

Managing Institutional Interaction in Global Environmental Governance: Assessing the Options for Environmental Policy Integration

Sebastian Oberthür
Institute for European Studies
Vrije Universiteit Brussel
Pleinlaan 2
1050 Brussels
BELGIUM
Tel.: +32-2-6291805
Email: Sebastian.oberthuer@vub.ac.be

*Paper prepared for the 2008 Berlin Conference on the Human Dimensions of
Global Environmental Change
22-23 February 2008
Draft, do not cite or quote without author's permission*

Abstract: This paper develops a framework for the systematic analysis of interplay management in global environmental governance and, on this basis, makes a start with the exploration of the options available for such interplay management so as to enhance environmental policy integration. It argues that the diversity of the inter-institutional influence in global environmental governance results in and necessitates a differentiated approach to the political management of such institutional interaction. As a basis for a systematic exploration of the issue of interplay management, it is useful to distinguish kinds of institutional interaction with varying governance conditions as well as different categories of interplay management. With respect to the latter, I introduce different levels (of coordination) and types of interplay management activities/policies. The analysis reveals that interplay management has put emphasis on varying types and levels of activity depending on the type of interaction addressed and that these types and levels possess varying potential for enhancing the effectiveness of interplay in global environmental governance. Reflecting the horizontal and fragmented institutional structure of global environmental governance, however, interplay management has overall so far had its major emphasis on the unilateral management within individual institutions. Future research on interplay management will have to grapple with the issue of complex interaction, i.e. the fact that interaction among institutions is itself frequently inter-related. The reality of complex interaction situations raises the issue of more integrated approaches to interplay management that can take systematically feedback effects between individual interaction phenomena and the emergent properties of the interaction complexes thus emerging into account.

Introduction

Institutional interaction or interplay¹ constitutes a crucial feature of and a critical challenge for global environmental governance. Whereas international institutions have traditionally been analysed in isolation from each other (Haas et al. 1993; Victor et al. 1998, Miles et al. 2002), an increasing body of literature has demonstrated that these institutions influence each other's development and effectiveness in significant ways (e.g. Brown Weiss 1993; Young 1996; Oberthür/Gehring 2006; Gehring/Oberthür 2008; Oberthür/Stokke Forthcoming). The significance of this institutional interaction has grown with the increasing density of international institutions not least in the highly fragmented area of global environmental governance. The analysis of institutional interaction challenges the traditional approach towards the analysis of international institutions that has focused on issue-area specific regimes. It calls for a more encompassing and integrated approach that takes account of the important inter-linkages between different governance domains and their lead institutions. While important strides have been made in advancing such an integrated approach, many questions still need to be answered and systematically explored. One important issue in need of further research relates to the political management of institutional interaction (Gehring/Oberthür 2008; Oberthür/Stokke Forthcoming).

This paper strives to make a contribution to filling this gap by identifying and exploring the options available for managing the interaction of international institutions in global environmental governance so as to enhance environmental policy integration. It argues that 'interplay management' (Stokke 2001) needs to systematically distinguish between different categories of institutional interaction as well as different types and levels of interplay management. Past research has shown that institutional interaction can have largely varying characteristics, which are likely to require varying political approaches for their effective management. Successful interplay management depends on the fit of the approach to interplay management with the particular governance conditions prevailing in varying interaction situations. The paper offers a framework for the systematic assessment of the effectiveness of various approaches to interplay management as regards different categories of institutional interaction.

The paper proceeds in three main steps. First, section 1 introduces the concept of the political management of institutional interaction (*interplay management*) with the purpose of advancing environmental policy integration. As a basis of a systematic analysis of interplay management, four levels as well as three different modes of interplay management are distinguished. Section 2 then establishes a systematic distinction between varying interaction situations. In particular, institutional interaction may be characterized by learning processes, by divergent objectives of the institutions involved and by political dynamics based on compatible objectives. These differences have potentially far-reaching consequences for the effects of institutional interaction (synergy/conflict) and the overall conditions for interplay management. They provide the basis of a differentiated analysis of interplay management of the different types of institutional interaction, covering the current status of interplay management as well as the existing potential for improvement (section 3). Overall, the paper offers a framework for the systematic exploration of interplay management in global environmental

¹ Both terms will be used interchangeably throughout this paper.

governance, which differentiates between interaction types as well as between varying approaches of interplay management.

1. Interplay Management

Institutional interaction can be addressed politically in order to enhance synergy and mitigate conflict/disruption. Institutional interaction will occur if at least one institution affects the development or performance of at least one other institution. Whereas institutions can also emerge spontaneously as the result of uncoordinated behaviour of actors in the international system (Young 1982), governance institutions that form the major focus of research on institutional interaction arise from the negotiations of actors. Interaction between negotiated institution thus originates from decisions taken within one institution and can be influenced by decisions taken by the affected institution (Oberthür/Gehring 2006). Consequently, institutional interaction can be influenced politically and is susceptible to political interplay management.

This section introduces the notion of interplay management. It first defines interplay management and puts its purpose in the context of environmental policy integration. It then introduces two major distinctions related to the level and mode of management as a basis of a systematic analysis of interplay management.

1.1 Interplay Management for Environmental Policy Integration

Interplay management generally refers to all deliberate efforts by any relevant actors in whatever form or forum to address and improve institutional interaction and its effects (see also Stokke 2001). Interplay management thus denotes efforts to govern institutional interaction. Whereas institutional interaction as such may occur even without the knowledge of the actors concerned, interplay management requires them to know about and reflect upon the interaction. Hence, the concept of interplay management is closely related to Young's concepts of "clustering" (Young 1996) and political linkages (as opposed to functional linkages) that "arise when actors decide to consider two or more arrangements as parts of a larger institutional complex" (Young et al. 2005: 62). Interplay management differs from political linkages (and the similar notion of "clustering") in two respects. First, political linkages can be made even if not aiming at the political management of interaction. Second, interplay management may consist in other action than institutional aggregation, that seems to be inherent in the concept of political linkages. Interplay management is also closely related to the notion of policy responses to interaction (Gehring/Oberthür 2006b: 314-316). It goes beyond policy responses by including deliberate action by relevant actors in the process of the interaction itself that shapes this interaction and its effects in the first place (including the possibility to refuse pressure from another institution and thus a deliberate choice for non-interaction).

