies created by major corporations and environmental advocacy groups without direct involvement of governments (57, 58). Public-private cooperation has received even more impetus with the 2002 Johannesburg World Summit on Sustainable Development and its focus on partnerships of governments, nongovernmental organizations, and the private sector—the so-called Partnerships for Sustainable Development (59). More than 330 such partnerships have been registered with the United Nations around or after the Johannesburg summit (60, 61).

A number of conceptual terms have been suggested to analyze these new institutions in global environmental governance. Whereas the term “transnational environmental regime” (62) stresses the similarity to intergovernmental environmental regimes (with the difference that the norms, rules, and decision-making procedures derive largely from cooperation between nonstate actors), the terms public-private partnership (61) or global public policy network (63) are used to describe a more flexible and less-institutionalized actor constellation. In spite of these conceptual differences, the central analytical questions are similar.

There are three main strands of research on the new institutions of global environmental governance. One line of research studied the emergence of novel institutional arrangements in global environmental governance. Different theoretical approaches and single or comparative case studies offer promising explanations for the formation of transnational institutions that address global environmental problems (64–66). However, most theoretical approaches are not specifically tailored to the newly emerging phenomena, and empirical studies that ad-

dress them tend to isolate causal factors or fail to specify their relationship and the causal pathways operating in the process of institution formation. One common assumption, for example, is that transnational institutions created for the regulation of business behavior have emerged as a reaction to increased capital flows across borders and declining regulatory capacities of states (67). On this account, the increasing institutionalization of nonstate environmental governance is analyzed predominantly in functionalist terms. However, such demand-based explanations often find difficulties in specifying whose demand for transnational regulation is sufficient for establishing new institutions. Also, many studies fail to account for the interaction of larger systemic transformations (that is, change at the macrolevel, such as discursive and ideological shifts) and the decisive conditions at the organizational level (that is, change at the microlevel, such as new organizational capacities and strategies). Alternative explanations for the emergence of novel institutional arrangements in global environmental governance have therefore highlighted the interconnectedness of macro- and microconditions (56) as well as the importance of resource-exchange processes for institution building (68).

A second line of research has analyzed the effectiveness and influence of new mechanisms of global environmental governance. Pattberg (69), for example, has studied the regulatory, cognitive, and integrative functions of transnational environmental regimes in forest politics and corporate environmental management. Other comparative studies suggest that differences in influence can be explained by the types of policies applied (market-based approaches, such as forest certification, or information-based approaches, such as sustainability indicators), the regulatory environment of transnational regimes, and the support of civil society organizations (62).

A related line of research has addressed the contribution of novel governance mechanisms to closing governance gaps left by the intergovernmental process, such as insufficient regulation, implementation, or participation (70).

For example, the present authors and colleagues have studied this problem through a statistical analysis of 300 public-private partnerships for sustainable development and concluded that, at the aggregate level, partnerships for sustainable development fall short in closing the participation, implementation, and regulation gaps in global environmental governance (71).

Third, scholars have addressed democratic legitimacy and accountability within transnational environmental regimes and partnerships (72, 73). With traditional intergovernmental policy making being more frequently replaced by novel institutions—which some see as being more efficient and transparent—serious questions of the legitimacy of nonstate standard setting arise. For example, the World Commission on Dams has been hailed as a new and effective mechanism that has quickly generated widely accepted standards, which had earlier been difficult to negotiate owing to the persistent resistance of affected countries. Yet this very success of nonstate standard setting gives rise also to critical voices that point to inherent problems of legitimacy in nonstate policy making (74) (see Section 6 below).

Despite this increasing body of literature, more research is needed. In particular, the specific and the overall effectiveness of novel mechanisms of global environmental governance is, in our view, insufficiently understood. Most literature still builds on single-disciplinary case-study research with case selection often influenced by practical considerations or flawed through case selection on the dependent variable. The major effort of the 1990s that analyzed intergovernmental environmental regimes thus needs to be complemented by a similar research program on “global participatory governance” that explores transnational institutions in global environmental governance. Many explanatory variables are conceivable, and some might be similar to variables identified in the literature on intergovernmental regimes. For example, the effectiveness of transnational institutions could depend upon their organizational structure, funding mechanisms, coordination,

decision-making and management mechanisms, or compliance mechanisms. Problem structure is likely to influence the effectiveness of transnational institutions, too. Transnational institutions could also be more effective the more they tailor their policies to the needs and capacities of targeted actors and to the national administrative and regulatory structures of the country in which agreements shall be implemented. Yet, no comprehensive research findings on these hypotheses are yet available. In sum, this field still awaits research programs that systematically analyze the emergence, effectiveness, and legitimacy of transnational institutions in global environmental governance.

