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Interplay management: enhancing environmental policy integration among international institutions

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Abstract This article investigates how and to what extent the current management of inter-institutional relationships within International Environmental Governance ('interplay management') contributes to Environmental Policy Integration (EPI), and identifies options for enhancing EPI among international institutions. To this end, it first develops a framework for the systematic analysis and assessment of interplay management as a means for achieving 'strong' EPI, distinguishing four levels and two principal modes of management. On this basis, the article assesses the current contribution of International Environmental Governance to advancing EPI as regards three categories of institutional interaction. The analysis demonstrates the need to fit interplay management to the particular governance conditions of varying interaction situations and highlights the lack of systematic and consistent support for EPI among international institutions. Options to improve this situation include in particular promoting inter-institutional learning and assistance for the benefit of environmental institutions as well as ensuring consideration of and respect for environmental requirements. Adapting the statutes and mandates of individual institutions and developing suitable guidance under general international (environmental) law have the highest potential for implementing these options. In contrast, joint management initiatives and a strengthened international environmental organisation have a much more limited, supplementary potential.

Keywords Environmental Policy Integration · International Environmental Governance · Institutional interaction · Institutional interplay · International environmental policy · International institutions · Interplay management · Multilateral Environmental Agreements

Abbreviations

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EPI	Environmental Policy Integration

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IEG International Environmental Governance
MEA Multilateral Environmental Agreement
OECD Organisation for Economic Cooperation and Development
UNEP United Nations Environment Programme
WCO World Customs Organisation
WEO World Environment Organisation
WTO World Trade Organisation

1 Introduction

While the concept of Environmental Policy Integration (EPI) has its roots in European environmental policy and law and has been primarily applied in a European context (e.g. Lafferty and Hovden 2003; Persson 2004; Nilsson et al. this issue), the concern for the integration of environmental objectives and considerations into other policy areas is an integral part of discussions about global or International Environmental Governance (IEG). First of all, the international discourse about sustainable development provides an important root of EPI discussions. Also, the integration of environmental objectives and requirements into other international policies, such as international trade policy pursued within the World Trade Organisation (WTO), and the balancing of different environmental objectives, such as biodiversity and climate protection pursued through separate international regimes, form a central concern in debates about the IEG architecture (Chambers and Green 2005; Biermann and Bauer 2005; Najam et al. 2006; Chambers 2008; see also Biermann et al. this issue).

Research on institutional interaction or interplay[1] has gained increasing prominence in discussions about the IEG architecture. Also, as a result of their proliferation, international institutions—understood as including rule systems existing both in the form of negotiated international regimes and in the framework of international organisations (Simmons and Martin 2002)—provide the major fora for international policy-making. 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 they significantly influence each other's formation and development as well as performance and implementation, in particular in the highly fragmented area of IEG (e.g. Young 1996, 2002; Stokke 2000, 2001a; Raustalia and Victor 2004; Oberthür and Gehring 2006a; Gehring and Oberthür 2008; Oberthür and Stokke 2009a). For example, WTO disciplines regarding free trade have constrained the willingness and ability of parties to Multilateral Environmental Agreements (MEAs) to implement trade restrictions for achieving their collective environmental goals (Brack 2002; Gehring 2009). On a more positive note, regional agreements banning waste imports in developing countries have facilitated achieving the global prohibition of waste exports from OECD countries to developing countries under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Meinke 2002). As such, institutional interaction, and the underlying fragmentation of IEG, both provide opportunities to actors and constrain their options, and significant potentials for shaping interaction and its effects exist (Oberthür and Gehring 2006a). Knowledge about the dynamics and effects of

[1] Both terms will be used interchangeably throughout this article.

institutional interaction provides an important input to thinking about the institutional design of IEG.

"Interplay management" (Stokke 2001b) is of particular relevance from an EPI perspective. Interplay management denotes political efforts to purposefully shape and improve institutional interaction. If it aims at integrating environmental objectives and considerations into non-environmental institutions, as well as balancing different environmental objectives and considerations among environmental institutions, it is essentially a means of achieving EPI among international institutions. Interplay management forms an integral part of the broader research agenda of institutional interaction and is in particular need of further research (Gehring and Oberthür 2008).

This article contributes to satisfying this need by developing a systematic and comprehensive approach to the analysis of interplay management, applying it to the assessment of current interplay management for EPI in IEG and exploring, on this basis, the options available for enhancing interplay management. To this end, the article proceeds in three main steps. Section 2 first introduces and develops a conceptual framework for a systematic assessment of interplay management as a means for achieving EPI, including a distinction of four levels and two principal modes of interplay management. On this basis, Sect. 3 assesses in a succinct way the current contribution of interplay management to EPI in IEG. Distinguishing three major categories of institutional interaction, it demonstrates that successful interplay management requires making the management approach fit the particular governance conditions of the interaction situation. It also highlights the lack of a systematic and consistent approach to interplay management in IEG as well as of an in-built "principled priority" (Lafferty and Hovden 2003) for the environment. This analysis enables us to identify, in Sect. 4, particularly suitable and effective policy options for enhancing the management of the increasingly densely populated system of international institutions in order to advance EPI. These policy options focus on encouraging inter-institutional learning for the benefit of environmental institutions, ensuring respect for environmental requirements and promoting assistance to environmental institutions. Section 5 synthesises the major findings of the article.

2 Interplay management: conceptual foundations

2.1 Interplay management and environmental policy integration

Interplay management generally refers to deliberate efforts by any relevant actor, or group of actors, in whatever form or forum to address and improve institutional interaction and its effects (see also Stokke 2001b). The possibility for such management is inherent in the notion of institutional interaction, which originates from political decisions within the "source institution" and can be influenced by political decisions within an affected "target institution" (Oberthür and Gehring 2006a). Whereas institutional interaction as such may occur even without the knowledge of the actors concerned, interplay management requires awareness of and reflection upon the interaction. Interplay management thus refers to the governance of institutional interaction.

