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A CHARTER MOMENT: RESTRUCTURING GOVERNANCE FOR SUSTAINABILITY[†]

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SUMMARY

We are living in a highly dynamic, human-dominated Earth System in which non-linear, abrupt and irreversible changes are not only possible but also probable. These changes require institutional structures capable of steering human society away from critical tipping points and irreversible change and ensuring sustainable livelihoods for all. We see 2012 as a ‘charter moment’, a historic opportunity to transform the institutional framework for sustainable development (IFSD) to better address the critical issues and political dynamics in the 21st century. In this paper, we present ‘The Hakone Vision on Governance for Sustainability in the 21st Century’, which calls for a fundamental restructuring of the IFSD that (i) clearly articulates the ‘aspirations’ of governance for sustainability including objectives and underlying values and norms, (ii) allows for meaningful and accountable participation by a wide range of ‘actors’ to develop solutions ‘from’ people ‘for’ people and (iii) creates an ‘architecture’ to include better configuration of actors, actor groups and their networks, as well as improved institutions and decision-making mechanisms. We situate the Hakone Vision in the context of discussions of the IFSD and discuss our process for developing the Hakone Vision through a series of ‘world café’ discussions involving academic experts on global environmental governance and policy practitioners working at the local, national and global level. With our assessment of the IFSD and the challenges we face, we suggest that proposals for a Sustainable Development Council in the United Nations warrant further consideration, among others. Copyright © 2012 John Wiley & Sons, Ltd.

KEY WORDS—governance; international institutions; United Nations; political actors; institutional framework for sustainable development; UN Charter; Earth System Governance

INTRODUCTION

We are living in a highly dynamic, human-dominated Earth System in which non-linear, abrupt and irreversible changes are not only possible but also probable. Some observers recognize that we are entering into a new era in planetary history called the ‘Anthropocene’ (Crutzen, 2002), and recent studies indicate that human activities are causing several life-supporting natural systems to exceed their ‘planetary boundaries’ (Rockström *et al.*, 2009). These changes require institutional structures capable of steering human society away from critical tipping points and irreversible change and ensuring sustainable livelihoods for all. We see 2012 as a ‘charter moment’, analogous to 1945 when nation states created the United Nations (UN) to deal with issues of peace and security, the most pressing and critical issues at that time. Chapter 7 of the UN Charter, which established the Security Council, involved the shift from the discourse of national security to the discourse of collective security. More

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[†]An earlier version of this article, with the emphasis on the ideas presented at two World Cafe, is included in *Puppim de Oliveira, Jose A. (Ed), 2012. Green Economy and Good Governance for Sustainable Development; Opportunities, Promises and Concerns* (UNU Press: Tokyo).

than half a century later, issues of sustainability have become some of the most pressing and critical problems confronting the international community—some argue that these are the new security issues of our time (Dalby, 2009; Matthew *et al.*, 2009). What is needed is a transformation of the international institutional architecture for sustainable development, recognizing that the issues and political dynamics in the 21st century are different from those in 1945 when the institutions in the UN were established and that global sustainability requires a shift from the discourse of development in the conventional sense to a discourse of planetary stewardship (Chapin *et al.*, 2009). Then, what kind of alternative governance architecture would make sense, and how can we get there?

This paper contributes to ongoing debates about reforming the institutional framework for sustainable development (IFSD) by presenting ‘The Hakone Vision on Governance for Sustainability in the 21st Century’. The Hakone Vision was developed through two workshops held in May 2011 in Fort Collins, USA and September 2011 in Hakone, Japan involving academic experts and policy practitioners. The workshops employed a ‘world café’ approach, which is designed to encourage strategic thinking on big and complex issues through ‘small, intimate conversations [that] link and build on each other as people move between groups, cross-pollinate ideas, and discover new insights into questions or issues that really matter’ (Brown and Bennett, 1995; Brown *et al.*, 2005: 4). The Hakone Vision calls for a fundamental restructuring of the IFSD that (i) clearly articulates the ‘aspirations’ of governance for sustainability including objectives and underlying values and norms, (ii) allows for meaningful and accountable participation by a wide range of ‘actors’ to develop solutions ‘from’ people ‘for’ people and (iii) creates an ‘architecture’ to include better configuration of actors, actor groups and their networks, as well as improved institutions and decision-making mechanisms. The Hakone Vision calls for further consideration of a Sustainable Development Council in the UN as one element of this transformation.

POLITICAL CONTEXT

Reform of international environmental and sustainable development governance has long been called for and debated in academic and political arenas. The issue has gained political attention repeatedly when discussed at large-scale global summits on sustainable development, such as in 1992 in Rio de Janeiro and 2002 in Johannesburg (Chambers, 2005), but opportunities for real reform have been elusive. Although not only negative but also positive aspects of the existing institutions have been recognized (Kanie, 2007; Ivanova and Roy, 2007), reform proposals for an international organization for environmental issues, with a central and authoritative role, have been a core part of these discussions (for an overview, see Lodewalk and Whalley, 2002; Biermann and Bauer, 2005; Young, 2008; Vijge, 2010; Biermann, 2011). Some countries, such as Germany and France, originally called for the creation of a World Environment Organization to enhance coordination mechanisms and streamline environmental issues in other related issues, with universal membership and an enhanced and secured budget (Biermann, 2005; Charnovitz, 2005). Related reform proposals, particularly supported by the European Union, include upgrading the UN Environment Programme (UNEP) to a specialized agency of the UN on par with the World Health Organization or UN Food and Agriculture Organization (e.g. Biermann *et al.*, 2012a, 2012b).¹ Other reforms proposed include amongst others the creation of a world environment court (Pauwelyn, 2005), creation of an ombudsman for future generations (Göpel, 2011; Kornélia, 2011) and reforming the UN Trusteeship Council into the UN Environment Trusteeship Council (Redgwell, 2005).

The 2012 Rio +20 conference opens up a new window of opportunity for reform because the IFSD is one of the two main conference themes (along with the green economy in the context of sustainable development and poverty eradication). Thus, institutional reform is a more central concern than in previous global summits creating a real opportunity to advance the discussion and move towards a fundamental restructuring of the governance architecture for sustainable development. This discussion of IFSD can be traced back to the World Summit² outcome in 2005, which recognized ‘the need for more efficient environmental activities in the UN system, with enhanced coordination, improved policy advice and guidance, strengthened scientific knowledge, assessment and cooperation, better treaty compliance, while respecting the legal autonomy of the treaties, and better integration

¹http://www.europa-eu-un.org/articles/es/article_11733_es.htm.