5. INCREASING SEGMENTATION: COMPLEXITY THROUGH FRAGMENTATION

The emerging global environmental governance system is characterized by an increasing segmentation of different layers and clusters of rule making and rule implementing, fragmented both vertically between supranational, international, national, and subnational layers of authority (multilevel governance) and horizontally between different parallel rule-making systems maintained by different groups of actors (multipolar governance).

First, the increasing global institutionalization of environmental politics does not occur, and is indeed not conceivable, without continuing policy making at national and subnational levels. Global standards need to be implemented and put into practice locally, and global norm setting requires local decision making and implementation. This results in the coexistence of policy making at the subnational, national, regional, and global levels in more and more issue areas, with the potential of both conflicts and synergies between different levels of regulatory activity. The international regulation of trade in genetically modified organisms serves as a prime example for such multilevel governance (75–77).

Likewise, the increasing global institutionalization of environmental politics does not

occur in a uniform manner that covers all parts of the international community to the same extent. In the case of the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, for example, various later amendments have provided for new standards and timetables that are not accepted by all parties to the original agreement from 1987. This leads to a multiplicity of subregimes within the overall normative framework. The most prominent example of such horizontal fragmentation of policies is humankind's response to the global warming problem. Here, we observe the emergence of parallel policy approaches that include equally important segments of international society and may develop into divergent regulatory regimes in global climate governance.

Students of global environmental governance have highlighted the significant challenges that divergent policy approaches within such a horizontally and vertically segmented policy arena pose. First, lack of uniform policies may jeopardize the success of the policies adopted by individual groups of countries or at different levels of decision making. Regarding climate policy, for instance, the global emissions trading regime as envisaged by the 1997 Kyoto Protocol may create perverse incentives if the United States is not party to the mechanism. Also, the possibly strong economic implications of stringent environmental policies adopted by one group of states may have severe ramifications for other policy arenas such as the world trade regime (78). In addition, because a segmented architecture decreases entry costs for participants, it is also conceivable that business actors use regulatory diversity to choose among different levels of obligation, thereby starting a race-to-the-bottom within and across industry sectors. A further challenge is inconsistent decision making under different regimes. Power differentials are probably also crucial. As Benvenisti & Downs argue, fragmentation “functions to maintain and even extend the disproportionate influence of a handful of powerful states—and the domestic interests that shape their foreign policies—on the international regulatory order” (79). Powerful states thus have

the flexibility to opt for a mechanism that best serves their interests and can create new agreements if the old ones do not fit their interest anymore (80).

By contrast, a segmented governance architecture may also have advantages. Distinct institutions allow for the testing of innovative policy instruments in some nations or at some levels of decision making, with subsequent diffusion to other regions or levels (81, 82). Regulatory diversity might increase innovation at the level of the firm or public agency and eventually in the entire governance system. Important here is the notion of diffusion of innovation, including innovations of policies, technologies, procedures, and ideas. One example of this line of thought is the proposal of Stewart & Wiener (83) that the United States should stay outside the Kyoto Protocol and seek instead to establish a new framework with China and, possibly, other key developing countries. In their view, this would address the world's two largest greenhouse gas emitters and allow for experimentation of alternative regulatory frameworks.

The increasing fragmentation and segmentation of global environmental governance have led also to important debates on political and institutional reform, notably to the proposal of a world environment organization. One rationale for such proposals is that strong and powerful international bodies oriented toward economic growth—such as the World Trade Organization, the World Bank, or the International Monetary Fund—are hardly matched by UNEP, the modest UN program for environmental issues. As a mere program, UNEP has no right to adopt treaties or any regulations upon its own initiative, it cannot avail itself of any regular and predictable funding, and it is subordinated to the UN Economic and Social Council.

This situation has led to a variety of proposals to grant the environment what other policy areas have long had: a strong international organization with a sizeable mandate, significant resources, and sufficient autonomy. The debate on such a world environment organization has been going on for some time. Lodewalk &

Whalley (84) have reviewed no less than 17 proposals for a new organization, and they have not even covered all proposals that can be found in the literature, which dates back almost 40 years to Kennan (1, 85). Many opponents of a new agency have also taken the floor (for example, 86, 87).

