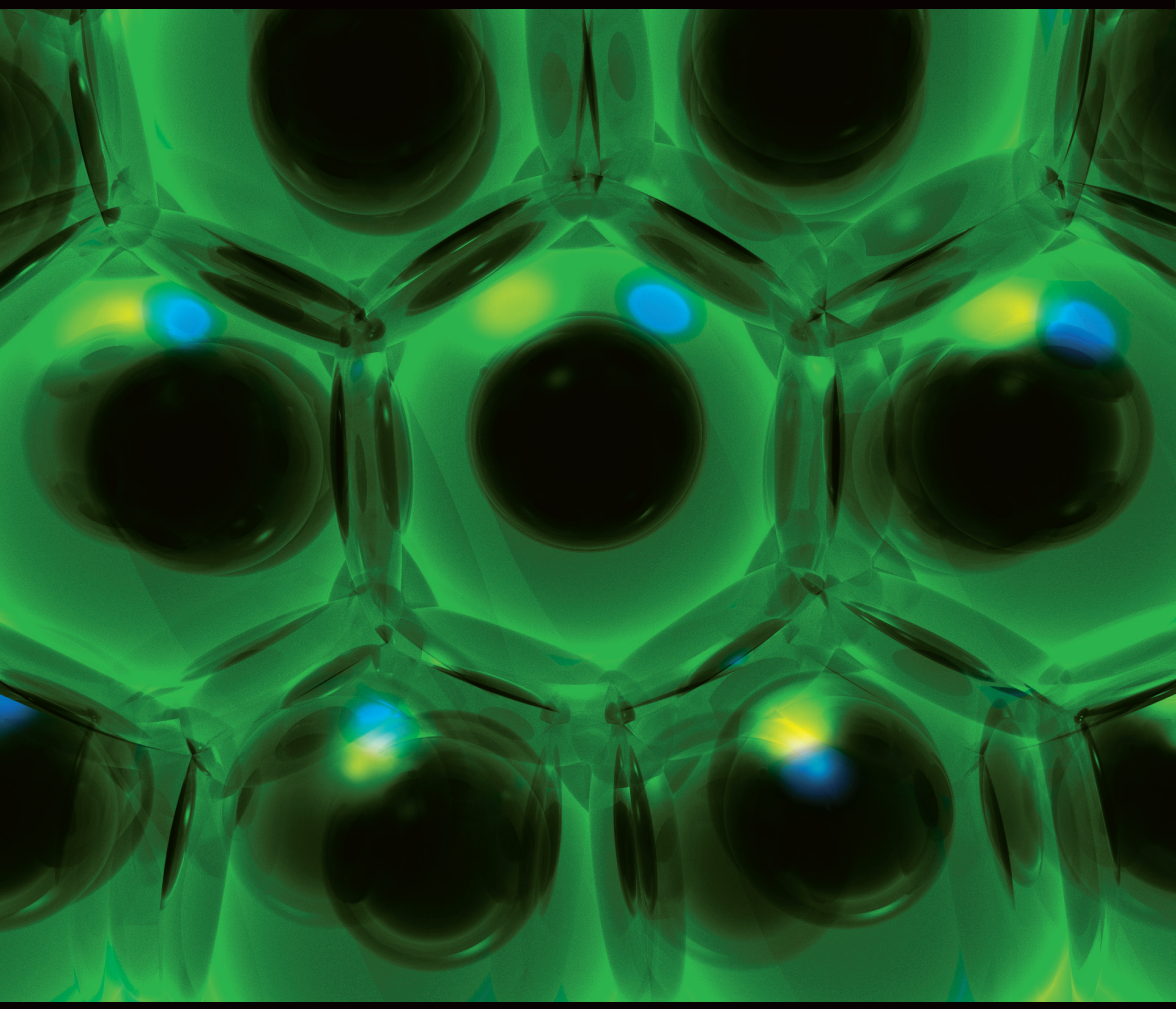
INSTITUTIONAL INTERPLAY

BIOSAFETY AND TRADE



Edited by **Oran R. Young, W. Bradnee Chambers, Joy A. Kim** and **Claudia ten Have**

Institutional interplay: Biosafety and trade

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Introduction to the issues

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Institutional interplay and the governance of biosafety

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1. Introduction

International institutions and the consequences of their interplay are emerging as a major agenda item for research and policy. As governments enter into an ever increasing number of international agreements, so questions arise about the overlap of issues, jurisdiction and membership. Of particular interest to practitioners and analysts is how this mélange of institutions at the international level intersects and interrelates to influence and affect the content, operation, performance and effectiveness of a specific institution, as well as the functioning of the overall global governance context.