²The 2005 World Summit: High-level Plenary Meeting of the 60th Session of the General Assembly (14–16 September 2005).

of environmental activities in the broader sustainable development framework at the operational level, including through capacity-building' (GA resolution 60/1, Paragraph 169). It was also agreed to 'explore the possibility of a more coherent institutional framework to address this need, including a more integrated structure, building on existing institutions and internationally agreed instruments, as well as the treaty bodies and the specialized agencies'.

This agreement resulted in an informal consultation process in the UN General Assembly on the institutional framework for the UN's environment work. Although the consensus continues to exist on the need for the international environmental governance (IEG) system to be strengthened, no consensus was reached about how this could be achieved, and in mid-February 2009, the co-chairs decided to stop negotiations on the resolution.

United Nations Environment Programme took up the discussion in February 2009 at the 25th session of the Governing Council/Global Ministerial Environmental Forum (GC/GMEF) and established a Consultative Group of Ministers or High-level Representatives on IEG by its decision 25/4. The group met twice and presented a co-chairs' summary called the 'Belgrade Process: Moving forward with developing a set of options on international environmental governance' at the GC/GMEF 11th special session in February 2010. The 'Belgrade Process' report identified five objectives and corresponding functions for IEG within the UN system: (i) enhancing the science base and science-policy interface; (ii) developing a global authoritative voice for environment; (iii) enhancing coordination of policies and programmes and multilateral environmental agreements; (iv) securing funding; and (v) meeting country needs through capacity building, technology transfer and financial report. They further identified several forms of broader institutional reform including enhancing UNEP, creating a new umbrella organization for sustainable development, establishing a specialized agency such as a World Environment Organization, reforming ECOSOC and the Commission on Sustainable Development and enhanced institutional reforms and streamlining of present structures.

United Nations Environment Programme GC/GMEF established a second consultative group of ministers or high-level representatives on IEG in February 2010 (SS.XI/1), which presented the 'Nairobi-Helsinki Outcome' to the 26th session of the UNEP GC/GMEF in February 2011.³ The 'Nairobi-Helsinki Outcome' built on the Belgrade Process, its function-based proposals are quite similar and its broader reform proposals are the same, although it reduced the number of reform options to three by eliminating options for 'establishing a new umbrella organization for sustainable development' and 'reforming the UN Economic and Social Council and the UN Commission on Sustainable Development' because these would best be addressed in the wider sustainable development context, rather than the environmental context.

In February 2011, the UNEP GC/GMEF invited the president of the Governing Council to transmit the 'Nairobi-Helsinki Outcome' to the Preparatory Committee for the Rio +20 Conference and to the General Assembly (UNEP GC/GMEF Decision 26/1). It also invited the Preparatory Committee 'to initiate a full analysis of the financial, structural, and legal implications and comparative advantages of the options identified in the Nairobi-Helsinki Outcome'.

According to negotiators, the political situation has not changed much since 2009, when the informal consultation process in the UN General Assembly was stopped. This is symptomatic of general difficulties facing multilateral negotiation processes, as illustrated by CSD19 and UNFCCC COP15, which concluded without formal agreement. If the IFSD is to offer transformative governance to solve problems of the 21st century, innovative ideas towards fundamental reform and a creative vision will be needed.

DEVELOPING THE HAKONE VISION

Although it is clear that transformative change in global governance is necessary to achieve sustainability (UNEP, 2012; Biermann *et al.*, 2012a, 2012b), we lack agreement on 'how' to achieve these reforms. One way to move beyond the current stalemate is to develop a shared vision and use it to identify concrete actions to bring about

³The Group met first on 7–9 July 2010 in Nairobi, attended by representatives of 58 countries, and the second time on 21–23 November 2010 in Espoo, Finland, attended by representatives of 44 countries.

the needed transition. Unless underlying institutions and behavioural patterns that are governed by the institutions are discussed, debate over institutional design will end up with political conflict or will get lost in the fine-print and vested interests of existing organizations and structures (Young *et al.*, 2008). Reforms inevitably have financial implications for member states, which subsequently leads to debates about political control over the decision-making process.

The world café approach

The 'Hakone Vision on Governance for Sustainability in the 21st Century' is the outcome of a series of activities between May and September 2011, including two workshops involving academic experts on global environmental governance as well as practitioners involved in sustainability efforts at the local, national and international levels (Earth System Governance Project, 2011). Each workshop employed the 'world café' approach, which is 'a powerful social technology for engaging people in conversations that matter'.⁴ The world café process involves a series of small-group conversations, which are often divided into 20-min rounds. Each round is initiated with a question designed for the specific context and desired purpose of the session. The same questions can be used for more than one round, or they can follow a sequence designed to focus the conversation or guide its direction. At the end of the 20 min, participants move to a different table (perhaps leaving one person behind as 'table host' for the next round). After the small-group discussions (and/or in between rounds, as desired), individuals are invited to share insights or other results from their conversations with the rest of the large group. These results, called 'harvest', are reflected visually in a variety of ways, most often using graphic recorders in the front of the room. The Hakone Vision emerged from these harvests.

The world café is an approach to communication rather than a research method. We chose to employ the world café approach for the workshops because our goal was to promote mutual learning among experts and practitioners involved in global environmental governance and to develop new ideas for transformative change. The world café approach encourages strategic thinking on big and complex issues—such as the need to transform the IFSD—and is designed on the assumption that people already have the wisdom and creativity to confront large-scale challenges (Brown and Bennett, 1995). The process enables knowledge sharing and helps participants make new connections so that the collective wisdom becomes more accessible, and possibilities for innovative action emerge (Brown *et al.*, 2005). This model proved effective in allowing workshop participants to build on existing social science research and to think creatively about how this knowledge can contribute to transforming the IFSD. In short, as a strategy for promoting mutual learning and innovative thinking, this is an appropriate way to build on the existing knowledge and expertise in the room to think about how that knowledge and expertise can help thinking about transforming IFSD.