In global environmental governance, environmental policy integration can be usefully employed as a standard for the assessment of interplay management. Without such a standard, we may not be in a position to substantively evaluate interplay management activities. Environmental policy integration provides such a standard, even though it can itself be conceptualised in various ways. It may, for example, be conceived of as a procedural standard that requires that environmental concerns and objectives are considered and weighed against other

policy objectives in political decision-making (but not necessarily reflected). I follow here a more substantial notion of environmental policy integration that requires environmental considerations to be substantively reflected in political decision-making. Environmental policy integration will thus exist if environmental objectives and considerations are integrated into other policy areas so that environmental protection requirements are respected and can be implemented more effectively. With respect to the interaction of international institution, environmental policy integration thus calls for adaptations of the institutional framework that help enhance the effectiveness of international environmental institutions in terms of both decision-making and implementation. Integration of the policies of different environmental institutions can thus be considered as aiming at a high aggregate level of environmental protection that respects the environmental protection requirements of all institutions involved (see Homeyer 2006).

1.2 Levels of Interplay Management

We can usefully distinguish four levels of political interplay management. The highest level refers to the institutional framework *overarching* the commonly sectoral institutions involved in institutional interaction. It may involve particular international institutions and organisations than span a whole policy field such as the UN Environment Programme (UNEP) or even cut across several policy fields such as the UN itself. General rules of international law as codified in the 1969 Vienna Convention on the Law of Treaties also belong to this level and may be relevant as interplay management.

Interplay management may also take the form of *joint management* of the institutions concerned. Joint management involves active targeted efforts to coordinate the activities of the interacting institutions and possibly even to create joint rules governing the interaction. Coordination requires a communication process overarching the interacting institutions, for example in the form of an exchange of the relevant secretariats or of negotiations between the two groups of actors. Joint management thus involves the conscious creation of institutional structures for coordination between the existing specialised and fragmented regimes that characterize global environmental governance. Young's categories of political linkage and clustering (see below section 2) relate to such joint management (see also Gehring/Oberthür 2006: 314).

A lower degree of coordination than in the case of joint management exists in case of *unilateral management by one or more of the interaction institutions*. It involves collective action within at least one of the interacting institutions without coordination *between* them. In other words, unilateral management requires collective action and constitutes a collective response to institutional interaction but does so within existing institutional boundaries. That means its focus is on playing with the existing repertoire within the constraints of the existing fragmented institutional structures of global environmental governance.

At a fourth level, national and sub-national actors can even manage institutional interplay without any international coordination. Depending on the issue at stake, both governmental and non-governmental actors (including civil society organisation, business actors, etc.) can play a role in such *uncoordinated management* at national and regional levels. These actors in particular have to take decisions with respect to the implementation of relevant international rules and norms. In so doing, they have various opportunities to exploit potential for creating

synergy and mitigating conflict. Furthermore, to the extent that these actors have access to the decision-making processes in relevant international institutions, they can contribute to and may even trigger coordinated interplay management at the “higher” levels.

1.3 Types/Modes of Interplay Management

When thinking about interplay management, it should be useful to distinguish a number of different types of activities or modes of governance that may be pursued in this effort. Little work has been done so far in this area with respect to interplay management. Receiving inspirations from distinctions established in the relevant literatures on different modes of governance (see Homeyer 2006 for an overview) and on policy instruments, I apply in the following a rather crude distinction as it seems potentially relevant to the context of international institutions. The distinction made is an ideal-typical one; thus, we may not find any of the approaches distinguished in their ideal-typical form in reality, but a rich array of mixtures.

First, interplay management may rely on *communication and information*. This mode of interplay governance aims at learning (be it simple or complex), persuasion and overcoming barriers to knowledge and information processing that bound the rationality of decision-making (Simon 1972). As such, it is based on voluntarism of the interacting institutions and non-hierarchical in character. Actors within the institutions concerned are offered additional knowledge and information. If relevant, they may take this information and knowledge into account in their decision-making.

Second, interplay management may employ *regulation*. Regulation itself can take various forms. It may attempt at determining substantive standards of behaviour by for example prescribing which rule to follow in the case of a conflict of law. Regulation may also be of a rather procedural character. In the case of a conflict of law, for example, it may determine the procedure that should be followed in trying to resolve the conflict (such as starting consultations or an arbitration procedure). Procedural requirements could also include obligations for an exchange of information, for conducting impact assessments, etc. Irrespective of its form, regulation is a particular mode of governance that rests on the existence of authority. Regulation may prescribe, proscribe or permit certain behaviour, be it substantive or procedural. If regulation is paired with sufficient authority, it can thus also serve to implement measures against opposition.

Third, interplay management can also aim at certain *enabling activities*. Most importantly, political and legal systems frequently decide on the allocation of resources that determine the capacities of certain actors to perform functions. Going slightly beyond pure resource allocation, capacity building has become a major focus of enabling activities in development cooperation and in international environmental governance. Overall, this category of interplay management activities covers a number of activities not accounted for under the headings of communication/information and regulation that aim at creating an enabling framework for actors to pursue and implement environmental policy integration.

2. Categories of Institutional Interaction

One of the major advances of research on institutional interaction to date has been the elaboration of a number of typologies and classifications (Gehring/Oberthür 2008). These classifi-

cations and typologies have been based on various criteria. They have served to structure the realm of institutional interaction for analytical purposes and have furthered the insight that the realm of institutional interaction is not uniform but multifaceted, i.e. accommodates situations with largely diverging characteristics. Existing categorizations have usually not been designed with the particular purpose of advancing our thinking about interplay management, i.e. the means that may be available to influence and govern the interplay between different international institutions so as to enhance synergy and mitigate conflict.

In this section, I make an attempt to categorize the realm of institutional interaction in a way that is meaningful as a basis for thinking about interplay management. I therefore start from classifications that focus on the driving forces and effects (synergy/conflict) of institutional interplay. Building on previous work on the causal mechanisms and ideal types of institutional interaction (Oberthür/Gehring 2006a; Gehring/Oberthür Forthcoming), I distinguish in particular between interaction driven by cognitive learning processes, interaction driven by the divergent objectives of the institutions involved and interaction (other than learning) based on compatible/complementary objectives. These kinds of interaction situations can be expected to require varying approaches to interplay management.

2.1 Cognitive Interaction: Learning

Institutional interaction can be driven by the power of knowledge and ideas. Such “cognitive interaction” (Oberthür/Gehring 2006a; Gehring/Oberthür Forthcoming) or “ideational interplay” (Stokke 2001: 10) is based on persuasion and constitutes a particular form of interinstitutional learning. It presupposes that actors usually have incomplete knowledge and limited information-processing capacity. Under these circumstances, the members of an institution will be prepared to voluntarily learn by adapting to new knowledge created or made available by another institution if it helps them advance their own objectives (or is at least compatible with these objectives).