Interplay – here understood to refer to the phenomenon where one institution intentionally or unintentionally affects another (King 1997) – is set to increase, as additional international institutions are created and as existing institutions co-evolve through international and national implementation. The question of how parties to international negotiations and concluded agreements should deal with this situation has given rise to three interrelated analytical themes:

1. What are the links and pathways of inter-institutional influence and interaction? In short, what is the *process of interplay*?
2. What implications does this interaction hold for the interests of the stakeholders, for the formation, operation and implementation of the specific institution, for its performance and effectiveness, and for

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the overall global governance context? In other words, what are the *politics of interplay*?

3. A line of enquiry linked with political and policy efforts to strengthen overall governance focuses on identifying and stimulating *interlinkages among institutions* (legal, normative, operational and functional) in order to reduce institutional conflict and resource-draining duplication. Put differently, in what ways can issues and processes across institutions be strategically linked and arranged to reinforce each other? Or how can we *manage interplay*?

Although discourse on regimes and institutions over the past 30 years has made significant contributions to our understanding of the role and functioning of regimes and associated institutions on particular issue areas at the international level (see, for example, Young 1982; Krasner 1983; Haas et al. 1993; Underdal 1995; Levy et al. 1995; Hasenclever et al. 1997), the study of interplay among institutions and across issue areas at that level is still relatively new and under-explored. Oran R. Young and his colleagues pioneered efforts to lay out the research agenda for conceptual work on such institutional interplay in the mid-1990s (Young 1996; King 1997; Young et al. 1999) as part of the Institutional Dimensions of Global Environmental Change (IDGEC) Programme, a long-term international research project under the auspices of the International Human Dimensions Programme on Global Environmental Change (IHDP). This initial conceptual work was significantly extended by Young in the years to follow (Young 2002; Young 2006), as well as by scholars linked to the Fridtjof Nansen Institute in Norway – particularly Olav Schram Stokke (2001), Kristin Rosendal (2001a, 2003) and Regine Andersen (2002) – and by the German scholars Sebastian Oberthür and Thomas Gehring (Oberthür 2001; Oberthür and Gehring 2003, 2006).

This volume brings together these different scholars to apply their various insights on interplay to the issue of biosafety governance. As is detailed below and in the next chapter, biosafety – that is, measures to minimize negative impacts of biotechnology – is an issue that is relevant to many institutions and thus offers an excellent case study for exploring and applying interplay in practical terms. The purpose of this volume is not so much to add to the already extensive literature on biosafety governance per se,[1] but to use the issue of biosafety and the institutions involved in it – chiefly the World Trade Organization (WTO) and the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD) – as a window through which to assess what we understand conceptually and practically about institutional interplay. To date no study brings together different scholars and their various contributions to the study of interplay in this manner.[2] In the remainder of this chapter

we provide a short introduction to the study of interplay and the issue of biotechnology and trade, followed by an outline of the book.

2. The study of institutional interplay

With the rising density of institutions at the international level has come greater attention to the issue of their interaction and interplay. Given that institutions have a definite spatial remit (in terms of issue, jurisdiction and membership),[3] so-called ''boundary problems'' are central to institutional interplay (Moss 2004: 2). The boundaries at stake here relate to political responsibilities and social spheres of influence. The crux in the study of institutional interplay is that for the most part institutions are not self-contained entities and so the effectiveness of specific institutions depends often not only on their own features but also on their interactions with other institutions (Young et al. 1999: 60). In addition, although such interplay is a common and familiar feature in the domestic context, where procedures have evolved over time to manage linkages, how this interaction and its effects can be managed at the international level in the absence of a central governing authority presents an important concern for research and practice (Young 2002: 9; see research on interlinkages reported by the United Nations University since 1999).