Several characteristics distinguish the concept of interplay management from other closely related notions such as "political linkages" (Young et al. 1999/2005, p. 62), "clustering" (Young 1996; see also von Moltke 2005), policy responses to interaction (Gehring and Oberthür 2006, pp. 314–316) or broader notions of institutional IEG reform (Biermann et al. this issue). First, interplay management focuses attention on political

measures that target inter-institutional relations and effects (e.g. differentiating it from broader notions of IEG reform). Second, it may occur in anticipation of inter-institutional effects as an integral part of the original interaction (and may even consist in the deliberate refusal of interaction by the members of the target institution). Third and perhaps most importantly, interplay management does not carry a predilection for inter-institutional aggregation and coordination, as will be further illustrated in the discussion on levels of management (see Oberthür and Stokke 2009b for more details).

In essence, interplay management is about policy integration at the international level. The absence of a central political authority structures international governance. In the absence of ministries or Directorate Generals, largely independent sectoral international regimes and international organisations constitute the fragmented institutional setting for the elaboration and implementation of international policies (e.g. International Law Commission 2006). While the integration of sectoral policies is a common challenge at all governance levels, policy integration at the international level cannot rely on the political structures available at the national or European level. It requires interplay management, i.e. managing the interaction of various independent sectoral governance systems and their policies without elaborate structures and designated fora—rather than coordinating, as in national and European political settings, the policies of varying ministries under the shadow of hierarchy and with the help of predefined procedures for inter-ministerial coordination (including cabinet meetings).

In order to assess and pursue EPI among international institutions, we need to further specify the objective of interplay management. The notion of 'managing' something implicitly requires a goal or objective. Varying standards may principally be applied, including enhancing the effectiveness of IEG, mitigating conflict and enhancing synergy, justice and equity, or efficiency (Oberthür and Stokke 2009b). Integrating environmental objectives and considerations into other policies is among these possible standards and orients interplay management towards EPI. It is here that the concepts of interplay management and EPI meet.

For the purposes of this article, I consider interplay management for EPI to mean management that aims at an enhanced effectiveness of IEG (also Stokke 2001b). Without further specification, EPI is difficult to operationalise as a standard for interplay management. There is no generally agreed conceptualisation of EPI, but different variants (Persson 2004). One of the most common distinctions relates to 'strong' versus 'weak' EPI. Weak EPI constitutes a primarily procedural input standard that requires that environmental concerns and objectives are considered and weighed against other policy objectives in political decision-making, but does not require the decisions themselves to reflect and respect environmental objectives. The strong variant of EPI, in contrast, requires that environmental considerations receive "principled priority" in decision-making and are thus reflected in the output, the political decisions themselves (Lafferty and Hovden 2003). Taking the strong variant of EPI as the standard links up to much of the research on environmental institutions that uses their effectiveness as a major yardstick (e.g. Haas et al. 1993; Young 1999; Miles et al. 2002; Oberthür and Stokke 2009b).

The standard of strong EPI and principled priority for the environment does not necessarily imply an absolute priority for the environment. Many may consider such an absolute priority an undue restriction of democratic decision-making. Be that as it may—the constitutions of many states are witness to the fact that political priorities can be defined, while still allowing for a weighing of priorities in individual cases. Accordingly, as Lafferty and Hovden note, even in a world of principled priority for environmental concerns "other policy objectives will, at times, be deemed more important" (Lafferty and

Hovden 2003, p. 10). Defining the exact boundaries of a 'principled priority' for the environment is beyond the scope of this article. They would have to be determined through the appropriate (democratic) decision-making procedures in order to ensure their legitimacy. Even without such an exact definition, the standard of a strong presupposition in favour of environmental concerns is precise enough to serve as a standard in our assessment (also Lafferty and Hovden 2003).

The particular structure of IEG furthermore supports a broadening of the notion of EPI beyond the established inter-policy focus of the concept. The exclusive focus of EPI on the integration of environmental considerations into other, non-environmental policies reflects the prevailing institutional setting at the domestic and EU levels: environmental policy has become a distinct policy area supported by particular political administrations (Directorate General Environment, environmental ministries). In contrast, international environmental policy is characterised by weak overarching institutions (in particular, the UN Environment Programme—UNEP) and a high degree of institutional fragmentation (several hundred formally independent MEAs and further transnational institutions). Consequently, the relationship between different environmental policies and institutions (e.g. climate change and biodiversity: Jacquemont and Caparrós 2002; van Asselt et al. 2008) figures prominently in discussions about IEG. EPI at the international level therefore has an internal, intra-policy and an external, inter-policy dimension (also Biermann et al. this issue).

This broadening requires an addition to the specification of the standard of "strong" EPI elaborated earlier. In the internal dimension, 'principled priority for the environment' does not provide sufficient orientation since all interacting institutions and their policies are environmental. For this case, I suggest two supplementary guiding principles of EPI. First, in order to enhance the overall effectiveness of IEG, EPI should aim at maximising the *aggregate level* of environmental protection. Second, since trade-offs between different issue areas like biodiversity and climate change are difficult to justify, I furthermore propose that attempts to maximise the aggregate environmental good should respect the core environmental protection requirements of the individual institutions/policies.

2.2 Levels of interplay management

It makes sense to systematically distinguish four levels of coordination and institutionalisation of political interplay management. In the literature on policy coordination and integration in public administration, it is common to distinguish different levels (for a prominent example see Metcalfe 1994). The following differentiation is inspired by these classifications and elaborates, specifies and further develops previous work on this matter (Gehring and Oberthür 2004, 2006). It pays particular attention to delimiting levels according to differences in decision-making and governance conditions. Responding to the demand for advancing research on interplay management, the categorisation is an attempt to further develop the concept and operationalise it in a systematic manner.