Identifying the key issue: world café in Colorado

The first world café on the IFSD was held at the Colorado Conference on Earth System Governance on 19 May 2011 at Colorado State University in Fort Collins, Colorado, USA. The café was attended by approximately 50 people, many of whom are researchers involved in the Earth System Governance Project's network,⁵ as well as policymakers at local, national and global levels. We recognized that an evaluation of the functioning of existing institutions is a prerequisite to clarifying the necessary vision and blueprint for the future, so our conversations were designed to build upon existing knowledge from the social sciences and the experiences of practitioners. The session addressed two questions:

1. What are the strengths and weaknesses of the current architecture of international governance?
2. What are key issues in transforming the architecture of international environmental governance?

⁴See the World Café website: <http://www.theworldcafe.com/about.html>.

⁵The Earth System Governance Project is a 10-year research initiative under the auspices of the International Human Dimensions Programme on Global Environmental Change, which is sponsored by the International Council for Science, the International Council for Social Science and the United Nations University. The project has evolved into the largest social science network in its field, involving about 1700 researchers along with a core network of 12 institutions in the Global Alliance of Earth System Governance Research Centers.

Not surprisingly given the predominance of academic experts, most of the views regarding the first question reflected existing studies and evaluations on IEG (e.g. Chambers, 2005; Young *et al.*, 2008; Biermann *et al.*, 2010a, 2010b). The current framework was viewed both as strength and a weakness: established institutions can be a foundation for future development but can also be an obstacle for fundamental reform as interests are embedded in an established institutional framework. There was also a view that the existing structure fails to question the fundamental drivers of global environmental change, such as population growth and the nature of global capitalism.

Although a variety of ideas were tabled at the world café, many expressed the view that transformation will require a re-articulation of values and new ways of thinking to put environmental issues in a different frame. This will also require a reform of the global economic system and that environmental issues are considered within a wider framework of sustainable development. It was also pointed out that transformative change requires resilient and flexible governance structures that promote learning and reflexivity and are capable of working at multiple levels. We see that this is where public–private networks and partnerships, including wider representation and participation in decision-making and implementation processes, have an advantage. These new forms of governance are not a panacea, and they must be designed with careful consideration of what kind of actors (or combination of actors) would work effectively on different governance components and on issues of equity, accountability and effectiveness.

Creating a blueprint: Hakone Vision Factory

Shortly before the Colorado world café, the Earth System Governance Project initiated a policy assessment on the IFSD. This assessment offers a concise, cutting-edge analysis of the state of knowledge on the IFSD and on possible reform options.⁶ The policy assessment outlines core areas where urgent action is required (Biermann *et al.*, 2012a, 2012b.). Although the two activities used different methodologies, they arrived at similar results: both called for fundamental restructuring of the IFSD. With these updated assessments, we organized the ‘Hakone Vision Factory on Earth System Governance: Towards Transformative Institutional Framework’ on 27–29 September 2011 at Hakone, Japan to further deepen our understanding of the problems and issues and to identify the vision and blueprint for transformative change. The workshop brought together about 20 experts from the Earth System Governance scientific community and policymakers from local, national and global levels.⁷

To foster creativity, only one question for the world café was prepared in advance. Other questions were identified as the conversation developed, which allowed for deeper discussion of emerging insights and ideas. We also allowed time for further discussion after each ‘harvest’ regarding the views identified in the world café session, which enabled us to deepen our collective thought and learning. In total, the Hakone Vision Factory addressed four questions:

1. What distinguishes the problems we are now facing (or will be facing) from those our institutions were designed to address?⁸
2. What kind of governance architecture can ensure the simultaneous achievement of the three pillars of sustainable development?
3. Who should be heard? What values and criteria should be used to determine who should be heard?
4. What kind of body should be used? What kind of decision-making mechanism/structure should be used?

⁶The policy assessment was commissioned by the four global change research programmes (IHDP, IGBP, Diversitas and WCRP) as organizers of the international conference ‘Planet under Pressure: New Knowledge Towards Solutions (26–29 March 2012)’. For information on the process of the policy assessment and related activities and information, see www.ieg.earthsystemgovernance.org. For an overview of published outcomes of the assessment, see www.earthsystemgovernance.org/ifsd.

⁷Participants were selected carefully to ensure a balance in terms of seniority, gender and background (whether academic or practice and from local to global) under the constraints of assigned budget. Unfortunately, some invitees were not able to attend because of conflicting schedules. The question remains whether different participants would have ended up with different results, but such question is inherent to the world café approach. At least, ideas presented here represent an initial step for creating new visions, which has no precedent example.

⁸This question was chosen as the kick-off question of the workshop because both the policy assessment and the Colorado world café identified the changing character of the problems of the 21st century from 1945 when the UN institutional design was established, and this is the point of departure.

THE HAKONE VISION ON GOVERNANCE FOR SUSTAINABILITY IN THE 21ST CENTURY

The 'Hakone Vision Factory' process culminated with a new vision and blueprint for transformative governance for sustainability that (i) articulates the 'aspirations' of governance for sustainability including objectives and underlying values and norms, (ii) allows for meaningful and accountable participation by a wide range of 'actors' to develop solutions 'from' people 'for' people and (iii) creates an 'architecture' to include better configuration of actors, actor groups and their networks, as well as improved institutions and decision-making mechanisms. Drawing on our discussions of aspirations, actors and architecture, we suggest that proposals for a Sustainable Development Council in the UN warrant further consideration in particular. In the discussion later, we demonstrate that each element of the Hakone Vision draws on existing social science knowledge about global environmental governance.

Aspirations

The Hakone Vision identifies objectives and underlying values and norms for transforming the IFSD. Broadly speaking, these include the need for adaptive governance institutions and for new ways of measuring development that go beyond economic values.

Adaptive governance

Planetary boundaries illustrate the finiteness of natural resources and resource use and define the safe operating space for humans (Rockström *et al.*, 2009). The Hakone Vision recognizes that governance for integrative economic, social and environmental sustainability must respect these, and other, limits to human, intellectual and natural resources and simultaneously ensure just and equitable development and stewardship. Governance for sustainability must be capable of generating legitimate and effective policy responses to potential changes to natural systems that could result from crossing planetary boundaries and potentially triggering tipping points in the Earth System (Folke *et al.*, 2011; Biermann, 2012). This requires that institutions for sustainable development be adaptive, recognizing that change is the natural state of affairs and including mechanisms for monitoring conditions and incorporating new information into decision-making processes (Folke *et al.*, 2005; Young, 2010). Polycentric governance systems, which are self-organizing and involve multiple independent sites of decision making across multiple levels and sectors, can provide such flexibility by allowing for experimentation and learning (Folke *et al.*, 2005; Brafman and Beckstrom, 2006; Ostrom, 2010). However, recent research suggests that such systems are vulnerable to tensions between actors, unreliable funding sources and negative institutional interactions (Galaz *et al.*, 2011). There is also a need for global-level institutions to complement, coordinate and improve existing policy responses at national and local levels, a need that is particularly acute in the area of response to natural disasters and adaptation.