Oran R. Young's early work mapped the analytical landscape for the study of institutional interplay, which was differentiated in terms of four types of linkage (Young et al. 1999: 62–64). The first type is *functional linkages*, in the sense that the operation of one institution directly influences the effectiveness of another through some substantive connection among the activities involved. Secondly, *political linkages* are involved when actors actively seek to link and/or integrate two or more institutions. Young et al. further showed that interplay occurs along both a horizontal and a vertical axis. *Vertical linkages* cut across levels of social organization, whereas *horizontal linkages* are found among institutional arrangements operating at the same level of social organization. Young also differentiated between interplay that occurs when institutional arrangements are *embedded* in and informed by overarching principles and practices; when arrangements are *nested* by design within functionally and/or geographically broader regimes; when arrangements are the result of deliberate *clustering* of several regimes across functional and/or geographical borders; and when arrangements simply *overlap* largely unintentionally (Young 1999: 165–172).

Much of the analytical energy of the Norwegian scholars went one step deeper, into understanding the causes and effects of this interplay; there were also early steps to develop a theoretical foundation for interplay.

Olav Schram Stokke of the Fridtjof Nansen Institute sought to understand how and why interplay occurs. He identified ''causal pathways of interplay'' and distinguished among four modalities: *diffusion*, where one institution may influence the material content of another; *political spillover*, where the interests or capabilities of one institution influence the operation of another; *normative interplay*, where the rules upheld in one institution conflict with or reinforce those established in another; and *operational interplay*, where the activities of separate institutions are deliberately coordinated to avoid normative conflict or wasteful duplication. In this way Stokke differentiated among normative, political and operational interplay (Stokke 2000). Casting these differentiations within the study of the literature of the effectiveness of regimes to begin deeper theoretical work on interplay, Stokke later made a distinction between *utilitarian interplay* (which is incentive driven), *normative interplay* (which is commitment driven) and *ideational* interplay (which is learning driven) (Stokke 2001: 12).

Another scholar attached to the Fridtjof Nansen Institute, Kristin Rosendal, looked at effectiveness by investigating the conditions in which interplay has disruptive, as opposed to supportive, effects. Rosendal proposed differentiating on the one hand between general *norms* and specific *rules*, and on the other between whether these principles and rules are diverging or compatible (Rosendal 2001a: 97). In this way four situations of interplay can occur: rules and norms are compatible (a synergistic situation); norms diverge but rules are compatible (a relatively synergistic situation); norms are compatible but rules diverge (a potentially problematic situation); and norms and rules diverge (a problematic situation). She added to this by proposing a conceptual differentiation between *core* and *secondary* aspects of regimes, and pointed out that situations where core aspects differ offer greater scope for conflict than do those with differences between secondary aspects. Similarly, she differentiated between *regulatory* and *programmatic* rules, and argued that the likelihood of conflict is greater where regulatory rules diverge than where programmatic rules diverge (Rosendal 2001a: 98–101).

The Norwegian scholars applied their concepts to various case studies of interplaying institutions such as regional and global regimes managing fish stocks (Stokke 2000); to the overlap between the Intergovernmental Forum on Forests, the United Nations Framework Convention on Climate Change (UNFCCC) and the CBD (Rosendal 2001b); to the interaction between the CBD and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) on the issue of access to genetic resources (Rosendal 2003); and to the interplay among the CBD, TRIPS and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in the management of plant genetic

diversity in agriculture (Andersen 2002). Through examining the interplay of the CBD, TRIPS and ITPGRFA. Regine Andersen, another scholar at the Fridtjof Nansen Institute, underlined the importance of factoring the *time dimension* into understanding international institutional interplay. She pointed out that institutions' stages of development had different implications for how they in turn interact with and affect other institutions (Andersen 2002). Different types of interplay are at work during the negotiation of an agreement, compared with its early and with its later, more advanced stages of implementation.