For cognitive interaction to occur, the source institution must generate some new information. There are varying ways in which such new information can reach the target institution. The source institution could generate a report or otherwise make available relevant scientific or technical knowledge, or it could provide insights into possible political approaches to solving particular problems. It could proactively pursue the transfer of the relevant knowledge or information to the target institution. Alternatively, the target institution itself could be looking for useful knowledge and information that other institutions may have available.

Depending on whether an interaction was triggered intentionally or not, we can distinguish two subtypes of cognitive interaction. In the case of unintentional cognitive interaction, the members of the target institution voluntarily use some aspect of another institution as a policy model. For example, the compliance system under the Montreal Protocol on Substances That Deplete the Ozone Layer influenced the negotiations on the compliance system under the United Nations Framework Convention on Climate Change and its Kyoto Protocol because it was referred to as a model (from which Parties eventually departed considerably; see Werksman 2005). If cognitive interaction is triggered intentionally, the source institution will request assistance from the target institution (and will possibly make information available to this end). For example, the World Customs Organisation adapted its customs codes in response to a request by the Convention on International Trade in Endangered Species of

Wild Fauna and Flora (CITES), thus supporting the implementation and enforcement of the latter's trade restrictions (Lanchbery 2006).

As regards both subtypes, cognitive interaction can be expected to have no disruptive but largely synergistic effects on both institutions involved. The members of the target institution will hardly voluntarily learn so that it hurts their common endeavour. The learning is also unlikely to have any systematic negative effects on the triggering source institution. Where this institution pursued learning in the target institution, a positive response of the target is even likely to assist the original source in promoting and reinforcing the effectiveness of its own governance efforts (see Gehring/Oberthür Forthcoming).

2.2 Interaction Characterized by Divergent Objectives

Whereas compatibility of objectives is quasi-automatically ensured in cases of cognitive interaction (since true learning cannot be imposed), this is not necessarily true for other cases of institutional interplay. Thus, institutional interaction fuelled by normative commitments may well occur between institutions with divergent objectives. The commitments under one international institution may well constrain and limit the room for manoeuvre of actors under another institution. For example, the commitment of the World Trade Organization (WTO) not to discriminate against imported goods renders it difficult for WTO members to agree on employing trade sanctions under multilateral environmental agreements in order to enhance their effectiveness. And if such trade sanctions are nevertheless adopted, an apparent contradiction of the WTO with a multilateral environmental agreement could, based on their divergent objectives, undermine an effective implementation by states parties (Brack 2002; Gehring Forthcoming).

The divergent objectives of interacting institutions will in particular become relevant, if the issue areas and memberships of these institutions overlap substantially. If the issue areas of the institutions involved did not overlap significantly, neither the respective commitments nor their implementation on the ground could be expected to have relevance for the other side. Much the same is true as regards institutional membership: commitments under one institution can be expected to bind states with respect to another institution only if this state is a member of both institutions. (At the implementation level, however, the activities of two states members of different institutions could work at cross-purposes.) (Gehring/Oberthür Forthcoming)

The effects of institutional interaction characterized by divergent objectives of the institutions involved are largely disruptive. Typically, institutions with divergent objectives will appraise a policy measure differently so that disputes about the appropriate regulation at the international level arise easily. Where the divergent objectives actually lead to ambiguous or contradictory regulation, uncertainty about the validity of existing norms and hence a danger of incomplete and ineffective implementation ensues (Gehring/Oberthür 2006; Forthcoming).

It is in this area of institutional interaction that is characterized by divergent objectives where most of the cases of interinstitutional conflict focused upon in the literature belong. The problematic relationship between the WTO and multilateral environmental agreements is based on the divergent objectives of the institutions involved (Gehring Forthcoming; Palmer et al. 2006; Eckersley 2004; Brack 2002). Similarly, the tensions between the global climate change regime and the Convention on Biological Diversity regarding the preservation and

sustainable management of forests (Jacquemont/Caparros 2002), between the Kyoto Protocol on climate change and the Montreal Protocol for the protection of the ozone layer (Oberthür 2001; Schneider et al. 2005) and between the Kyoto Protocol and the International Civil Aviation Organization and the International Maritime Organisation (Oberthür 2003) are based on the fact that the institutions involved pull in different directions. Generally, much of the literature on institutional interaction has focused on these and other problematic cases belonging to this section of the broader interplay domain (Gehring/Oberthür 2008).

2.3 Interaction Characterized by Compatible/Complementary Objectives

A third category of interaction situations to be distinguished here is characterized by complementary or even identical objectives of the institutions involved. In contrast to cognitive interaction (where institutional objectives are also compatible), this category of institutional interaction is driven by specific differences of the commitments of the institutions involved. In other words, it is not a learning process that lies at the heart of the effect in the target institution but utilitarian and/or normative considerations of actors within the target institution (see also Stokke 2001).

As in the previous case, differences of commitments can be expected to trigger institutional interaction only if the issue areas of the institutions involved overlap significantly. If the issue areas of the institutions involved did not overlap significantly, neither the respective commitments nor their implementation on the ground could be expected to have relevance for the other side. Contrary to the previous case, however, the differences of commitments do not emanate from differences of institutional objectives but of the memberships and/or governance instruments of the institutions involved.

If the *membership* of a smaller institution is “nested” in a bigger one with identical objectives, vertical interaction dynamics can emerge in two ways (on nesting of institutions see Aggarwal 1983; Young 1996; Gehring/Oberthür 2006). First, solutions found in a smaller, regional institution may be “scaled up” (Gupta 2008) to a bigger, global institution addressing the same issue, not least because the members of the regional institution develop a common interest in such a globalization of their obligation. For example, the ban of trade in hazardous wastes from OECD to developing countries first agreed in a number of regional agreements greatly facilitated global agreement on such a ban in the context of the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal (Clapp 1994; Meinke 2002). In the opposite direction, second, the implementation of effective global measures – whether taken as a result of the scaling-up mechanism just described or not – will frequently also support the implementation of regional agreements in the same field and pursuing the same objectives – as in the aforementioned case of the ban of waste exports to developing countries.