Sustainable development goals

Approaches to sustainability governance based on economic values are insufficient—and partly the cause of unsustainable development. Political economy approaches call attention to the ways in which environmental trends and practices are embedded in and reflect existing structures within the global economy (Paterson, 2000; Clapp and Dauvergne, 2005; Newell, 2008). The Hakone Vision calls for going beyond gross domestic product (GDP) and market value in measuring development. Human well-being and quality of life are important additional values, as are considerations of ecosystem services and the non-anthropocentric values of other living beings. Alternative metrics to GDP have been developed, such as the Human Development Index and Gross National Happiness. Further development of the goals of sustainable development and methodologies could result in a sustainable development index, combining variables from the three pillars of sustainable development or a small suite of indices that have to be pursued simultaneously and without tradeoffs. This is considered to have potential as a useful and policy relevant tool and is an area where further research and careful development are required in terms of sustainability. Furthermore, it will be functioning only when institutional and financial underpinnings are provided.

The emerging discussion on the Sustainable Development Goals (SDGs), in line with and complementing the Millennium Development Goals (MDGs) including their universal focus rather than targeting only developing countries, could become an important political target, providing momentum and drawing attention to sustainable development. They would trigger a development path to be more sustainable by stimulating institutional change at national and local levels, as MDGs inspired domestic actions in some countries (Manning, 2010). The recently articulated concept of SDGs is mentioned in a number of submissions by member states to the Compilation Document for the Rio +20 Zero Draft Outcome Document,⁹ indicating broad recognition of the insufficiency of GDP. The issue was also discussed at the 72nd Plenary of the General Assembly on 2 December 2011.¹⁰ Brazil and Australia stated their support for the SDGs. Careful consideration is required to determine how the SDGs can be positioned alongside and complementary to the MDGs, which continue to be of high relevance and importance (Manning, 2010, Moss, 2010).

Actors

The Hakone Vision recognizes that governance for sustainability demands the broadening of meaningful and accountable participation 'from' people 'for' people and should be as inclusive as possible for all groups in society (Meadowcroft, 2004; Bernstein, 2005, 2011; Biermann *et al.*, 2010a, 2010b; Dellas *et al.*, 2011). This requires governance mechanisms for accountable participation, the use of new information and communication technologies to give voice to marginalized groups, checks and balances to ensure appropriate representation of all stakeholders and enhanced forms of governance in which non-state actors play a more prominent role.

Accountable participation

Inclusiveness requires governance systems to listen to all voices and to have transparent mechanisms to moderate, synthesize and prioritize inputs to allow for inclusive, representative and effective decision making (Bäckstrand *et al.*, 2010; Biermann and Gupta, 2011; Dryzek and Stevenson, 2011). The level and mechanisms of inclusiveness could be tailored differently for each step in the policy cycle. Deciding whose voices shall be heard during the agenda-setting and negotiation phases and whose views should help determine decision-making outcomes is a highly normative and extremely sensitive process that needs further research and deliberation. This also applies to a system of checks and balances. When it comes to decision making, it is essential to ensure that the process is not co-opted by those with power and resources while recognizing the pragmatic need to limit participation in the decision-making phase of the policy process. Initially, meeting basic human needs could be the core criterion for making these choices throughout different levels of the government.

Utilize information technology

Information technologies, including social media, have the potential to support governance for sustainability by giving voice to groups and individuals that have been marginalized in the decision-making process and stimulating and facilitating transboundary communication and deliberation. With the advent of the internet, virtual communities have emerged to link individuals with common ideas and goals across geographic space (Rheingold, 1993; Mayer-Schönberger and Hurley, 2000; DiMaggio *et al.*, 2001). They are particularly prominent in issue areas such as sustainability where participants seek to affect change at the global level (Diani, 2000, Mol, 2008). Virtual communities promote rapid communication and knowledge sharing and allow members to respond quickly to changing conditions. They also inform and link people for structural change at a national level as we have witnessed in the Arab Spring. Of course, it is important to acknowledge the digital divide and recognize that use of such technologies will also lead to the exclusion of some voices. Governments need to recognize that information technology forms an integral part of sustainable development in the 21st century.

⁹<http://www.uncsd2012.org/rio20/index.php?type=12&page=view&nr=285&menu=20&str=sustainable+development+goals&style=exact&x=0&y=0>.

¹⁰A/66/126.

Enhance checks and balances in the United Nations

Mechanisms to include non-state actors in the inter-governmental UN system (e.g. through Major Groups in the CSD) are laudable but insufficient and not truly inclusive, often leading to misrepresentation (Biermann and Siebenhüner, 2009; Dombrowski, 2010; Schroeder and Lovell, 2011; Dellas *et al.*, 2011; Schroeder, 2010). Not all groups are represented (e.g. there is a major group for farmers but not for those whose livelihoods depend on fishing), and the Major Groups are not very transparent and often dominated by powerful actors.

One way to improve representation in the current inter-governmental system would be to add a mechanism of checks and balances (between governments and non-state actors) that could be inspired by the example of the EU Parliament in relation to the EU Council. Bold proposals in this direction run under the header of a UN Parliamentary Assembly (Bummel, 2010; Heinrich, 2010; Falk and Strauss, 2011). There is a substantial and practical need for in-depth research on this two-chamber construction at the global level. Academic research has not in this regard kept pace with actual developments (Leinen and Bummel, 2011). Mechanisms to enable the meaningful involvement of other actors, including persons or organizations of high respect, cities, communities and social movements in governance for sustainability, also are needed.