At the first and highest level, interplay management could rely on *overarching institutional frameworks*, which requires decision-making beyond the interacting institutions. Given the absence of a hierarchical political authority ('world government') at the international level, institutions overarching the frequently interacting sectoral governance systems may be specialised on a policy field such as UNEP. They may also be more general/comprehensive and cut across several policy fields such as the UN itself or the general rules of international law, as for example reflected in the 1969 Vienna Convention on the Law of Treaties. The proposal for a World Environment Organisation (WEO) aims

at establishing a new specialised overarching institution, among other things as a means of interplay management (Biermann and Bauer 2005; Biermann et al. this issue).

At the second level, *joint interplay management* of the institutions concerned 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 across 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 horizontal structures for coordination between the sectoral regimes that typify IEG. Young's categories of political linkage and clustering relate to such joint management (see also Gehring and Oberthür 2006, p. 314), as do proposals to cluster MEAs (Oberthür 2002; von Moltke 2005) and create interlinkages between them (Chambers 2008). Where joint management evolves into the creation of lasting specialised international institutions, it may turn into the creation of an overarching institutional framework.

At a third level, *unilateral management by individual institutions* requires an even lower degree of coordination. It involves independent collective action and decision-making within one or more of the interacting institutions without coordination between them. To illustrate, the interaction between the WTO and MEAs employing environmental trade restrictions has to a large extent been shaped through independent decision-making of both sides (Gehring 2009). Unilateral management thus requires international cooperation among regime members within existing institutional boundaries (and constraints), i.e. without inter-institutional coordination of decision-making. Its focus is on playing with the existing repertoire of IEG.

At the fourth and lowest level of coordination, governments and such other actors as civil society organisations and business may engage in *autonomous management* efforts at national and regional levels. Individual actors constantly have to take decisions on the implementation of international rules and norms. They are also involved in the decision-making processes in international institutions, including with respect to collective interplay management. In this regard, individual actors face obvious choices that affect the overall interaction situation (including the degree of EPI realised). For example, a state may implement environmental trade restrictions mandated by an MEA but in tension with WTO rules, so as to provoke either tacit acceptance by other actors or a decision under the WTO dispute settlement procedure that explicitly permits such restrictions under WTO law.

The following analysis in this article will focus on the three levels of *collective* interplay management (overarching institutional frameworks, joint management, unilateral management). Autonomous interplay management is least conducive for efforts aimed at systematically and structurally improving inter-institutional influence in IEG. While it is important to recognise the role and potential of individual actors in affecting and managing institutional interaction, options for a systematic elevation of interplay management in the IEG system will have to move beyond autonomous management.

The distinction of levels of coordination and institutionalisation provides a systematic framework for the analysis of interplay management. The framework not only allows us to distinguish two levels of inter-institutional coordination (joint interplay management and overarching institutional frameworks) that display different governance conditions. It also goes beyond the exclusive focus on inter-institutional coordination and in particular joint interplay management that characterises much of the relevant literature so far (e.g. Chambers 2008; van Asselt 2009; Biermann et al. this issue). Advancing such a broader perspective enables us to explore the merits of inter-institutional coordination at different levels and in different forms when compared with other options of interplay management.

After all, it cannot be taken for granted that inter-institutional coordination will always be required, effective or, in view of the considerable transaction costs involved, most efficient. Unilateral interplay management is likely to have important potentials and may even at times be required (as may autonomous management).

2.3 Modes of interplay management

Taking into account the specificities and limitations of international governance (in particular the absence of overarching political authority), we can, for the purposes of this article and at a very general level, distinguish two principal modes of and approaches to interplay management. This distinction relates to established classifications of the effects and functions of international institutions as well as broader distinctions of modes and types of instruments of governance as also reflected in different streams of literature on EPI. As in the case of the levels of interplay management, the distinction provides for a further specification and operationalisation of the concept of interplay management.

A first general mode of interplay management focuses on prescribing, proscribing or permitting certain behaviour, ascribing regulatory authority, and if paired with sufficient authority, implementing and enforcing measures against opposition. Such *regulatory interplay management* may determine substantive standards of behaviour, for example by prescribing which rule to follow in the case of a rule conflict. It may also be of a rather procedural character, for example by determining the procedure that should be followed in order to resolve a rule 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. While the absence of a central political authority constrains the repertoire of related command-and-control instruments at the international level (e.g. taxation, police), regulatory interplay management targets the core of the regulatory processes within international institutions, which, by definition, operate through the development of norms and rules. It is thus related to the capacity of international regimes to create and enforce commitments (e.g. Haas et al. 1993; Stokke 2009) and resonates with hierarchical, regulatory, top–down, coercive and command-and-control approaches discussed in the general governance literature (see overview in von Homeyer 2006). It also links up to approaches to EPI that stress the need for incorporating appropriate safeguards and priorities in existing institutional and regulatory structures (e.g. Lafferty and Hovden 2003).

The second general mode of interplay management distinguished here aims at learning (be it simple or complex) and capacity building. Such *enabling interplay management* employs cognitive elements (communication, information and knowledge) and the allocation of resources in order to persuade relevant actors, overcome barriers to knowledge and information processing, and enhance actors' capacities to implement EPI. It reflects the cognitivist/constructivist insight that knowledge, argumentation and ideas can significantly influence politics (overview in Adler 2002) as well as the prominence of capacity building and enabling frameworks in development cooperation and in IEG (Keohane and Levy 1996). It is furthermore related to the potential of international environmental regimes to enhance concern and build knowledge and capacity (Haas et al. 1993; Stokke 2009). Finally, it resonates with non-hierarchical, communicative, voluntary and capacitating/enabling governance approaches (see overview in von Homeyer 2006) as they are not least reflected in parts of the EPI literature that emphasise the importance of policy learning and enabling environments (e.g. Hertin and Berkhout 2003; Nilsson and Persson 2003).