If the *governance instruments* of two institutions with identical objectives and even identical memberships differ, this may also trigger institutional interaction in two ways. First, the overlap in memberships may facilitate the transfer of an obligation from one institution to another. If this transfer mobilizes an additional governance instrument such as a particular form of law (i.e. harder law) or a specific enforcement or assistance mechanism available in the target institution, this will provide an additional incentive to implement the obligation. For example, political agreement achieved at the high-level International North Sea Conferences

paved the way for the acceptance of identical obligations enshrined in hard law within the regime for the protection of the North-East Atlantic (OSPAR) and, subsequently, the EU (Skjærseth 2006). Second, and frequently but not necessarily resulting from such a transfer of obligations, the additional governance instruments employed by an institution can and does reinforce the implementation of another institution with an overlapping governance area. In the aforementioned example, supranational law employed by the EU helped achieve effective implementation of OSPAR regulations, and both the EU and OSPAR rules reinforced implementation of the soft law of the International North Sea Conferences (Skjærseth 2006).

It follows from the internal logic of these types of institutional interaction that they primarily generate synergistic effects. Similar or identical objectives of the institutions generate compatible priorities and render disruptive effects highly improbable, if not impossible. They result in vertical or horizontal policy diffusion and ensure that the implementation of the institutions involved reinforce each other.

2.4 Conclusion

We may assume that cases and situations of institutional interaction following largely different rationales, driven by varying forces and with opposite effects will require varying approaches of interplay management. In this respect, I have distinguished interaction that is driven by learning and persuasion from interaction based on normative and utilitarian considerations of relevant actors. As regards the latter, we may usefully distinguish between primarily synergistic institutional interaction characterized by similar or even identical objectives of the institutions involved from primarily conflictive interaction between institutions with diverging objectives.

The distinction between different categories of interaction introduced above is an analytical one. A given interaction situation to be managed may not necessarily easily fall into one of the categories distinguished. For example, two institutions such as the Montreal Protocol for the protection of the ozone layer and the Kyoto Protocol on climate change may at the same time learn from each other with respect to one aspect and be in tension as regards another (Oberthür 2001). An interaction situation may also be composed of interrelationships of more than two institutions creating an institutional or “regime complex” (Raustiala/Victor 2004). Whereas the concrete interaction situation may have an effect on the design of interplay management and its prospects, it should be useful to distinguish between the different categories of interaction that the situation may comprise. I will return to the challenges and opportunities that institutional complexes pose for interplay management below (section 3.4).

3. *What Management for Which Interplay?*

This section attempts to systematically explore which levels and modes of interplay management have been particularly relevant and may be assumed to hold promise with respect to the different categories of institutional interaction. The discussion follows the categories of institutional interaction introduced in section 2. Subsequently, the issue of the management of broader institutional complexes that may be characterised by several institutional interactions of varying kinds is discussed briefly.

3.1 Supporting Learning

In order to enhance the effectiveness of global environmental governance and advance environmental policy integration, the management of cognitive institutional interaction should aim at promoting such interaction. As elaborated in section 2.1, the logic of cognitive interaction is a synergistic one because inter-institutional learning supports achieving the regulatory objectives of at least one of the institutions involved without harming the other(s). As such, increasing the occurrence of cognitive interaction and its intensity should generally enhance global environmental governance.²

The political management of cognitive interaction has so far primarily relied on action by individual actors and institutions (uncoordinated and unilateral management). Individual actors (including states governments, non-governmental organisations or the secretariats of the international institutions involved) have identified suitable models to learn from and fed them into the decision-making process. They have also been the driving forces behind attempts to initiate requests for assistance from one institution to another. Individual institutions, based on the collectivity of their members, have been involved in initiating and supporting inter-institutional learning in several ways as well. Secretariats of international institutions can identify, based on their analytical capacity, policy models and other institutions that could be requested for assistance. In the case of learning from a model, members of the learning institutions have collectively to decide on what exactly to learn from this model. And members of one institutions collectively requesting assistance from another institution can exploit the room for framing the request.

Joint and *overarching* interplay management have also been relevant. First of all, international institutions have at times created joint bodies, either ad hoc or standing, in order to explore the available potential within a certain cluster of institutions. The ad hoc joint scientific assessment of the use of fluorinated greenhouse gases undertaken by the scientific advisory bodies of the Kyoto Protocol and the Montreal Protocol may provide a case in point (Oberthür 2001). Similarly the standing Joint Liaison Group of the UN Framework Convention on Climate Change, the UN Convention to Combat Desertification and the Convention on Biological Diversity established in 2001 provides a forum for mutual information exchange and learning with a focus on implementation issues (van Asselt Forthcoming). Furthermore, general international organisations transcending the particular institutions in question can feed relevant information and requests into the decision-making process of individual institutions. The main general global environmental organisation is the UN Environment Programme. It serves as a clearing house and has as one of its major mandated functions the dissemination of relevant information, including across relevant international institutions (e.g. Ivanova 2007). Other organisations such as the OECD, the GEF, the World Bank and others are known for their informational capacity and their ability to act as agents of policy diffusion.

Overall, we may conclude that there is potential to promote inter-institutional learning more systematically. It is difficult to assess whether all significant opportunities for cognitive inter-

² It may be noted, however, there may be transaction costs involved that may translate into opportunity costs and lead to policy trade-offs. In particular, intensified requests for assistance and consequent inter-institutional collaboration and exchange of information may become taxing on both institutions and may hinder effective learning, especially if the benefits to be expected from it are not significant for all sides involved.

action have been exploited because the limits of the potential for such interaction are difficult to determine. However, the current situation is characterized by a piecemeal approach that relies on chance rather than on structure. Whether the potential for cognitive interaction is exhausted depends to a large extent on the vagaries of initiatives of individual actors, on the varying capacities and interests of international actors and institutions as well as on the varying capacities and initiatives of the relevant secretariats. UNEP's overall capacity, for example, has remained sharply limited (e.g. Ivanova 2007). Other international organisations focus only on parts of global environmental governance, forming a patchwork framework with considerable gaps. The capacity of the secretariats of international institutions in general and thus also in respect of screening their institutional environment for opportunities of inter-institutional learning currently varies considerably in global environmental governance. Also, such a screening does not usually form an explicit, targeted part of the mandate of these secretariats. While it is unknown how much the added benefit would be, there is scope for a more systematic exploitation of the potential for inter-institutional learning.