The German scholars Sebastian Oberthür and Thomas Gehring too directed their research efforts to deepening understanding of the causal mechanisms that drive institutional interaction and the circumstances in which institutional interplay produces synergistic as opposed to disruptive or conflict-ridden outcomes. Rather than issue-based case studies of institutional interaction (e.g. on the governance of plant genetic resources between the CBD, TRIPS and the ITPGRFA), Oberthür and Gehring sought a generalized framework of analysis of the phenomenon of institutional interaction (Oberthür and Gehring 2003). In this way their approach and methodology differ significantly from those of the Norwegian scholars. Oberthür and Gehring's analysis focuses on disaggregating interplay into its simplest form as *unidirectional influence flows between source and target institution*. Their point of departure was to identify flows among a given set of institutions (in their case the WTO, the UNFCCC, the CBD, the Convention on International Trade in Endangered Species, the UN Fish Stocks Agreement, and institutions for the protection of the North-East Atlantic) and so to untangle incidents of institutional interaction that are intentional from interaction that is non-intentional, unilaterally induced or requiring consent from the target institution, as well as interaction that is conflictual or synergistic. In this way they arrived at two broad types of interaction: what might be called ''soft interplay'', or in their terminology ''cognitive interaction'' (through a change in perception, which could occur when one institution serves as a model for another or when one institution requests another to change), and ''hard interplay'', or in their terms ''interaction with a stick'' (where the source institution forces the target institution to change, which can occur through jurisdictional delimitation, and through filtering down new preferences through broader or nested institutional arrangements).

Despite this considerable collection of typologies and classifications of interplay, it can be argued that the study field is fragmented and that deeper analysis is needed of *how institutional interplay affects global governance*. Limited progress has been made on rooting the study of interplay theoretically in this regard (see Stokke 2001). Also, the distance between the concepts developed to study interplay and their empirical

and policy application has been, and continues to be, rather substantial. The United Nations University has been part of efforts since the late 1990s to bridge this gap through research focused on the ''interlinkages'' among environment and sustainable development governance institutions (see United Nations University 1999) and on the linkages between climate governance and other multilateral regimes (Chambers 1998, 2001).

To address the gap between theory and practice, and to open the discussion on interplay to a deeper consideration of its theoretical implications, this volume looks at the problématique of institutional interplay through a focused case study, namely the global governance of biosafety. This is a new step in this larger and ongoing research process on interplay.[4] The volume brings together some of the aforementioned scholars to consider the case of biosafety governance from their specific conceptual framework – Heike Schroeder, attached to IDGEC, Oran R. Young's transnational collaborative research project on the institutional dimensions of global environmental change; Are K. Sydnes of the University of Tromsø in Norway applying the perspectives of his Norwegian colleagues; and Sebastian Oberthür and Thomas Gehring examining biosafety governance through their disaggregated approach to institutional interplay. The objective of this research project is to profile the contributions these different scholars have made to our understanding of institutional interplay, to identify what theoretical ground remains to be covered, and to collect the insights offered by the different scholars' approaches for our understanding of what influences the effectiveness of governance per se, and the global governance framework on biosafety in particular.

3. The case of biosafety governance

Rapid advances have taken place over the past 30 years in the field of biotechnology.[5] These sophisticated techniques and their commercialization are set to have an immense impact on agricultural production and food sciences, pharmaceuticals and diagnostic processes in medicine, as well as the development of new industrial products. Although biotechnology encompasses a range of techniques and sub-fields and there is little controversy about many aspects of its traditional applications, the science to manipulate the genetic structures of cells – resulting in genetically modified organisms (GMOs) and therefore the ability to develop transgenic micro-organisms, plants and animals and derivative commercial products – has captivated public attention and become the target of intense debates.

On the one hand, transgenic food crops and animals are welcomed for their promise of higher yields, improved nutrition or resistance to pests and diseases; as are genetically altered micro-organisms associated with breakthroughs in new medical therapies and in new fuels, materials (for example, bioplastics) and industrial processes (for example, waste treatment) that have the potential to be cleaner and more resource efficient. On the other hand, given the newness of modern biotechnology and the limited knowledge of how its products may behave and evolve in interaction with the natural world in the long term, genetic engineering and particularly the associated global trade of its products have raised a range of environmental, health, social and ethical concerns and strong calls for adequate safety measures. Policy makers and regulators at both the national and international levels have therefore been faced with the complex challenge of developing appropriate legislation and risk assessment systems to secure the safety of globally traded biotechnology products, and at the same time balancing this with ensuring unhindered market access as stipulated by binding WTO rules and obligations.