The two principal modes of interplay management are not mutually exclusive, but allow us to systematically distinguish principal rationales of interplay management. Particular sets of policy instruments may resonate with either mode, depending on the underlying governance rationale. Regulatory instruments may, for example, very well serve to establish or strengthen enabling frameworks. Furthermore, actual interplay management may successfully employ and draw upon both modes, depending on the interaction situation encountered. Regulatory and enabling interplay management may thus in reality be combined in various ways.

3 Assessing interplay management for EPI

This section employs the aforementioned conceptual apparatus in order to assess the current arrangements of interplay management for EPI in IEG. To this end, three broad types of institutional interaction are distinguished. These types are derived from existing typologies of institutional interaction (Oberthür and Gehring 2006a) and are believed to largely cover the field. For each of the types, the analysis specifies the objective of EPI and explores and assesses, against this backdrop, the levels and modes of interplay management currently applied. Policy options for enhancing EPI among international institutions that may be derived from this analysis are further developed in Sect. 4.

3.1 Promoting inter-institutional learning

From an EPI perspective, the existence of "cognitive interaction" (Oberthür and Gehring 2006a; Gehring and Oberthür 2009) or "ideational interplay" (Stokke 2001b, p. 10) raises the question how inter-institutional learning can best promote the objectives enshrined in international environmental institutions. Cognitive interaction is based upon persuasion and driven by the power of knowledge and ideas. For example, members of the climate change regime learned significantly from the compliance system under the Montreal Protocol on Substances That Deplete the Ozone Layer when they designed a similar system for the Kyoto Protocol (that eventually departed considerably from the model used; see Werksman 2005). Also, the World Customs Organisation (WCO) 'learned', after a related request of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), that an adaptation of its customs codes could significantly assist in the effective implementation of CITES and acted accordingly (Lanchbery 2006). Such inter-institutional learning cannot be imposed but is based on the consent of those who learn. As a result, it may only occur where institutional objectives are compatible and adaptation does not imply negative consequences for the learning institution (Oberthür and Gehring 2006a; Gehring and Oberthür 2009). How do current governance arrangements promote inter-institutional learning in environmental institutions and, for the benefit of environmental institutions, in other institutions? This question connects cognitive interaction and its management to conceptualisations of EPI as a policy-learning process (e.g. Nilsson and Persson 2003).

As regards unilateral management by individual institutions, the promotion of inter-institutional learning varies widely depending in particular on the capacities and preferences of the relevant secretariats. The secretariats of international institutions in IEG hold a key position because they are the motor of both internal and external information flows. They are generally in charge of communication with other institutions and act as "knowledge brokers" (Biermann and Siebenhüner 2009) channelling relevant information

to their institution's members. It has become increasingly common practice for secretariats of particular (environmental) institutions to attend and report to meetings of other relevant institutions. On this basis, secretariats of environmental institutions at times prepare analyses that may support the identification of policy models in other institutions or identify a potential for assistance by other institutions. However, their mandates and resource endowments do not currently provide for a systematic and consistent promotion of inter-institutional learning (Biermann and Siebenhüner 2009). Similarly, expert assessments that support policy-making in international institutions do not yet regularly identify and address potentials for cross-sectoral learning (Mitchell et al. 2006).

At the level of joint management, 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. For example, the standing Joint Liaison Group of the UN Framework Convention on Climate Change (UNFCCC), the UN Convention to Combat Desertification (CCD) and the Convention on Biological Diversity (CBD) established in 2001 provides a forum for mutual information exchange and learning with a focus on implementation issues—and with limited links to actual decision-making (van Asselt 2009). On a more ad hoc basis, the scientific advisory bodies of the Kyoto Protocol and the Montreal Protocol—the Intergovernmental Panel on Climate Change (IPCC) and the Technology and Economic Assessment Panel (TEAP)—prepared two joint expert assessments of the use of fluorinated greenhouse gases in 1999 and 2005 (Oberthür et al. 2009). Some partnerships formed after the 2002 World Summit on Sustainable Development may also be understood as tools for the transfer and diffusion of relevant knowledge (e.g. Glasbergen et al. 2007).

Overarching institutional frameworks for the promotion of inter-institutional learning in IEG, finally, are only weakly developed. The central international environmental organisation, UNEP, counts the dissemination of relevant information, including across relevant international institutions, among its major functions. However, its overall capacity has remained sharply limited, which has also constrained its role as an agent of inter-institutional learning for the benefit of environmental institutions (e.g. Ivanova 2007). At the same time, general international environmental law does not fill the void by providing guidance for the promotion of cognitive interaction either.

While it may not be surprising that current interaction management arrangements focus on enabling activities, the complementary potential of regulatory interplay management has hardly been tapped into. Since inter-institutional learning is driven by flows of information and knowledge and is based on voluntarism, a functional logic seems to support the current soft, enabling approach to promoting these flows, as it is apparent from the preceding analysis. However, regulation arguably possesses a complementary potential, since it could provide consistent guidance to secretariats and members of individual institutions to more systematically identify and consider available potentials for inter-institutional learning.

Overall, there is therefore significant scope for a more targeted, structured and systematic promotion of inter-institutional learning for the benefit of EPI in IEG. Given the openness of information flows, all levels of collective interplay management can significantly contribute to further promoting inter-institutional learning. Individual secretariats and relevant expert assessments could aim more systematically and consistently at the promotion of cognitive interaction. Additional joint mechanisms for sharing knowledge and information may hold potential especially where institutional objectives are clearly compatible and significant overlaps of issue areas promise particular gains (also Oberthür 2002). Finally, overarching organisations such as UNEP (or a newly created WEO) and

general rules of international environmental law may further enhance inter-institutional learning. Concrete options for improving this situation are explored further in Sect. 4.