This scope for improvement appears to be particularly pronounced with respect to unilateral action by international institutions and adaptations of the overarching framework. At the level of individual institutions, strengthened capacities and mandates of the secretariats may enable a more systematic screening of opportunities for inter-institutional learning. Secretariats could thus be enabled to systematically identify relevant information available in other institutions (including model solutions) and assess the potential for assistance by other institutions. Beyond individual sectoral institutions, strengthening the capacity available within the overarching international framework could make a similar contribution. In this respect, UNEP appears to be an obvious candidate for the strengthening of relevant capacities with respect to global environmental governance – whether or not done as part of its transformation into a world environment organisation; on the latter see Biermann/Bauer 2005).

While the potential of strengthened action by individual actors is very limited, joint management by several institutions can make a reasonable (although also more limited) contribution. Individual actors can provide relevant information but relying on them makes inter-institutional learning dependent on national interests and resource allocations. Furthermore, while such decentralised efforts have made useful contributions, they are not the most efficient way of strengthening cognitive interaction (risk of double work, limited credibility). Joint management of institutions has remained the exception rather than the rule and has by no means been established in any coherent and comprehensive way. They can also be strengthened, even though their limited potential should be realised. Joint efforts at information exchange in order to enhance inter-institutional learning in particular hold promise with respect to institutions whose issue areas are closely related and significantly overlap and whose objectives are compatible. Under these circumstances, we may expect joint management/bodies to hold the promise to identify additional relevant information and smoothen the implementation of potential assistance of one side to the other. However, such institutionalised joint management will remain limited in its potential, because it can only cover a small number of relevant international institutions.

In summary, cognitive interaction has a particular profile as regards levels and modes of interplay management (see Table 1). The major emphasis and potential for promoting inter-institutional learning appears to be on unilateral action by the institutions involved as well as by broader international organisations, in particular UNEP. This has been and can be further

complemented by an institutionalised exchange of information and coordination between certain clusters of institutions that are functionally particularly closely related and therefore have a particular potential for inter-institutional learning. As regards the modes of interplay management, the management of cognitive interaction has so far largely relied on communication and information. Given that cognitive interaction is driven by and depends on information and communication, this may not be surprising. The capacity to engage in relevant communication and to exchange relevant information depends largely on the targeted provision of sufficient resources to this end. This has so far only been consciously used to a very limited extent at best for the purpose of enhancing the conditions for inter-institutional learning. Regulation has neither played a significant role in this field nor would it appear to have a significant potential to contribute to the promotion of cognitive interaction. Learning is hard to impose by law (and whether it is permitted hardly matters).

Table 1: Interplay Management Profile of Cognitive Interaction

	Enabling activities (incl. resources)	Communication/ information	Regulation
Individual actors		(X)	
Separate institutions	X	X	
Institutions jointly	X	X	
Overarching institutions	X	X	

3.2 Mitigating Disruption

In the case of institutional interaction that is driven by divergent objectives of the institutions involved, the task of interplay management for environmental policy integration is to find a balance that ensures a high level of environmental protection. The jurisdictional authority of the interacting institutions needs to be delimited in order to prevent mutual disruption of their governance efforts. Since effective governance by either of the institutions involved will otherwise be compromised, such problematic interaction has an inbuilt incentive to arrive at such a jurisdictional delimitation. The question is thus frequently whether a jurisdictional delimitation can be achieved but when, and where the balance between the competing objectives will be struck (Gehring/Oberthür 2006). From the perspective of environmental policy integration, this balance should clearly reflect environmental protection requirements. In cases of competing objectives between two environmental institutions (e.g. the Kyoto Protocol and the CBD concerning forest protection), a solution should be found where both objectives are respected.

Unilateral action by each of the institutions involved has been the primary focus of interplay management in this area so far. The institutions involved have regularly developed their own regulatory framework taking into account their interdependence with other relevant institution(s). These unilateral interplay management efforts have frequently included the elabora-

tion of general explicit rules (e.g. “savings clauses”) regarding the relationship with other institutions (Axelrod Forthcoming; van Asselt Forthcoming). In general, all major cases of conflictive/disruptive institutional interaction have been managed primarily by unilateral but interdependent decision-making within the institutions involved, including governance of the trade-environment nexus (Palmer et al. 2006; Gehring Forthcoming); policy tensions between the Kyoto Protocol, on the one side, and the Montreal Protocol (Oberthür 2001; Schneider et al. 2005), ICAO and IMO (Oberthür 2003; 2006), and the CBD (Jacquemont/Caparros 2002), on the other. In some instances, this has also involved the establishment of new institutions (Raustiala/Victor 2004). Elements of a *joint management* have, if taken at all, generally remained limited to mechanisms for information exchange (e.g. mutual reporting; Joint Liaison Group of climate regime, CBD and CCD).

At the level of *overarching institutions*, the general rules of international law, as in large part reflected in the 1969 Vienna Convention on the Law of Treaties, have provided the framework that has shaped the unilateral management by individual institutions. These rules include the *lex posterior* and the *lex specialis* provisions as well the prescription that any specific international treaty should be interpreted in the light of other agreements between the Parties. These general rules have principally not served to resolve any potential dispute between institutions pursuing competing objectives, not least because no open, acute conflict between the legal systems concerned has occurred. Also, the usefulness especially of the *lex posterior* and the *lex specialis* rules for resolving conflicts of law can be seriously questioned. They are, however, nevertheless significant for the management of disruptive interaction situations because they serve as a general reference for decisions taken within individual institutions involved in problematic interaction, either for assessing rules before adopting them or for interpreting adopted rules (see summary discussion in van Asselt Forthcoming).

Individual actors’ ability to manage or govern disruptive interaction is severely constrained (*unilateral management*). These actors constantly shape disruptive interactions by their independent decisions about the implementation of international rules emanating from international institutions with divergent objectives. In the absence of international guidelines on how to reconcile the resulting tensions, they have to strike a balance themselves. Although the sum of these individual decisions produces a collective result, the influence of each individual actor on this collective result is so small that she cannot expect to “manage” the situation by her independent decision (even though the effects on the overall situation may enter the decision calculus). Frequently, the result may be a cacophony of domestic regulatory situations striking varying balances and resulting in incoherent domestic regulation in different countries mirroring their differing interests with respect to the objectives. Under conditions of interdependence, the capacity of individual actors to resolve the underlying tensions is at best extremely limited.