From the start biosafety – understood here to encompass measures, policies and procedures to minimize and eliminate potential environmental and human health risks resulting from biotechnology and its products (in particular GMOs) – was set to become a knotty global governance matter. Global efforts at biosafety rule-making are complicated by a sharp divide in the values and expectations of major stakeholders regarding transgenic products, with GMO-exporting countries (both developed and developing) backed by a powerful and growing biotech industry colliding with (potential) GMO-importing countries sensitive and responsive to strong public and consumer opinion against genetically engineered products.

Moreover, given the range of concerns that biosafety governance is required to address, it is little surprise that rule-making has emerged in numerous institutions. Early steps towards a regulatory response to GMOs were taken in the 1980s in the United Nations Food and Agriculture Organization (FAO), the World Health Organization (WHO), the United Nations Industrial Development Organization (UNIDO), the Organisation for Economic Co-operation and Development (OECD), and the United Nations Environment Programme (UNEP). Of relevance too are a number of international instruments dealing with adjacent aspects of plant and animal health, as well as food safety, that had already been in place for many years, including the International Office of Epizootics' animal health standards, the International Plant Protection Convention's plant health standards, and the food safety standards of the FAO/WHO's Codex Alimentarius Commission.

The two key institutions, however, that came to the fore in the 1990s as the pivots in the emerging global governance architecture on biosafety were the Cartagena Protocol on Biosafety, concluded under the Convention on Biological Diversity (CBD) between 1996 and 2000, and the World Trade Organization (WTO) and its associated trade agreements and standard-setting instruments.

Although WTO agreements and instruments do not explicitly deal with GMOs or the issue of biosafety, a number of agreements contain provisions relevant to the transboundary movement of traded goods and are thus of direct relevance to traded GMO products. The WTO agreement of immediate relevance is the 1994 Sanitary and Phytosanitary (SPS) Agreement, which prevents national sanitary (human and animal health) and phytosanitary (plant health) measures from becoming non-tariff barriers to trade. Of partial relevance is the WTO's Technical Barriers to Trade (TBT) Agreement (also 1994), which regulates technical standards in cases not covered by the SPS.

The Cartagena Protocol on Biosafety, in contrast, deals exclusively with GMOs. Negotiations towards the Protocol were launched as a result of provisions stipulated during the formation of the CBD in the early 1990s. The objectives of the CBD are ''the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources'' (CBD Article 1). While the Convention was being drafted negotiators recognized that biotechnology could make an important contribution towards achieving the CBD's objectives, if developed and used within adequate safety measures for the environment and human health. This led to the decision to consider procedures to secure the safe transfer, handling and use of GMOs resulting from biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity (see Article 19.3 of the CBD). This in turn led to the negotiation of the Cartagena Protocol to the Convention on the issue of biosafety. In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of the Protocol is to establish practical rules and procedures for the safe transfer, handling and use of GMOs – or, in the Protocol's language, ''living modified organisms'' (LMOs) – that result from modern biotechnology, with a specific focus on the transboundary movement of such items. Since it specifically addresses the transboundary movements of GMO products, the legally binding Protocol has direct implications for the international trade in GMOs and related products. It establishes differentiated procedures for GMOs to be intentionally introduced into the environment (e.g. seeds, micro-organisms, fish) and for transgenic commodities intended for direct use as food, as animal feed or for processing (e.g. corn,

grain, soya, canola, tomatoes). These procedures are intended to provide importing countries with key data to make informed decisions on whether or not to accept the GMO imports, and on mechanisms and institutions to handle GMOs in a safe manner. Incidentally, the Protocol does not cover all GMO products. Pharmaceuticals are not covered, nor are products derived from GMOs such as cooking oil from GM corn or ink from GM soya.

That the WTO and the Protocol would emerge as the axis of global biosafety governance was clear early on. They overlap in their means to achieve their objectives – that is, both seek to create international standards that are implemented through binding trade measures. They also overlap largely in their membership – there are 141 parties to the Protocol and 150 to the WTO (as of June 2007).[6] Yet they differ significantly in their objectives. The WTO is about market access and views GMO trade from the exporter perspective, aiming to ensure that products are treated in a non-discriminatory manner, save some particular exceptions. The Protocol, in contrast, is anchored in precaution and, through the advance informed agreement (AIA) procedure, enables importers to put in place and operate risk assessment and management procedures that seek to minimize GMO risks.