3.2 Greening inter-institutional competition

In situations of inter-institutional conflict based on divergent objectives of the institutions involved—probably the most prominent type of institutional interaction in the literature—EPI requires ensuring a jurisdictional delimitation that reflects environmental objectives. Typically, institutions with divergent objectives will appraise a policy measure differently so that ambiguous or contradictory regulation may lead to uncertainty about the validity of existing norms. This uncertainty may easily result in contradictory, incomplete and ineffective domestic implementation by the members of the institution. For example, the commitment of WTO members not to discriminate against imported goods renders it difficult to agree on employing trade sanctions under MEAs in order to enhance their effectiveness. If such trade sanctions are nevertheless adopted, an apparent contradiction of the WTO with a MEA could undermine an effective implementation by state parties (Brack 2002; Gehring 2009). Based on their interest in avoiding incompatible commitments under different institutions, states possess a common interest in delimiting the jurisdictions of the institutions involved so as to minimise tensions. The question is thus frequently not whether but how (and how fast) the balance between the competing objectives will be struck (Gehring and Oberthür 2006). From the perspective of EPI, this balance should clearly reflect environmental protection requirements (or, in the case of two environmental institutions, respect the objectives of both).[2]

Relevant institutions have regularly addressed conflictive interactions through unilateral decision-making. They have frequently elaborated general rules (e.g. 'savings clauses') on the relationship with other institutions, including those with conflicting objectives (Axelrod 2009; van Asselt 2009; Chambers 2008, pp. 54–57). In general, the major cases of disruptive institutional interaction reported in the literature have evolved and have been managed to a large extent through unilateral decision-making within the institutions involved, including through the creation of "strategic inconsistency" (Raustalia and Victor 2004). The trade–environment nexus has largely been shaped through the independent decision-making of the WTO and relevant MEAs (Palmer et al. 2006; Gehring 2009). The policy tensions between the Kyoto Protocol and the Montreal Protocol regarding the use of fluorinated greenhouse gases as substitutes for ozone-depleting substances have primarily been addressed through decisions of the respective conferences of parties (Schneider et al. 2005; Oberthür et al. 2009). The same applies to the policy tensions between the Kyoto Protocol and the Biodiversity Convention with respect to sustainable forest management (Jacquemont and Caparrós 2002; van Asselt et al. 2008), and those between the Kyoto Protocol and the International Civil Aviation Organisation and the International Maritime Organisation with respect to emissions from international transport (Oberthür 2003). As in the case of inter-institutional divergences regarding the regulation of plant genetic

[2] The category of disruptive institutional interaction as introduced here refers to both disruptive "interaction through commitment" and related "behavioural interaction"; see Gehring and Oberthür 2006, 2009. Assessing the compatibility of the objectives of international institutions requires taking into account that these objectives are socially constructed. For example, many objectives such as advancing international trade (WTO) are not necessarily per se in contradiction to environmental objectives pursued by MEAs. Objectives diverge as defined by actors under present circumstances (technologies, interest definitions, etc.). With the evolution of these circumstances, objectives currently construed to be in tension may well develop towards compatibility (and vice versa).

resources and genetically modified organisms, unilateral decision-making may involve the establishment of new institutions (Raustalia and Victor 2004; Jungcurt 2008; Oberthür and Gehring 2006b).

Joint management activities in this field have focused on information exchange without leading to actual joint decision-making. A number of the information-exchange mechanisms addressed in the previous subsection also serve to connect institutions that have a conflictive relationship. Most international institutions and agreements now provide for regular representation and reporting by other relevant institutions, usually through their secretariats. In addition, a limited number of specific fora such as the Joint Liaison Group of the climate regime, the Biodiversity Convention and the Desertification Convention have been established. Linking up to environmental agreements, the WTO Committee for the Environment also primarily fulfils an information-exchange function. None of these arrangements are, however, known to have led to significant joint decision-making in substance.

Overarching institutional frameworks have contributed little to resolving disruptive interaction and enhancing EPI. The limited number of pertinent rules of general international law, as in large part reflected in the 1969 Vienna Convention on the Law of Treaties, include the *lex posterior* (the more recent rule takes precedence) and the *lex specialis* (the more specialised rule takes precedence) provisions as well the prescription that any specific international treaty should be interpreted in the light of other agreements between the parties. The utility of these rules for interplay management has been sharply limited. The rules have, as general guidance for norm interpretation, constituted a framework for decisions taken within individual institutions involved in problematic interaction. They have principally not served to resolve any inter-institutional conflict, because no acute conflict has occurred and because of a lack of a legal forum for resolving latent conflicts. Moreover, the usefulness of the *lex posterior* and the *lex specialis* rules, especially, for resolving conflicts of law can be seriously questioned not least because it is frequently difficult to establish which treaty should be considered more specialised and more recent. Most important in the current context, the existing rules do not guide actors towards EPI (see summary discussion in Wolfrum and Matz 2003; Chambers 2008, Chap. 3; van Asselt 2009).