Enhance new forms of governance

The emergence of new actors provides opportunities to create a governance system with a larger range of instruments beyond those typical of the inter-governmental arena (Cashore, 2002, Cashore *et al.*, 2007, Bouteligier, 2011; Partzsch and Ziegler, 2011; Dellas *et al.*, 2011). Whereas states are the central actors, non-state actors and local governments are necessary for accountable and effective governance for sustainability (Kanie and Haas, 2004). Options include improved private governance (such as the Forest Stewardship Council or Marine Stewardship Council) and public–private partnerships (Cashore *et al.*, 2004, Pattberg, 2010). Safeguards need to be in place to ensure the accountability and legitimacy of non-state actors (Bäckstrand, 2006; Bernstein and Cashore, 2007). The process of promoting aforementioned governmental, inter-governmental and sub-governmental and beyond governmental deliberation by itself can lead to transformative governance.

Architecture

Although the economic, social and environmental pillars of sustainable development are strongly interrelated, they are not integrated within the current institutional architecture for sustainable development. The Hakone Vision calls for a rebuilding of the IFSD to include better integration as well as improved institutions and decision-making mechanisms. We also identify a set of criteria for evaluating proposals for reforming the IFSD to ensure the effectiveness of a new governance system for sustainability.

Enhance horizontal and vertical integration

Horizontal harmonization between global-level institutions is crucial to ensure that actions are mutually reinforcing and to realize governance goals for sustainability (Raustiala and Victor, 2004; Oberthür, 2009; Alter and Meunier, 2009; Biermann *et al.*, 2009). Transformative change will require stronger links between the institutions and organizations working within the UN system and those of the Bretton Woods system and other sustainable development activities taking place outside the UN system (Clapp and Dauverge 2005). Vertical integration linking institutions from the global to local level is needed within each pillar to achieve improved implementation of sustainable development (Cash *et al.*, 2006; Alber and Kern, 2008). Efficient and legitimate governance mechanisms at the global level are important to support efforts at other levels. Likewise, governance mechanisms at other levels can support governance initiatives at the global level (Ostrom, 2010; Armitage and Ryan, 2010; Folke *et al.*, 2010; Spagnuolo, 2011; Betsill and Hoffmann, 2011).

Factors underpinning transformative change

With our discussions and drawing on an extensive body of social science literature (Haas and Haas, 1995; Victor *et al.*, 1998; Young, 1999; Miles *et al.*, 2002; Pauly and Grande 2005), we have identified a set of criteria for

evaluating proposals for transformative changes in the architecture of governance for sustainability. These criteria represent a set of considerations that are necessary to ensure the effectiveness of a new governance system for sustainability. The absence of suitable arrangements on one or more of these criteria will jeopardize prospects for transformative change:

1. Meaningful participatory approaches that are inclusive and account for power differentials between nation states, non-state actors and other groups in society.
2. Appropriate and stable levels of funding.
3. Appropriate authority and efficiency.
4. Appropriate capacity to address compliance and implementation.
5. Effective adaptive approaches that could include sunset clauses and scheduled re-chartering moments in agreements, dynamic criteria to all selection and decision-making mechanisms to reflect changes in natural and social systems, and network approaches.
6. Accountability: strong accountability and transparency safeguards.

Importantly, these six criteria are also valid for evaluating restructuring proposals at various levels of governance.

Sustainable Development Council

Ultimately, a fundamental restructuring will involve changes inside and outside the UN system, in both the public and private spheres from the global to the local level. That said, the UN can play an important leadership role. The UN must adjust to meet the new reality that issues of sustainability have become some of the most pressing and critical problems of our time, comparable with the issues of peace and security in 1945 when the UN was established. In the Hakone Vision, we see 2012 as a 'charter moment'; it is time to write a new chapter in the history of international governance. It is in this regard that we determined that proposals for a Sustainable Development Council deserve more serious consideration.¹¹

The process for establishing the Sustainable Development Council needs to be carefully balanced with other governance reforms for sustainable development and with consideration to oversight of the process, and the positioning and configuration of the Council in the constellation of the IFSD, including but not limited to the UN system. The six requirements for the architecture of the governance for sustainability, as mentioned earlier, should be applied when assessing proposals for the Sustainable Development Council. The mandate of the Sustainable Development Council needs to result from further research and a deliberative process. Amongst others, the mandate and charter of such a Council could include mechanisms and authority for governance of crisis, along the lines of the World Health Organization, for example.

Membership in the Sustainable Development Council will be a crucial issue and should be designed to recognize that different types of members provide different types of 'resources'. Therefore, we suggest that different responsibilities could be assigned to three different member groups. The first category of members should be selected in terms of the ability to contribute to the implementation of sustainable development through various forms of capital.¹² These members could be selected on the basis of a set of criteria that recognizes their economic capabilities as well as their commitment to sustainable development. Initially, it may be necessary to rely on GDP until adequate alternative metrics (such as performance scores on the SDGs) are common and accepted.¹³ Membership should be re-assessed periodically (but not too frequently) to allow adjustments on the basis of changed scores on the membership criteria. The second category of members should be countries most affected by specific issues of sustainable development. Specific members would vary depending on the issue on the table.

¹¹<http://www.ieg.earthsystemgovernance.org/news/2011-11-04/sustainable-development-council-way-forward-sustainable-development-governance>.

¹²We recognize that these same countries also have a high capacity to contribute to the problem of unsustainable development if their actions are not changed in significant ways.

¹³It is also in this context that the establishment of indicator appears to be important.

The third category is non-state actors, who could be elected through a mechanism that reflects the criteria for an effective architecture of governance for sustainability. The total number of members should be kept sufficiently small to allow decisions to be made reasonably efficiently.

Considering the importance of accountable participation, noting that there is a distinction between listening and decision making and adding a mechanism of checks and balances between governments and non-state actors are important for the Sustainable Development Council.¹⁴ The Council could be organized as a dual-chamber system, consisting of governments on one side and issue-specific representatives from non-state actors on the other. A mechanism to reflect changing power in the political context and characteristics of the problems at hand will improve accountability.

The global policy-making process on sustainable development issues has been facing problems of effective decision making for some time, as we have recently witnessed at UNFCCC COP15 and CSD 19. The political dynamics are changing, especially with growing political influence exerted by emerging economies such as China and India at the inter-governmental level and with emerging political actors beyond the nation states. The Hakone Vision calls for new methods of decision making to replace the existing consensus-based process. Generally, qualified majority voting is a promising way to improve the quality and decisiveness of decision making in governance for sustainable development (Biermann *et al.*, 2012a, 2012b). Given the high level of the Council, careful development of decision-making procedures, whether on the basis of the common one-state, one-vote unanimous decision-making procedures, re-definition of consensus, or on other innovative models, is needed. Improved decision making at the global level will bring about faster implementation at the local level, which may include legal and regulatory changes.