Whereas some remarkable achievements have to be acknowledged, from an environmental policy integration perspective a demand for further improvement exists. Eventually, a strong interest of both sides in finding an acceptable balance is inherent in most of the problematic interaction situations so that open conflict may be rare. Also, the balance between the WTO and multilateral environmental agreements may be considered a remarkable achievement of the environmental side so far (Gehring Forthcoming; Gehring/Oberthür 2006c). However, the chilling effect of the WTO still haunts international environmental negotiations, and the situation of various other problematic interactions, even within the environmental field, is far

from the objective of environmental policy integration (e.g. Kyoto Protocol and CBD; Kyoto Protocol and Montreal Protocol on fluorinated gases; Kyoto and ICAO/IMO). Overall, there thus exists a need/demand for further improvements (and a need for trying to identify options for improved interplay management in this field).

Unilateral action by the institutions involved in general holds an enormous potential for managing problematic interaction. Since inter-institutional tensions arise as the result of the uncoordinated decisions of different institutions, unilateral adaptations of these institutions can also mitigate the potential for conflict and enhance environmental policy integration. For example, several options for accommodating the concerns of MEAs in the WTO exist. Individual environmental institutions can exploit and expand their room for manoeuvre by strengthening their own measures and creating “strategic inconsistency” (Raustiala/Victor 2004), including through the creation of new institutions (as in the case of the Cartagena Protocol; see Oberthür/Gehring 2006b). The feasibility of such measures essentially depends on the political and societal power play between the issue areas concerned – a detailed evaluation of this feasibility is beyond the scope of this paper.

Joint management and inter-institutional coordination cannot be expected to be of much use for advancing environmental policy integration in this field of interaction. On the one hand, joint decision-making on problematic interaction holds very limited promise. Because interacting institutions themselves cannot negotiate, joint decision-making would translate into the establishment of a third forum and institution in which the same countries discuss the interface of each problematic interaction between international institutions. Setting up additional institutions runs the danger of even aggravating existing problems because it would increase the number of institutions with different objectives whose regulatory authority would have to be delimited. This option might only be considered in exceptional circumstances of high political salience. An enhanced communication and exchange of information, on the other hand, can also not be expected to contribute much to improving problematic interaction, because better information will usually not itself be able to overcome divergences in objectives. Consequently, the effects of the Joint Liaison Group between the UNFCCC, the CBD and the CCD on the interaction between the Kyoto Protocol and the CBD regarding forestry have remained very limited. At most, such information exchange mechanisms may help raise the awareness about existing policy trade-offs (which may indeed create a political dynamic), but will most likely not be able to reconcile the underlying divergent objectives.

Options for action beyond sectoral international institutions exist, but require a lot in order to become feasible. For example, the existing general rules of international law applicable to tensions between legal systems could be reformed or complemented. One possibility would be to grant environmental considerations a high status in this way and generally provide further legitimacy to the objective of environmental policy integration. Whereas related rules could improve the conditions for environmental policy integration among international institutions across the board, their elaboration (e.g. a change of the Vienna Convention on the Law of Treaties or even of the UN Charter) are politically demanding. A further option beyond sectoral institutions would be the establishment of a World Environment Organisation (WEO), which could serve to discuss and possibly regulate the interface between different issue areas in global environmental governance (Biermann/Bauer 2005). The creation of a WEO as such could, however, hardly be expected to strengthen environmental policy vis-à-vis other policy areas (e.g. trade). And its contribution to a better balancing of policy trade-

offs within the environmental domain (e.g. regarding the protection of climate and biodiversity) would depend on the design of its constitutional rules (which would face similar challenges as mentioned above with respect to the general rules of international law) (e.g. Oberthür/Gehring 2004).

Overall, the major focus and potential of interplay management regarding disruptive interaction lies with regulatory activity within the institutions involved and in overarching international fora (see Table 2). A limited potential for complementary communication and information activities also exists, which is, however, limited. The more intense use and higher potential of regulatory action as compared to other, “softer” modes of interplay management may be explained with the deeper underlying divisions that characterize problematic institutional interaction and constrain the scope for persuasion.

Table 2: Interplay Management Profile of Disruptive Interaction

	Enabling activities (incl. resources)	Communication/ information	Regulation
Individual actors			
Separate institutions		(X)	X
Institutions jointly		(X)	(X)
Overarching institutions		(X)	X

3.3 Enhancing Synergy

*Unfortunately, a draft of this section could not be completed prior to the Berlin conference.
A preliminary assessment will be given in the presentation.
A fuller discussion will be integrated into the paper at a later stage.*

3.4 Managing Institutional Complexes and Complex Interaction Situations

The reality of institutional interaction in global environmental governance is likely to confront us with more complex interaction situations than the analysis has so far assumed. The exploration of interaction management in this paper has so far been based on the assumption that individual cases and types of interaction can be addressed separately. However, institutions in reality frequently interact with other institutions in more than one way at the same

time and even form part of institutional complexes in which several institutions co-govern issue-areas. Under these circumstances, international institutions will be involved in a variety of interactions with other institutions at the same time forming more or less dense networks of institutional interaction (Gehring/Oberthür Forthcoming; Raustiala/Victor 2004).

In a first approximation, one may develop interplay management strategies for complex interaction situations by devising suitable options for individual types of interaction. In this way, interplay management of complex interaction situations would be the sum of the interplay management activities directed at the individual interactions of which the complex situation is composed.

Such a management approach is, however, not in a position to take emergent properties and interdependencies into account that may easily characterise complex interaction situations. Individual cases of interaction may thus influence each other in unexpected ways, so that new properties of the overall situation emerge which are not inherent in its individual components, much like the emergent properties of a forest are not inherent in the properties of individual trees and plants of which the forest is composed. The properties of the forest emerge from the particular forms of co-existence of the trees and plants, including their mutual influence on each other's existence and development (Gehring/Oberthür Forthcoming).

The analysis and design of the management of complex interaction situations thus eventually requires the exploration of the typical patterns and emergent effects of more complex interaction situations. Three ideal types of situations may require particular attention. First, several cases of interaction may be connected through causal chains so that one case of interaction follows another on. In this situation, the management of one case of interaction is likely to have knock-on effects on subsequent cases. Second, cases of interaction may form clusters of parallel interaction cases. For example, the trade-environment interface features a number of similar interactions between the WTO and MEAs (Gehring Forthcoming). Third, two or more institutions may interact in several ways at the same time. In the last two kinds of interaction situations, the management of one particular case of interaction may easily have feedback effects on other cases of the complex interaction situation.