It is hardly surprising that regulatory interplay management (at the level of individual institutions) appears to be the predominant governance mode. The deeper underlying divisions that characterise disruptive institutional interaction constrain the potential of enabling interplay management. Consequently, joint management activities focusing on enhanced communication and exchange of information have had a very limited impact on the mitigation of inter-institutional conflict and the realisation of EPI. At best, information exchange may have facilitated the understanding of existing policy trade-offs and the identification of policy options, as an input to unilateral decisions of individual institutions. Deep divisions resulting from divergent objectives usually require a regulatory delimitation and thus implicit or explicit rules to determine a balance.[3]

Overall, the IEG system has thus so far only exploited a part of the potential for advancing EPI with respect to inter-institutional conflicts. Disruptive interaction has primarily been managed ad hoc by means of unilateral management of the individual institutions involved and based on the political balance of power, with no in-built priority for

[3] Social learning processes that may support deep changes of underlying interest definitions and a reinterpretation of previously diverging objectives require long time horizons and need to extend far beyond the remit of the members of international institutions.

the environment. In the absence of a 'shadow of hierarchy' or overarching rules, joint management efforts possess little potential to address zero-sum policy trade-offs and to guide them towards a balance in favour of EPI. Overarching institutional frameworks are weak and do not yet provide guidance towards enhanced EPI. Under the circumstances, it may not be surprising that most of the problematic interactions referred to earlier await an environmentally beneficial solution. Even in the case of the evolving balance between the world trading system and MEAs, which may be considered a remarkable achievement of the environmental side (Gehring 2009), the chilling effect of the WTO still haunts international environmental negotiations. Without a 'principled priority' for the environment, achieving progress towards EPI has remained an uphill battle depending on the power play between environmental and other interests within individual institutions.

3.3 Enhancing synergy among overlapping institutions

With respect to synergistic interaction among overlapping institutions, interplay management for EPI would require promoting the diffusion of environmental commitments and activating other institutions in support of the implementation of *environmental* institutions. This category of institutional interaction requires complementary or even identical objectives and resulting complementary commitments of the interacting institutions.[4] We may distinguish a vertical from a horizontal variant. Vertically, solutions found in a smaller, regional institution may be "scaled up" (Gupta 2008) to a bigger, global institution addressing the same issue, and effective global measures will in turn support the implementation of related regional agreements. Horizontally, policy diffusion can mobilise an additional governance instrument such as a particular form of law (e.g. harder law) or a specific enforcement or assistance mechanism, which will reinforce the implementation of the joint obligation. It follows from the internal logic of these types of interaction, and especially the shared objectives of the interacting institutions, that they primarily generate synergistic effects. However, from an EPI perspective the promotion of the inter-institutional diffusion of *environmental* commitments and obligations and the optimal activation of other institutions in support of the implementation of *environmental* institutions deserve particular attention.

Three examples may illustrate the operation of this type of institutional interaction. First, in a vertical direction, the ban of hazardous waste imports from OECD countries first agreed among developing countries in a number of regional agreements greatly facilitated global agreement on such a trade ban under the Basel Convention. In turn, the global ban helped implement the regional agreements (Meinke 2002). Second, in horizontal direction, political agreement reached at the high-level International North Sea Conferences on reducing pollution paved the way for the acceptance of identical obligations enshrined in hard law within the regime for the protection of the North-East Atlantic and, subsequently, the EU. Supranational EU law and international law employed by the regime for the protection of the North-East Atlantic in turn strengthened implementation of the soft-law protection standards of the International North Sea Conferences (Skjærseth 2006). As an example involving non-environmental institutions, preferential trade tariffs for environmental technology considered within the WTO could lend important support to the international climate change regime and other MEAs (e.g. Charnovitz 2003).

[4] This category of interaction refers to two types of "interaction through commitment" ("nested institutions" and "additional means") and related "behavioural interaction"; see Gehring and Oberthür 2006, 2009.

At present, management of interaction among overlapping institutions appears to focus on ad hoc unilateral regulatory activities within the institutions involved. Essentially, the unilateral decision-making within the institutions involved serves to drive and manage this kind of interaction as relevant opportunities arise and are realised by relevant actors. In the examples mentioned earlier, regional conventions banning waste imports from OECD countries and the International North Sea Conferences were established in the 1990s in order to influence decision-making within the global Basel Convention and the international regime for the protection of the North-East Atlantic, respectively (Meinke 2002; Skjærseth 2006). These synergies have been created ad hoc, i.e. on the basis of particular constellations of interests and without any arrangements in place that would support the systematic exploitation of available potentials. Existing structures of enabling interplay management discussed in Sect. 3.1 (secretariats, expert assessments) may play a complementary role to the extent that they support a clearer identification and subsequent exploitation of available potentials.[5] General background analyses prepared by secretariats and expert bodies may already provide information on other relevant institutions and their potential for assistance.[6] However, concrete effects with respect to interaction among overlapping institutions are not well documented and existing structures hardly provide for a systematic and consistent approach (see also Sect. 3.1).

Joint and overarching interplay management have played a subordinate role at best. Significant regulatory management of this category of interaction is not known to have occurred at either level. Joint regulation has uncertain benefits and potentially considerable costs (e.g. blockage of decision-making by interested actors, loss of independence/autonomy of individual institutions). Existing overarching institutional frameworks—be it UNEP or general international (environmental) law—have not produced regulation to incite relevant institutions to systematically identify and exploit potential for assisting environmental institutions. As in the case of unilateral interplay management, existing structures of enabling interplay management, discussed in Sect. 3.1 (joint bodies/assessments, UNEP), may play a complementary role, but are so far not known to have contributed significantly to a systematic exploitation of synergy in this area of inter-institutional relations.

Overall, the current management of synergistic interaction among overlapping institutions leaves much room for enhancing EPI more systematically. Establishing a more systematic approach to make information and knowledge about other relevant institutions and the potential for synergy with them available holds the promise of a better promotion of both cognitive interaction (see Sect. 3.1) and synergistic interaction among overlapping institutions. Furthermore, the lack of specific guidance to international institutions to assist environmental institutions leaves an important avenue towards enhancing synergistic interaction among overlapping institutions untravelled. While joint management may be neither feasible nor particularly helpful, the guidance could in principle be provided at both the level of individual institutions and built into existing overarching frameworks.