Four issues proved contentious during the negotiation of the Protocol: the scope of the Protocol (in particular, whether it would cover GMOs for direct use as food, as feed or for processing); the decision matrix and role of the precautionary principle; the Protocol's relationship to other agreements; and the question of liability and redress (Cosbey and Burgiel 2000). These issues proved contentious primarily because of their direct interplay with the WTO system. Although agreement was ultimately reached on each of these questions – in some cases with a significant measure of creative and diplomatic ambiguity[7] – and countries on both sides of the debate praised the Protocol for accommodating WTO rules, debate continues on whether the Protocol's provisions complement or compete with those of the WTO (see, for example, Phillips and Kerr 2000; Rivera-Torres 2003). Questions also continue about which of the two would prevail should disputes be brought forward for adjudication.[8] In addition, analytical attention to both regimes is set to continue as both evolve further through future global rule-making, redefinition and national implementation. As Aarti Gupta points out in Chapter 2, although the emerging global biosafety framework has been carefully assembled, it remains unclear how the components of this rapidly expanding set of global rules actually interact with and influence each other.

Biosafety governance clearly is relevant to numerous institutions. Given this volume's aim of testing different conceptual approaches to interplay, the global governance of biosafety is of particular interest and

relevance from three angles. First, insights can be drawn from a historical analysis of the negotiation and formation of the Protocol to see the effect of the WTO's rules and obligations on the Protocol's negotiating parties and their decisions. Secondly, insights into current and ongoing developments in the institutional interplay in the regulation of the transboundary movement of GMOs can give important cues for the future biosafety regime, as well as for other instances of institutional interaction at the trade/environment intersection. And, lastly, a study of the interplay between the WTO and the Protocol can yield important insights into how better coordination among the links between the two regimes could strengthen overall biosafety governance effectiveness while reconciling the legitimate interests of trade, biosafety and other sectors.

4. Overview of this book

This volume proceeds in four parts. Chapter 2 by Aarti Gupta completes Part I by setting the stage for utilizing the emerging global governance framework for biosafety to assess different conceptual approaches to institutional interplay. Gupta sketches the institutional and political context within which calls to regulate the safe transboundary movement of GMOs emerged, and then details the rules and obligations under the SPS Agreement of the WTO and other related agreements and standard-setting mechanisms. She also provides a full account of the provisions and workings of the Cartagena Protocol on Biosafety. Gupta's historical overview of the Protocol negotiation process and the different negotiating groups shows not only the complex interest structure of parties to the negotiations but also their clear and constant awareness of the Protocol's functional relationship with the WTO. The underlying message is that no new effort at rule-making for traded GMOs could be made without reference to WTO obligations and provisions, given that the vast majority of countries participating in the Cartagena negotiations were also party (or future party) to the binding agreements of the WTO. The subsequent decisions by Cartagena negotiators to patch over potentially conflictual and contentious issues – such as the operationalization of precaution, as well as the issue of the Protocol's relationship to other agreements – through creative ambiguity can therefore be seen as resulting directly from interplay with the WTO. Given that both the Protocol and the WTO are set to evolve further, and by implication to continue to interact, Gupta also identifies three linkage areas that interplay scholars ought to watch closely for cues on how the global governance of biosafety might develop: the negotiation of information-sharing obligations for the agricultural commodity trade; the transmission of global biosafety rules to the

domestic context through capacity-building and dispute settlement decisions; and the impact of the evolving membership and alliance groups of the Protocol.

In Part II, theory meets practice as the interplay between the biosafety and trade regimes is reviewed by scholars of interplay. In Chapter 3, Heike Schroeder, using insights into institutional interplay generated by the IDGEC project, differentiates between issue-based, goal-based and power-based political interplay, as well as between horizontal and vertical interplay, and between functional and political interplay. She then differentiates between forms of dependence among institutions (reciprocal versus unidirectional) and describes how institutions can be structurally linked into embedded, nested, clustered and overlapping arrangements. She finds that the interplay between the biosafety and the trade regimes is horizontal and functional and is likely to continue to be a reciprocal relationship.