The implications of this interdependence of institutional interaction for interplay management are twofold. On the one side, these interdependencies pose additional constraints on interplay management because potential negative effects beyond the interaction addressed need to be taken into account. On the other side, emergent properties and interdependencies create opportunities because taking secondary effects of interplay management activities into account opens up space for governance of complex interaction situations. For example, sequential or concurrent links between interactions can be exploited to broaden the impact of interplay management and may provide space for other management activities than a focus on individual interaction cases would reveal, including through attempts to establish political linkages (Young 2002). For example, multiple interactions between institutions may provide a rationale for establishing standing coordination mechanisms. Also, given their overall framework new developments in the relationship between the WTO and a particular MEA have the potential to become relevant also with respect to other MEAs and thus for the interaction between the WTO and MEAs in general.

The reality of institutional complexes and complex interaction situations does not invalidate the principal analysis of interplay management of specific types of interaction. To start with,

there is little evidence that the existence of complex interaction situations would have dramatically influenced actors' actual management approaches as discussed earlier in this section. To the extent that we may expect adaptation of interplay management to complex interaction situations, the existence of broader interaction complexes is likely to primarily provide a rationale for intensified coordination at higher levels of interaction management. Causal chains and resulting knock-on effects may provide a motivation for attempts to enhance or mitigate against certain institutional interaction, but the actual level and action to be taken will still need to fit the conditions of the interaction to be managed. Clusters of parallel/similar interactions may provide a rationale for enhanced coordination (joint management or action at systemic level). Clusters of cognitive interaction will, however, still best be managed with reference to communication and information. Also, unilateral management will still be the approach of choice for the management of clusters of disruptive interaction, even though the emerging interlocking structures may open additional opportunities for indirect interplay management by targeting certain elements of the structure in order to modify it. And new opportunities for the management of multiple concurrent links between interacting institutions will heavily depend on the elements of the interaction complex. It is here that potentially additional options might become available as the multiple interdependence structure between the interacting institutions may make cooperative approaches feasible even for situations where they may otherwise stand little chance of success. Otherwise, multiple interactions may again in the first instance provide a rationale for more coordination of interaction (e.g. establishment of standing cooperative mechanisms) because of the multiple benefits to be reaped. The aforementioned disaggregated analysis of interplay management according to types of interaction should still provide a useful starting point and reference for thinking about the management of interaction complexes.

4. Conclusion

Institutional interaction is a multifaceted phenomenon. It comprises cases of inter-institutional influence that display widely varying characteristics, driving forces and effects. More specifically, cognitive interaction driven by inter-institutional learning processes and persuasion needs to be distinguished from interaction based on normative and utilitarian considerations of relevant actors. As regards the latter, interaction characterised by divergent and even competing objectives of the institutions involved display very different characteristics than interaction between institutions with similar or at least compatible objectives.

Interplay management can also take varying forms. Interplay management refers to deliberate efforts by relevant actors to address and govern institutional interaction and its effects so as to enhance the effectiveness of global environmental governance. Four levels of interplay management activities can be distinguished, including uncoordinated activities by individual the national and sub-national actors, collective unilateral management in the framework of individual institutions involved in an interaction, coordinated/joint management activities of several institutions involved in an interaction, and management activities at the level of the overall international system. Furthermore, we can distinguish between different kinds of interplay management activities. For example, interplay management may put more emphasis on communication and information, regulation and/or enabling activities such as the allocation of resources.

Given the diversity of types of interaction situations, it is hardly surprising that varying interplay management activities have been employed for and would appear to fit different types of interaction. Cognitive interaction can be promoted politically in particular by enhancing communication and information as well as by creating an enabling environment for the generation and processing of relevant information, in particular through creating appropriate capacity in this respect. In contrast, the political management of interaction driven by diverging objectives of the institutions involved may in particular rely on regulation. Interaction between institutions with similar/compatible objectives which follows a utilitarian logic may in particular be managed in the regulatory processes triggering the interaction in the source institution and receiving the political impulse in the target institution.

Reflecting the horizontal and fragmented institutional structure of global environmental governance, interplay management has so far generally had its major emphasis on the unilateral management within individual institutions. This unilateral management has been complemented by limited information exchange and analytical input generated at the level of joint management and through select international organisations. Furthermore, a number of rules of general international law have provided a general framework and have thus shaped for collective efforts within individual institutions in particular to address disruptive interaction.

In general, a considerable potential for further advancing interplay management for environmental policy integration exists. Current mechanisms of institutional interplay have already achieved significant progress. They have allowed for enhancing synergy and containing tensions among international institutions. However, major opportunities for improving institutional interaction remain in particular at the level of unilateral management. Furthermore, a limited potential for enhancing the contribution of higher levels of interplay management (through coordinated inter-institutional or systemic activities) exist.

Institutional complexes raise the issue of more integrated approaches to interplay management. Frequently, cases of institutional interaction do not exist in clear separation from each other but form parts of larger interconnected clusters and chains of interaction between two or more institutions. To begin with, we may analytically disaggregate complex interaction situations and explore interaction management with respect to the individual components of the interaction complex. Such an approach will, however, not be able to grasp an integrated interplay management that may possibly be devised. For example, if institutions are involved in several interactions mutual interdependence across such interactions may make cooperative approaches more feasible and promising.

Overall, this paper has presented a framework for the systematic analysis of interplay management in global environmental governance. In developing this framework further, the starting point has to be the multifaceted nature of both the phenomenon of institutional interaction and, consequently, of actual and potential approaches to interplay management. There is not one size of interplay management that fits all interaction situations. At the same time, our understanding of complex interaction situations will require further improvement so as to systematically distinguish particular forms of institutional complexes that lend themselves to particular combinations of interplay management activities.