[5] Improved knowledge and awareness can provide important support for maximising synergy in the regulatory design (although opponents may admittedly also 'learn' that they should oppose effective rules even more vigorously). For example, different design options for the aforementioned preferential trade tariffs for environmental technology exist within the WTO, which are likely to differ as to the extent to which they would support the implementation of the climate change regime and other MEAs (Charnovitz 2003).

[6] Information of this kind may feed into requests for assistance from other institutions, as occurred when CITES requested the WCO to adapt its customs codes (see Sect. 3.1). This inter-institutional learning mechanism (cognitive interaction) may thus trigger inter-institutional assistance (interaction among overlapping institutions).

4 Options for enhancing EPI among international institutions

The preceding analysis provides a sound basis for identifying promising options for advancing EPI among international institutions. Existing interplay management arrangements have delivered some achievements, but have left a considerable potential for elevating EPI among international institutions in two respects, in particular. First, the current system of global governance does not provide guidance to appropriately balance and prioritise environmental objectives in cases of inter-institutional tensions. Second, it does not provide for a systematic and consistent exploitation of the potential for synergy by promoting inter-institutional learning and diffusion of information as well as by directing institutional decision-making towards assisting environmental institutions.

This section derives, from the analysis, overall conclusions on options for IEG reform from an interaction perspective. Whereas the preceding analysis proceeded by type of institutional interaction, this section looks at all types of inter-institutional relationships in an integrated manner. Taking the shortcomings and potentials for improvement identified in the previous section as a point of departure, it identifies options for enhancing EPI among international institutions and analyses at which level of collective interplay management these may be implemented.

Related to cognitive interaction, a first general option consists in a *more systematic promotion of inter-institutional learning* for the benefit of environmental institutions. First, learning within environmental institutions could be maximised, if knowledge about useful policy models available in other institutions was regularly and continuously fed into their decision-making processes. Second, all institutions could better learn how to best assist environmental institutions, if related information was systematically fed into their decision-making processes. Because of their central role as knowledge brokers and negotiation facilitators (Biermann and Siebenhüner 2009), the secretariats of international institutions constitute a major toehold for related efforts at inter-institutional learning, exchange of information and awareness raising. They could be mandated, and endowed with the necessary resources, to generate and collect relevant information and to feed it into political decision-making. In addition, expert assessments in support of political decision-making (Mitchell et al. 2006) could systematically incorporate such information.

Second, stimulating all international institutions to provide, to the extent possible, assistance to environmental institutions could make a significant contribution in several respects. It could complement efforts at enhancing inter-institutional learning by inciting institutions to identify, consider and exploit potentials for synergistic interaction and for assisting environmental institutions. Furthermore, such a requirement could even contribute to greening inter-institutional competition by providing support to the integration of environmental considerations where diverging interests exist. For example, several options for accommodating the concerns of MEAs in the WTO exist (Tarasofsky 1997) and could in principle be acted upon.

Third, a requirement for institutions to base their relevant decisions on environmental impact assessments and to consult with competent environmental institutions prior to taking relevant decisions could help advance EPI. These mechanisms could help to systematically feed available information into the decision-making in international institutions thus supporting inter-institutional learning and assistance as well as policy diffusion. It would also enhance the status of environmental considerations in situations of inter-institutional conflict and would increase the pressure of justification in case of looming environmentally detrimental decisions.

Finally, a requirement that institutions respect (certain) objectives enshrined in environmental institutions may be the most far-reaching policy option. Establishing such a 'principled priority' for environmental institutions and objectives would give direction to current mechanisms of institutional interaction comprehensively. Beyond promoting the consideration of information about environmental institutions in relevant decision-making, it would provide important guidance to international institutions to assist environmental institutions and, more generally, to green international institutions as such, including in case of inter-institutional competition. The requirement could in principle take the form of a substantive norm and/or an 'environmental veto/approval' granted to competent environmental institutions.

Advances towards realising these options may be made both at the level of individual institutions and by adapting the overarching institutional framework, which has obvious efficiency advantages. At the level of individual institutions, appropriate requirements could be introduced in the statutes of all international institutions. With respect to competitive relationships, individual environmental institutions can also continue to exploit and expand their room for manoeuvre by strengthening their own measures and creating "strategic inconsistency" (Raustalia and Victor 2004). At the level of overarching institutional frameworks, public international law and international environmental law could be employed to establish these requirements, for example through a change of the Vienna Convention on the Law of Treaties or even of the UN Charta, a decision of the UN General Assembly and/or the UN Security Council (which the International Law Commission, UNEP and/or a new WEO could prepare).[7] This approach has the particular advantage of providing for a systematic, consistent and uniform approach across international institutions.

Joint interplay management possesses a limited supplementary potential and may in particular enhance inter-institutional learning and smooth the provision of assistance to environmental institutions. The added value of joint management (also when compared to other management means) may best be assessed on a case-by-case basis because the transaction costs involved require that the cooperating institutions have compatible objectives and their issue areas be closely linked or significantly overlapping. Despite this caveat, the rationale of joint management grows with the continuing proliferation of international institutions. However, joint management is hardly a promising option for advancing EPI in the event of inter-institutional conflict, because of the consent required from all participating institutions and the lack of a shadow of hierarchy. The rather limited potential of joint management contrasts with the prominence horizontal coordination efforts enjoy in many existing contributions to the debate (Chambers 2008; van Asselt 2009).

A *strengthened or upgraded environmental arm of the UN* could make a limited contribution to advancing EPI among international institutions. While this is not the place to enter into the details of the broad debate about IEG reform, including proposals for a WEO (see Biermann et al. this issue), any discussion about options for reform in this area would be incomplete without considering at least briefly the links to this broader debate.