Scientific and political issues relating to the development of a Sustainable Development Council should not preclude the strengthening of the environmental pillar (by such as upgrading UNEP) of sustainable development and should take place with meaningful involvement and strengthening of integration with economic governance. A review of the role and future of the CSD is one priority in this context.

CONCLUSION

There is a growing gap between existing UN institutions and in particular, institutions for environment and sustainable development and the realities of sustainable development issues. The characteristics of the issues in the Earth System transformation are also different from those of 1945 when these institutions were created. The current system governing sustainable development is no longer sufficient to navigate the Anthropocene given the number, impact, interdependence and complexity of problems associated with global change (Biermann *et al.*, 2010a, 2010b; Biermann, 2011; Biermann *et al.*, 2012a, 2012b.). Today's problems are characterized by temporal, spatial and sectoral interdependencies, as well as complexity and uncertainty. Tackling this gap requires transformation of sustainable development governance. Yet, despite decades of discussion in both academic and political circles, the international community has not reached agreement on how to reform the IFSD. We have tried to move this discussion forward by providing a vision and blueprint for transformation of the IFSD. The result of a series of world café exercises, which was built on the existing knowledge and expertise in the room and a result of mutual learning and innovative thinking, was refined in the form of the Hakone Vision on the basis of the existing knowledge and literature on IFSD. The question remains whether different participants would have ended up with different results, but we believe that ideas presented here represent, at least, an initial step for creating new visions and steps to transforming IFSD, which has no precedent example.

The Hakone Vision calls for the refinement and operationalization of objectives, underlying values and norms. In particular, we call for recognition of the Earth's planetary boundaries and the importance of human well-being and quality of life as important values for sustainable development.

We also highlight the need to recognize and incorporate a wide range of voices and non-state actors in the governance of sustainability. We suggest the development of new mechanisms to enhance the inclusiveness of

¹⁴See Actors Section of this paper.

decision-making processes. Finally, we advocate better integration and improved institutions and decision-making mechanisms. Given the changing nature of pressing issues, most sustainable development issues now are related to security. This heightens the need to establish a Sustainable Development Council that should fit into the character of the issues and the nature of the governance in the 20th century.

In the long term, achieving sustainability requires fundamental improvements in the economic system in addition to improved governance arrangements. The green economy should be linked with IFSD in this regard. The development of SDGs in line with and complementing the MDGs has the potential to trigger changes that go beyond GDP and market value. We see 2012 as the beginning of a 'charter moment', leading to the development of a constitution governing sustainable development that better reflects the challenges of the 21st century.

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REFERENCES

- Alber G, Kern K. 2008. Governing climate change in cities: modes of urban climate governance in multi-level systems. In Proceedings of the OECD Conference on 'Competitive Cities and Climate Change. OECD:171–196.
- Alter K, Meunier S. 2009. The politics of international regime complexity. *Perspectives on Politics* 7: 13–24.
- Armitage D, Ryan P. (eds). 2010. *Adaptive Capacity and Environmental Governance*. Springer Verlag: Heidelberg.
- Bäckstrand K. 2006. Multi-stakeholder partnerships for sustainable development: rethinking legitimacy, accountability and effectiveness. *European Environment* 16(5): 290–306.
- Bäckstrand K, Khan J, Kronsell A, Lövbrand E (eds). 2010. *Environmental Politics and Deliberative Democracy. Examining the Promise of New Modes of Governance*. Edward Elgar: Cheltenham.
- Bernstein S. 2005. Legitimacy in global environmental governance. *Journal of International Law and International Relations* 1(1): 139–166.
- Bernstein S. 2011. Legitimacy in intergovernmental and non-state global governance. *Review of International Political Economy* 18(1): 17–51.
- Bernstein S, Cashore B. 2007. Can non-state global governance be legitimate? An analytical framework. *Regulation and Governance* 1: 347–371.
- Betsill MM, Hoffmann MJ. 2011. The contours of "cap and trade": the evolution of emissions trading systems for greenhouse gases. *Review of Policy Research* 28(1): 83–106.
- Biermann F. 2005. The rationale for a World Environment Organization. In *A World Environment Organization: Solution or Threat for Effective International Environmental Governance?* Biermann F, Bauer S (eds). Ashgate: Hants and Burlington; 117–144.
- Biermann F. 2011. *Reforming Global Environmental Governance: The Case for a United Nations Environment Organisation (UNEO)*. Stakeholder Forum: London.
- Biermann F. 2012. Planetary boundaries and earth system governance: exploring the links. *Ecological Economics*. Available online at <http://dx.doi.org/10.1016/j.ecolecon.2012.02.016>
- Biermann F, Bauer S (eds). 2005. *A World Environment Organization. Solution or Threat for Effective International Environmental Governance?* Ashgate: Aldershot, UK.
- Biermann F, Gupta A. 2011. Accountability and legitimacy: an analytical challenge for earth system governance. *Ecological Economics* 70(11): 1854–1855.
- Biermann F, Siebenhüner B (eds). 2009. *Managers of Global Change. The Influence of International Environmental Bureaucracies*. MIT Press: Cambridge, MA.
- Biermann F, Pattberg P, van Asselt H, Zelli F. 2009. The fragmentation of global governance architectures: a framework for analysis. *Global Environmental Politics* 9: 14–40.
- Biermann F, Betsill MM, Vieira SC, Gupta J, Kanie N, Lebel L, Liverman D, Schroeder H, Siebenhüner B, Yanda PZ, Zondervan R. 2010a. Earth system governance: a research framework. *International Environmental Agreements: Politics, Law and Economics* 10(4): 277–298.
- Biermann F, Betsill MM, Vieira SC, Gupta J, Kanie N, Lebel L, Liverman D, Schroeder H, Siebenhüner B, Yanda PZ, Zondervan R. 2010b. Navigating the anthropocene: the earth system governance project strategy paper. *Current Opinion in Environmental Sustainability* 2(3): 202–208.
- Biermann F, Abbott K, Andresen S, Bäckstrand K, Bernstein S, Betsill MM, Bulkeley H, Cashore B, Clapp J, Folke C, Gupta A, Gupta J, Haas PM, Jordan A, Kanie N, Klavánková-Oravská T, Lebel L, Liverman D, Meadowcroft J, Mitchell RB, Newell P, Oberthür S, Olsson L, Pattberg P, Sánchez-Rodríguez R, Schroeder H, Underdal A, Camargo Vieira S, Vogel C, Young OR, Brock A, Zondervan R. 2012. Transforming governance and institutions for global sustainability: key insights from the earth system governance project. *Current Opinion in Environmental Sustainability* 4: 51–60.
- Biermann F, Abbott K, Andresen S, Backstrand K, Bernstein S, Betsill MM, Bulkeley H, Cashore B, Clapp J, Folke C, Gupta A, Gupta J, Haas PM, Jordan A, Kanie N, Klavankova-Oravska T, Lebel L, Liverman D, Meadowcroft J, Mitchell RB, Newell P, Oberthür S, Olsson