References (to be completed)

- Aggarwal, Vinod K. 1983: The Unraveling of the Multi-Fiber Arrangement, 1981: An Examination of International Regime Change, in: *International Organization* 37:4, 617-646.
- Biermann, Frank, and Steffen Bauer (eds.) 2005: *A World Environment Organization. Solution or Threat for Effective International Environmental Governance?* Aldershot: Ashgate.
- Brack, Duncan (2002) 'Environmental Treaties and Trade: Multilateral Environmental Agreements and the Multilateral Trading System', in Gary P. Sampson and W. Bradney Chambers (eds) *Trade, Environment, and the Millennium*, pp. 321-52. Tokyo: UN University Press.
- Brown Weiss, Edith (1993) 'International Environmental Issues and the Emergence of a New World Order', *Georgetown Law Journal* 81 (3): 675-710.
- Clapp, Jennifer (1994) 'Africa, NGOs, and the International Toxic Waste Trade', *Journal of Environment and Development* 2 (1): 17-46.
- Eckersley, Robyn (2004) 'The Big Chill. The WTO and Multilateral Environmental Agreements', *Global Environmental Politics* 4 (2): 24-50.
- Gehring Forthcoming. in: Sebastian Oberthür and Olav Schram Stokke, *Institutional Interplay and Global Environmental Change: State of the Art and Perspectives*.
- Gehring, Thomas and Sebastian Oberthür (2004) 'Exploring Regime Interaction: A Framework of Analysis', in Arild Underdal and Oran R. Young (eds) *Regime Consequences: Methodological Challenges and Research Strategies*, pp. 247-269. Dordrecht: Kluwer.
- Gehring, Thomas and Sebastian Oberthür (2006) 'Comparative Empirical Analysis and Ideal Types of Institutional Interaction', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance. Synergy and Conflict among International and EU Policies*, pp. 307-371. Cambridge: MIT-Press.
- Gehring, Thomas, and Sebastian Oberthür 2008: *Interplay: Exploring Institutional Interaction*, in: Oran R. Young, Leslie A. King, and Heike Schroeder (eds.), *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*, Cambridge, MA: MIT Press (in print).
- Gehring, Thomas, and Sebastian Oberthür Forthcoming: *The Causal Mechanisms of Interaction between International Institutions*. *European Journal of International Relations*, Forthcoming.
- Gupta, Joyeeta 2008: *Global Change: Analyzing Scale and Scaling in Environmental Governance*, in: Oran R. Young, Leslie A. King, and Heike Schroeder (eds.), *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*, Cambridge, MA: MIT Press (in print).
- Haas, Peter M., Robert O. Keohane and Marc A. Levy (eds) (1993) *Institutions for the Earth. Sources of Effective International Environmental Protection*. Cambridge: MIT Press.
- Homeyer, Ingmar von 2006. *EPIGOV Common Framework*, Berlin: Ecologic.

- Jacquemont, Frédéric and Alejandro Caparrós (2002) 'The Convention on Biological Diversity and the Climate Change Convention 10 Years after Rio: Towards a Synergy of the Two Regimes?' *Review of European Community and International Environmental Law* 11 (2): 139-80.
- Karlsson/Kok Forthcoming: ..., in: Sebastian Oberthür and Olav Schram Stokke (eds.), *Institutional Interplay and Global Environmental Change: State of the Art and Perspectives*.
- Lanchbery, John (2006) 'The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Responding to Calls for Action from Other Nature Conservation Regimes', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance. Synergy and Conflict among International and EU Policies*, pp. 157-79. Cambridge: MIT Press.
- Meinke, Britta 2002: *Multi-Regime-Regulierung. Wechselwirkungen zwischen globalen und regionalen Umweltregimen*, Darmstadt.
- Miles, Edward L., Arild Underdal, Steinar Andresen, Jørgen Wettestad, Jon Birger Skjærseth and Elaine M. Carlin (2002) *Environmental Regime Effectiveness. Confronting Theory with Evidence*. Cambridge: MIT Press.
- Oberthür, Sebastian (2001) 'Linkages between the Montreal and Kyoto Protocols. Enhancing Synergies between Protecting the Ozone Layer and the Global Climate', *International Environmental Agreements: Politics, Law and Economics* 1 (3): 357-77.
- Oberthür, Sebastian 2002: Clustering of Multilateral Environmental Agreements: Potentials and Limitations, in: *International Environmental Agreements: Politics, Law and Economics* 2(4), 317-340.
- Oberthür, Sebastian 2003: Institutional Interaction to Address Greenhouse Gas Emissions from International Transport: ICAO, IMO and the Kyoto Protocol, in *Climate Policy* 3(3), 191-205.
- Oberthür, Sebastian and Thomas Gehring (eds) (2006a) *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*. Cambridge: MIT Press.
- Oberthür, Sebastian and Thomas Gehring (2006b) 'Institutional Interaction in Global Environmental Governance. The Case of the Cartagena Protocol and the World Trade Organization', *Global Environmental Politics* 6 (2), 1-31.
- Oberthür, Sebastian, and Olav Schram Stokke (eds.) Forthcoming. *Institutional Interplay and Global Environmental Change: State of the Art and Perspectives*.
- Palmer, Alice, Beatrice Chaytor and Jacob Werksman (2006) Interaction between the World Trade Organization and International Environmental Regimes, in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*, pp. 181-204. Cambridge: MIT Press.
- Raustalia, Kal, and David G. Victor (2004) 'The Regime Complex for Plant Genetic Resources', *International Organization* 58 (2): 277-309.

- Skjærseth, Jon Birger (2006) 'Protecting the Northeast Atlantic. One Problem, Three Institutions', in Sebastian Oberthür and Thomas Gehring (eds) *Institutional Interaction in Global Environmental Governance. Synergy and Conflict among International and EU Policies*, pp. 102-125. Cambridge: MIT Press.
- Stokke, Olav Schram (2001) *The Interplay of International Regimes. Putting Effectiveness Theory to Work*. Lysaker: Fridtjof Nansen Institute. FNI Report 14/2001.
- van Asselt, Harro Forthcoming: ..., in: Sebastian Oberthür and Olav Schram Stokke (eds.), *Institutional Interplay and Global Environmental Change: State of the Art and Perspectives*.
- Victor, David G., Kal Raustiala and Eugene B. Skolnikoff (eds) (1998) *The Implementation and Effectiveness of International Environmental Commitments. Theory and Practice*. Cambridge: MIT Press.
- Werksman, Jacob (2005) 'The Negotiation of a Kyoto Compliance System', in Jon Hovi, Geir Ulfstein and Olav Schram Stokke (eds) *Compliance with Climate Commitments. Conditions and Mechanisms*, pp. 17-38. London: Earthscan.
- Young, Oran R. (1996) 'Institutional Linkages in International Society: Polar Perspectives', *Global Governance* 2 (1): 1-24.
- Young, Oran R. (2002) *The Institutional Dimensions of Environmental Change. Fit, Interplay, and Scale*. Cambridge: MIT Press.
- Young, Oran R. with contributions from A. Agrawal, L. A. King, P. H. Sand, A. Underdal, and M. Wasson. 1999/2005. *Institutional Dimensions of Global Environmental Change (IDGEC) Science Plan*. Bonn: IHDP Report Nos. 9, 16.