Proponents of a world environment organization can be divided into a pragmatic and more radical camp. The more radical strand in the literature demands the abolition of major agencies (such as the World Meteorological Organization), the creation of a new agency with enforcement power (for example, through trade sanctions), or the creation of a new agency in addition to UNEP, which would have to transfer many of its functions to the new organization (88, 89). Today, most of these radical designs seem unrealistic. Abolishing UN agencies has been rare in post-1945 history and appears politically unfeasible or unnecessary for most agencies. Trade sanctions to enforce environmental treaties would unfairly focus on less powerful developing countries while leaving the big industrialized countries sacrosanct (90). Pragmatists, instead, propose to maintain the current system of decentralized, issue-specific international environmental regimes along with existing specialized organizations active in the environmental field while strengthening the interests of environmental protection by upgrading UNEP from a mere UN program to a full-fledged international organization. This organization would have its own budget and legal personality, increased financial and staff resources, and enhanced legal powers. In this model, a world environment organization would function among the other international institutions and organizations, whose member states might then be inclined to shift some competencies related to the environment to the new agency. The elevation of UNEP to a world environment organization of this type could be modeled on the World Health Organization and the International Labor Organization, which are independent international organizations with their own membership. A new agency of this more modest

type is currently subject of international negotiations, with a recent proposal by the French government, now supported by over 50 nations, to upgrade UNEP to a "United Nations Environment Organization."

Not the least, the increasing fragmentation and segmentation of global environmental governance reveal a substantial research agenda. We now have a better understanding of the creation, maintenance, and effectiveness of international environmental regimes, as well as better methodological tools to study these questions (6–8, 77, 91–99). It has been shown that different international norms and verification procedures, compliance management systems, modes of regime allocation, as well as external factors, such as the structure of the problem, all influence regime effectiveness. Yet most of these studies have focused on the effectiveness of single institutions. Only recently have the increasing number and scope of international environmental institutions led to new research on their interaction, for example, in studies on regime interlinkages, regime clusters, or regime complexes (for example, 87, 100–105).

These approaches to understanding the effectiveness and the interaction of different institutions had to be methodologically reductionist to be successful. Distinct institutions, and distinct elements of larger institutions, have been analyzed regarding their effectiveness and their relationship with other institutions or institutional elements. The macrolevel—that is, the system of institutions in global environmental governance—has remained largely outside the focus of the major research programs. Given the advances in regime theory and institutional analysis, it appears that further progress now requires a complementary research program that analyzes this macrolevel: the overarching "architecture" of global environmental governance (see in more detail 55, 106).

6. OUTLOOK: TOWARD A NEW RESEARCH AGENDA

The current discourse on global environmental governance reveals that more theoretical

debate as well as empirical research is needed. We have suggested a number of new research areas and questions in the three sections above. In addition, we believe that the research agenda on global environmental governance should attempt to include three additional types of questions that have been only insufficiently studied so far: change, allocative outcomes, and legitimacy.

First, we see an important research need to develop a better understanding of the processes of change in global environmental governance and more general the institutional dynamics that play an important role in the emergence, evolution, and eventual effectiveness of institutions. In more general terms, this is the question of the adaptiveness and resilience of social-ecological systems (107), as well as the research quest to better understand learning processes in global environmental governance (for example, 108–113). This line of research should also pay attention to the larger discursive struggles about what constitutes effective and legitimate global environmental governance.

In addition, it is important to have a stronger focus for research on the governance of adaptation to widespread ecological change, notably global warming and climate change. Most studies on international as well as national environmental policy have focused on institutions to mitigate environmentally harmful activities, such as emission of pollutants, trade in harmful substances or endangered species, or destruction of habitats. Only at the national and local level, scholars have seriously begun to study institutions and governance mechanisms for adaptation to the impacts of global environmental change and to investigate the extent to which local institutions and governance systems allow for adaptation. Yet this research eventually needs to evolve from local adaptation research into a research program on the core functions of global public policy. Much research in these areas will require particular attention to research methodology. Especially when it comes to adaptation, global environmental governance is called upon to analyze

and design governance systems that not only respond to emergencies that are merely predicted for the future, but also are likely to exceed in scope and quality most of what is known today. Adaptive governance systems that take account of changes in monsoon patterns, large-scale breakdowns of ecosystems, or modifications in thermohaline circulation will need to deal with scales that are unprecedented. Although traditional social science builds on the development and testing of theories and hypotheses through historical experience, global environmental governance, which is inherently future oriented, increasingly has to rely on new forms of evidence and new forms of validity and reliability of empirical knowledge.

Second, we need to better understand the accountability and legitimacy of global environmental governance systems, both in their own right and with a view of accountability and legitimacy as intervening variables that affect overall institutional effectiveness (114, 115). In the twentieth century, legitimacy and accountability were problems of national governments. In the twenty-first century with its new needs of global governance, accountability and legitimacy appear in a different context. Eventually, this comes down to the quest for democratic global environmental governance. In purely intergovernmental norm-setting processes, legitimacy derives indirectly through the accountability of governments to their voters. Likewise, international bureaucracies can derive legitimacy through their principals, the governments, which are accountable to their voters. However, such long lines of accountability have been questioned (116–118). Many authors see a solution in the participation of private actors in global governance. Problematic are, however, the accountability and legitimacy of private actors themselves. Private organizations may derive legitimacy through their members or donors, or from the environmental good they seek to protect. Yet few citizens have the means to donate time and money to philanthropic organizations. Given the financial requirements of participation, more rights and

responsibilities for nonstate actors in global environmental governance may also privilege representatives of industry and business at the cost of other groups. In the international context, with its high disparities in wealth and power, accountability and legitimacy of private actors are even more complex.