- L, Pattberg P, Sanchez-Rodriguez R, Schroeder H, Underdal A, Camargo Vieira S, Vogel C, Young OR, Brock A, Zondervan R. 2012. Navigating the anthropocene: improving earth system governance. *Science* **335**(6074): 1306–1307, 16 March 2012.
- Bouteligier S. 2011. Exploring the agency of global environmental consultancy firms in earth system governance. *International Environmental Agreements: Politics, Law and Economics* **11**(1): 43–61.
- Brafman O, Beckstrom RA. 2006. *The Starfish and the Spider: the Unstoppable Power of Leaderless Organizations*. Penguin Group: London.
- Brown J, Bennett S. 1995. Mindshift: strategic dialogue for breakthrough thinking. In *Learning Organizations: Developing Cultures for Tomorrow's Workplace*, Chawla dn C Renesch J (eds). Productivity Press: Portland: OR.
- Brown J, Isaacs D, The World Café Community. 2005. *The World Café: Shaping our Futures Through Conversations that Matter*. Barrett-Koehler Publishers, Inc: San Francisco.
- Bummel A. 2010. *Developing International Democracy – For a Parliamentary Assembly at the United Nations* (2nd edn). Committee for a Democratic UN: Berlin. <http://www.kdun.org/48/>
- Cash DW, Adger WN, Berkes F, Garden P, Lebel L, Olsson P, Pritchard L, Young OR. 2006. Scale and cross-scale dynamics: governance and information in a multi-level world. *Ecology and Society*, **11**: 8.
- Cashore B. 2002. Legitimacy and the privatization of environmental governance: how non-state market-driven (NSMD) governance systems gain rule-making authority. *Governance* **15**(4): 503–529.
- Cashore B, Auld G, Newsom D. 2004. *Governing Through Markets: Forest Certification and the Emergence of Non-state Authority*. Yale University Press: New Haven.
- Cashore B, Auld G, Bernstein S, McDermott C. 2007. Can non-state governance ‘ratchet up’ global environmental standards? Lessons from the forest sector. *Review of European Community & International Environmental Law* **16**(2): 158–172.
- Chambers WB. 2005. From environmental to sustainable development governance: thirty years of coordination within the United Nations. In *Reforming International Environmental Governance: From Institutional Limits to Innovative Reforms*, Chambers WB, Green JF (eds). UNU Press: Tokyo; 13–39.
- Chapin FS, Kofinas G, Folke C (eds). 2009. *Principles of Ecosystem Stewardship*. Springer: New York.
- Charnovitz S. 2005. Toward a World Environment Organization: Reflections upon a vital debate. In *A World Environment Organization: Solution or Threat for Effective International Environmental Governance?* Biermann F, Bauer S (eds). Ashgate: Hants and Burlington; 87–115.
- Clapp J, Dauvergne P. 2005. *Paths to a Green World: The Political Economy of the Global Environment*. MIT Press: MA; 336.
- Crutzen PJ. 2002. Geology of mankind: the anthropocene. *Nature* **415**: 23.
- Dalby S. 2009. *Security and Environmental Change*. Polity Press: Cambridge.
- Dellas E, Pattberg P, Betsill M. 2011. Agency in earth system governance: refining a research agenda. *International Environmental Agreements: Politics, Law and Economics* **11**(1): 85–98.
- Diani M. 2000. Social movements and networks virtual and real. *Information, Communication & Society* **3**: 386–401.
- DiMaggio P, Hargittai E, Neuman RW, Robinson JP. 2001. Social implications of the Internet. *Annual Review of Sociology* **27**: 307–336.
- Dombrowski K. 2010. Filling the gap? An analysis of non-governmental organizations responses to participation and representation deficits in global climate governance. *International Environmental Agreements: Politics, Law and Economics* **10**(4): 397–416.
- Dryzek JS, Stevenson H. 2011. Global democracy and earth system governance. *Ecological Economics* **70**(11): 1865–1874.
- Earth System Governance Project (eds). 2011. *Towards a Charter Moment: Hakone Vision on Governance for Sustainability in The 21st Century*. International Environmental Governance Architecture Research Group: Tokyo.
- Falk R, Strauss A. 2011. *A Global Parliament: Essays and Articles*. Committee for a Democratic UN: Berlin.
- Folke C, Hahn T, Olsson P, Norberg J. 2005. Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources* **30**: 441–473.
- Folke C, Jansson Å, Rockström J, Olsson P, Carpenter SR, Chapin III FS, Crépin A, Daily G, Danell K, Ebbesson J, Elmqvist T, Galaz V, Moberg F, Nilsson M, Österblom H, Ostrom E, Persson Å, Peterson G, Polasky S, Steffen W, Walker B, Westley F. 2011. Reconnecting to the biosphere. *AMBIO: A Journal of the Human Environment* **40**(7): 719–738.
- Folke CSR, Carpenter B, Walker M, Scheffer T, Chapin, Rockström J. 2010. Resilience thinking: integrating resilience, adaptability and transformability. *Ecology and Society* **15**(4): 20. <http://www.ecologyandsociety.org/vol15/iss4/art20/>
- Galaz V, Crona B, Österblom H, Olsson P, Folke C. 2011. Polycentric systems and interacting planetary boundaries — emerging governance of climate change—ocean acidification—marine biodiversity. *Ecological Economics*. Available at <http://www.sciencedirect.com/science/article/pii/S0921800911004964>.
- Göpel M. 2011. *Ombudspersons for Future Generations as Sustainability Implementation Units*. Stakeholder Forum: Think Piece, London.
- Haas PM, Haas EB. 1995. Learning to learn: improving international governance. *Global Governance* **1**: 255–285.
- Heinrich D. 2010. *The Case for a United Nations Parliamentary Assembly, 1992*. Extended Republication. Committee for a Democratic UN: Berlin. <http://www.kdun.org/88/>
- Ivanova M, Roy J. 2007. In *The Architecture of Global Environmental Governance: Pros and Cons of Multiplicity*, Swart L, Perry E (eds). Center for UN Reform Education; 48–66.
- Kanie N. 2007. Governance with multilateral environmental agreements: a healthy or ill-equipped fragmentation? In *Global Environmental Governance: perspectives on the Current Debate, May 2007*, Swart L, Perry E (eds). Center for UN Reform Education: NY; 67–86.
- Kanie N, Haas PM. (eds). 2004. *Emerging Forces in Environmental Governance*. UNU Press: Toyko.
- Kornélia HL. 2011. *A Preliminary Examination of the Possibilities for the Institutional Representation of the Interest of Future Generations and Environmental Protection within the System of the United Nations*. Think Piece, London: Stakeholder Forum.
- Leinen J, Bummel A. 2011. Research gaps in the institutional design of global democracy. Op-ed for www.ieg.earthsystemgovernance.org. 27 November 2011. [Last accessed 3 January 2011].
- Lodewalk M, Whalley J. 2002. Reviewing proposals for a world environmental organisation. *The World Economy* **25**(5): 601–617.
- Manning R. 2010. “The impact and design of the MDGs: some reflections,” Institute of development studies. *IDS Bulletin* **41**: 7–14.
- Matthew RA, Barnett J, McDonald B, O’Brien KL (eds). 2009. *Global environmental change and human security*. Cambridge, Mass. London: MIT Press.