[7] Relevant requirements include: (1) international *environmental* institutions to systematically screen other institutions for useful models and for their potential to assist in implementing the own objectives; (2) all institutions to (a) consider requests of environmental institutions and exploit any potential for assisting them, (b) conduct environmental impact assessments and to consult with relevant environmental institutions prior to taking decisions with significant environmental impact, (c) give priority to (certain) environmental objectives, and (d) secure approval of relevant environmental institutions prior to taking decisions with significant environmental impact.

It follows from the analysis of this article that the assessment of any reform proposal should include an evaluation of its potential to advance EPI among international institutions. An international environmental organisation with greater powers than UNEP in its current form could, within its mandate, serve to address the interface between different environmental institutions and issue areas (Biermann and Bauer 2005). In this field, it could help identify potentials for inter-institutional learning and assistance, facilitate the targeted establishment of joint initiatives or "interlinkages" (Chambers 2008) and assist in developing general rules of international *environmental* law mentioned earlier. In all this, it could improve on UNEP with its limited resources and impact (e.g. Ivanova 2007). However, other actors within the international system could also fulfil these functions. Furthermore, given the horizontal structure of the system of international institutions, the potential of an environmental organisation to strengthen environmental policy vis-à-vis other policy areas (e.g. trade) is limited (e.g. Oberthür and Gehring 2004). An interaction management perspective thus suggests broadening the debate about IEG reform beyond a global environmental agency, which much of the literature focuses on (e.g. Biermann et al. this issue).

5 Conclusion

The interplay management concept introduced in this article provides a comprehensive framework for thinking about and assessing interplay management. It offers a bridge between the debates on EPI and IEG and allows us to assess the fit between the management approach applied and the particular governance conditions of the interaction situation at hand, which is a precondition of successful interplay management. Whereas all levels of interplay management have a potential to promote inter-institutional learning and information exchange, ensuring EPI in situations of inter-institutional tension and conflict may require regulatory activity and a 'principled priority' for institutionalised environmental protection requirements. This finding suggests more generally that 'soft' enabling and 'hard' hierarchical or regulatory governance modes, frequently juxtaposed in debates about EPI, may constitute complementary EPI approaches with varying performance characteristics rather than irreconcilable antipodes.

The analytical framework enables a systematic empirical assessment of interplay management that highlights its core features and allows us to identify its current strengths and shortcomings in promoting EPI (see Table 1). First of all, the analysis highlights that current interplay management is concentrated at the level of individual institutions, with horizontal inter-institutional coordination, the focus of much of the relevant literature, playing a subordinate role. Furthermore, while interplay management has succeeded in exploiting part of the potential for inter-institutional learning and assistance as well as in preventing acute conflict between competing institutions with diverging objectives, IEG lacks systematic and consistent support of EPI among international institutions. The analysis also suggests that realising EPI in global governance may eventually require some form of 'principled priority' for the environment.

Options for enhancing EPI among international institutions are summarised in Table 1. In substance, they focus on promoting inter-institutional learning and assistance for the benefit of environmental institutions and ensuring consideration of and respect for environmental requirements enshrined in environmental institutions. As regards levels of management, adapting the statutes and mandates of individual institutions (unilateral management) and developing appropriate guidance under international (environmental)

Table 1 Interplay management for EPI in global environmental governance: main results

	Main mechanism (effect)	Major mode	Major means in use	EPI outcome	Main EPI options (all kinds of interaction)
Cognitive interaction	Inter-institutional learning driven by information and ideas (synergy)	Enabling	– Unilateral: secretariats, expert assessments – Joint: selective initiatives (ad hoc or standing) – Overarching: UNEP	– Case-by-case, but no systematic exploitation of potential – No focus on environmental institutions	(1) Statutes of institutions or (2) General international law to promote/ensure: – inter-institutional learning and assistance for the benefit of environmental institutions (including through secretariats); – environmental impact assessments and prior consultation of environmental institutions; – 'principled priority' for institutionalised environmental protection requirements; (3) Joint management: case-by-case promotion of inter-institutional learning and assistance
Inter-institutional competition	Balancing of conflicting interests/objectives (disruption)	Regulatory	– Unilateral: collective decision-making – Joint: selective initiatives for information exchange – Overarching: some general rules of international law	– Political balance of power – No 'principled priority' for the environment	
Overlapping institution	Interest-based policy diffusion and assistance (synergy)	Regulatory and enabling	– Unilateral: collective decision-making (informed by secretariats, assessments) – Joint: selective initiatives for information exchange – Overarching: hardly existing	– Some ad hoc, but no systematic exploitation of potential – No focus on environmental institutions	

law (overarching management) have the highest potential for improvement. Overarching frameworks could best ensure a systematic, consistent and uniform approach across international institutions. In contrast, joint management has only a supplementary potential and in particular holds little promise in cases of inter-institutional conflict based on divergent objectives. Focusing on joint management therefore risks missing important potentials of, and the need for, collective interplay management at other levels. In this framework, a strengthened international environmental organisation (that stops short of a fundamental restructuring of the international system) becomes one means among others for advancing EPI with a particular, clearly limited potential (compare Biermann et al. this issue).

In identifying these options, the analysis has attempted to substantiate a 'functional approach' towards IEG reform. Options for reform are directly linked to the functions the IEG system needs to perform in order to achieve EPI, which provide the basis for assessing the potential of different forms and levels of interplay management in this respect. The resulting reform agenda does not yet constitute a comprehensive programme for greening IEG because it does not address a number of further functional requirements, including the need for more stringent international environmental policies and more effective mechanisms for their implementation (including mechanisms for raising and transferring resources). It does, however, address a major issue of increasing importance, which still, due to its relatively recent emergence, needs to be integrated more fully in the more encompassing reform agenda. This article has attempted to contribute to this end. The political constraints limiting the feasibility also of this part of the IEG reform agenda should not prevent us from identifying what would be required for realising EPI among international institutions and, more generally, effective IEG.

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