This leads to a practical research challenge: Because of these disparities, researchers need to design, and practitioners to develop, institutions that guarantee participation of civil society in global environmental governance through mechanisms that vouchsafe a balance of opinions and perspectives. For example, networks of transnational actors can seek to balance views and interests through self-regulation, including financial support for representatives from developing countries. This is done, for instance, through North-South quotas in meetings and alliances of nonstate activists or in the IPCC, as described above. In addition, private rule-making organizations, such as the Forest Stewardship Council, have institutionalized detailed decision-making procedures that ensure equal consideration of social, environmental, and economic interests in sustainable forest management (57). Increasingly important are also systems of transparency in global environmental governance that are still underresearched (119).

Third, we argue that with the increasing relevance of global environmental governance, allocation mechanisms and criteria—and thus more broadly questions of equity and justice—will become central questions to be addressed by social scientists. More than the costs of mitigating global problems are at stake. Given the large-scale and potentially disastrous consequences of global environmental change, questions of fairness in adaptation will gain prominence. Compensation and support through the global community of the most affected and most vulnerable regions, such as small island states, will not only be a moral responsibility, but also politically and economically prudent.

This situation calls for allocation modes that all stakeholders in North and South perceive as fair (120). Questions of allocation among nations are especially contested in global environmental governance (121, 122). In particular, the causes and consequences of different allocation mechanisms in global environmental governance are still not sufficiently understood. Little systematic analysis has been devoted to studying allocation as independent variable and to analyzing allocation mechanisms in relation to the variant effectiveness of the core institutions of global environmental governance. Hence, given the growing relevance of global environmental change, allocation is certain to become a major concern for researchers and practitioners alike.

Last but not least, the very concept of global environmental governance might become an issue again for new debate and discussion (123). Notably, a new long-term crosscutting global research program on governance, which is currently being developed under the International Human Dimensions Programme on Global Environmental Change, builds on another, more recent concept: “Earth system governance” (55). This new concept adds to global environmental governance a new connotation that links institutional research to the eventual core concern of environmental politics: the ongoing transformation of the entire Earth system, from global warming, large-scale changes in biogeochemical cycles to unprecedented rates of species loss. Earth system governance bridges levels from global to local as well as academic communities from natural science-oriented modeling and scenario building to political science and philosophy. Although the concept of Earth system governance is still fairly recent and requires more substantiation in research, it might well emerge into a powerful new paradigm that describes the core governance challenge that lies ahead: the long-term transformation of the entire Earth system driven by humankind.

SUMMARY POINTS

1. The term global (environmental) governance is used in three different notions: as an analytic description of current transformations of global politics, as a political program in the affirmative sense, and as a political program in the critical sense.
2. In particular, global environmental governance describes world politics that are no longer confined to the governments of nation states, but are characterized by increasing participation and relevance of other actors. These nonstate actors include experts and scientists, environmentalist nongovernmental organizations, business associations, cities and provinces, as well as intergovernmental bureaucracies.
3. The increased participation of nonstate actors has also given rise to new forms of institutions in addition to the traditional system of legally binding documents negotiated by states. More and more nonstate actors become formally part of norm-setting and norm-implementing institutions and mechanisms in global environmental governance, which denotes a shift from intergovernmental regimes to public-private and increasingly private-private cooperation and global policy making.
4. The emerging global environmental governance system is finally characterized by an increasing fragmentation and segmentation of different layers and clusters of rule making and rule implementing.
5. Fragmentation increases both vertically—between supranational, international, national, and subnational layers of authority (multilevel governance)—and horizontally between different parallel rule-making systems maintained by different groups of actors (multipolar governance).

FUTURE ISSUES

1. What are the overarching norms and principles of entire systems of governance that go beyond single institutions?
2. How can such overarching systems, or architectures, of governance be best analyzed and understood?
3. What is the relative performance of nonstate institutions and governance mechanisms?
4. How can we assess the legitimacy, accountability, and democratic quality of systems of global environmental governance?
5. What is the role of different modes of allocation in global environmental governance, and what are the allocative outcomes that different mechanisms of global governance generate?
6. How can the current scope of the challenge, in particular the increasing transformation of entire planetary biogeochemical systems, be best conceptualized in terms of governance research? What would be the core elements, questions, and propositions of an integrated theory of “Earth system governance”?

DISCLOSURE STATEMENT

The authors are not aware of any biases that might be perceived as affecting the objectivity of this review.

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