- Mayer-Schonberger V, Hurley D. 2000. Globalization of communication. In *Governance in a Globalizing World*, Nye Jr. JS, Donahue JD (eds). Washington D.C.: Brookings Institution Press; 135–151.
- Meadowcroft J. 2004. Deliberative democracy. In *Environmental Governance Reconsidered*, Durant RF, Fiorino DJ, O’Leary R (eds). The MIT Press: Cambridge, Massachusetts and London, England; 183–217.
- Miles EL, Underdal A, Andresen S, Wettestad J, Skjaerseth JB, Carlin EM. 2002. *Environmental regime effectiveness: confronting theory with evidence*. MIT Press: Cambridge, MA.
- Mol APJ. 2008. *Environmental Reform in the Information Age: The Contours of Informational Governance*. Cambridge University Press: Cambridge.
- Moss T. 2010. What next for the millennium development goals? *Global Policy* 1(2): 218–220.
- Newell P. 2008. The political economy of global environmental governance. *Review of International Studies* 34(3): 507–529.
- Oberthür S. 2009. Interplay management: enhancing environmental policy integration among international institutions. *International Environmental Agreements: Politics, Law and Economics* 9: 371–391.
- Ostrom E. 2010. Beyond markets and states: polycentric governance of complex economic systems. *American Economic Review*, American Economic Association 100(3): 641–72.
- Partzsch L, Ziegler R. 2011. Social entrepreneurs as change agents: a case study on power and authority in the water sector. *International Environmental Agreements: Politics, Law and Economics* 11(1): 63–83.
- Paterson M. 2000. *Understanding Global Environmental Politics: Domination, Accumulation, Resistance*. New York: St. Martin’s Press, Inc.
- Pattberg P. 2010. Public-private partnerships in global climate governance. *Climate Change* 1(2): 279–287.
- Pauly LW, Grande E. 2005. Reconstituting political authority: sovereignty, effectiveness and legitimacy in a transnational order. In *Complex Sovereignty*, Pauly LW, Grande E (eds). Toronto: University of Toronto Press.
- Pauwelyn J. 2005. Judicial mechanisms: is there a need for a World Environment Court? In *Reforming International Environmental Governance: From Institutional Limits to Innovative Reforms*, Chambers WB, Green JF (eds). UNU Press; 150–177.
- Raustiala K, Victor DG. 2004. The regime complex for plant genetic resources. *International Organization* 58: 277–309.
- Redgwell C. 2005. Reforming the United Nations Trusteeship Council. In *Reforming International Environmental Governance: From Institutional Limits to Innovative Reforms*, Chambers WB, Green JF (eds). UNU Press: Tokyo; 178–203.
- Rheingold H. 1993. *The Virtual Community: Homesteading on the Electronic Frontier*. New York: Addison-Wesley Publishing Company.
- Rockström J, Steffen W, Noone K, Persson Å, Chapin FS, Lambin EF, Lenton TM, Scheffer M, Folke C, Schellnhuber HJ, et al. 2009 A safe operating space for humanity. *Nature* 461: 472–475.
- Schroeder H. 2010. Agency in international climate negotiations: the case of indigenous peoples and avoided deforestation. *International Environmental Agreements: Politics, Law and Economics* 10(4): 317–332.
- Schroeder H, Lovell H. 2011. The role of non-nation-state actors and side events in the international climate negotiations. *Climate Policy* 12(1): 23–37.
- Spagnuolo F. 2011. Diversity and pluralism in earth system governance: contemplating the role for global administrative law. *Ecological Economics* 70(11): 1875–1881.
- UNEP 2012. *21 Issues for the 21st Century: Results of the UNEP Foresight Process on Emerging Environmental Issues*. Nairobi: UNEP.
- Victor DG, Raustiala K, Skolnikoff EB (eds). 1998. *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice*. Cambridge, MA: MIT Press.
- Vijge MJ. 2010. Towards a World Environment Organisation: identifying the barriers to International Environmental Governance Reform. Global Governance Working Paper No 40. Amsterdam et al.: The Global Governance Project.
- Young OR (ed). 1999. *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms*. Massachusetts: MIT Press.
- Young OR. 2008. The architecture of global environmental governance: bringing science to bear on policy. *Global Environmental Politics* 8: 14–32.
- Young OR. 2010. *Institutional Dynamics: Emergent Patterns in International Environmental Governance*. Cambridge: MIT Press.
- Young OR, Schroeder H, King LA (eds). 2008. *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*. Cambridge, MA: The MIT Press.