In Chapter 4, Are K. Sydnes applies the insights generated at the Fridtjof Nansen Institute and looks at interplay in biosafety governance through the prism of ''overlapping'' institutions as adapted and defined by Kristin Rosendal. He discusses how overlap is dealt with by institutions and identifies a range of different means, including codification, international law, political interpretation and negotiation, deliberate coordination, ''turf wars'' and ''forum shopping''. He considers in what circumstances interplay turns malignant or benign and adopts the distinctions made by Rosendal in this regard, namely differentiation between core aspects and secondary aspects of the regime, and between regulatory and programmatic rules. Combining Rosendal's categories with Stokke's normative, political and operational interplay, Sydnes makes three propositions: first, that the core aspects and regulatory rules of regimes are more politically sensitive than other types of overlap; secondly, that normative interplay is most benign in cases where the core aspects and regulatory rules of regimes are compatible; and, thirdly, that programmatic regulations are more benign to operational interplay between regimes than other substantive or operational aspects of institutional overlap.

In Chapter 5, Sebastian Oberthür and Thomas Gehring provide a detailed and updated version of their methodology for studying institutional interaction. In contrast to the previous two chapters, which both take a holistic approach to the study of interplay, Oberthür and Gehring identify specific cases of interaction in a single source institution and a single target institution and a unidirectional causal mechanism connecting the two. Expanding on their earlier work (2003), they identify four causal mechanisms in total. The first two affect the decision-making of an institution, namely *cognitive interaction* and *interaction through commitment*.

The second two affect an institution's implementation and effectiveness, namely *behavioural interaction* and *impact-level interaction*. They find that an institution can influence others in four ways: through diffusing new information, knowledge or ideas; through its commitments affecting the preferences of actors in other institutions; by inducing behaviour changes within the issue area governed by another institution; and through the direct side effects of its impacts on the ultimate target of protection. The Cartagena Protocol on Biosafety claimed regulatory authority over biosafety in the mid-1990s, and the parties' proclaimed commitment at the start of the negotiations to address biosafety under the CBD umbrella prevented the WTO from reclaiming regulatory rights over it later. Oberthür and Gehring also find that, although the Protocol displayed surprising ability at the beginning to secure its rights to assume regulatory space, it was negotiated under and continues to function in the ''shadow of the WTO''. This can be seen particularly in the Cartagena provisions on risk assessment and socio-economic considerations, as well as in the ambiguity in its relationship with other agreements, notably those of the WTO.

In Part III, Oran R. Young provides reflections and conclusions on the chapters in Part II and their insights into the study of interplay and its application to the case of biosafety and trade. Young points out the limitations of the proliferation of interplay taxonomies, which have little to offer a deeper theoretical understanding of interplay. Instead of the current catalogue-like list of interplay types, Young proposes concentrating on two differentiations only, namely whether interplay is *intended or not*; and whether interplay is *shallow or deep*. Shallow interplay here refers to superficial interaction, whereas deep interaction goes far beyond the operational interaction to encompass principles, norms and values. Young argues that interplay that is deep, intentional and conflictual is the most contentious and difficult to address. In this way Young significantly extends Rosendal's work. Such interplay is likely to be the focus of future interplay studies. Young shows that the interplay between the WTO and its related institutions and the Protocol can be interpreted to be deep, intentional and conflictual, raising significant questions about the future evolution of the biosafety regime.

The final part departs in form from the rest of the volume, and a note on this is in order at this stage. This part of the book is a special tribute to Konrad von Moltke. During the planning of this volume we had invited Konrad von Moltke to contribute a chapter reviewing the Protocol from the trade perspective. We could think of no better scholar for this question given von Moltke's pioneering and inspiring work at the trade/environment interface over the past two decades. Despite many other commitments, he cheerfully agreed. Some months later, in May

2005, however, we were immensely saddened to hear of his untimely passing.

As editors we are grateful to Steve Charnovitz, a long-time friend, for agreeing at very short notice to contribute an exploratory chapter on ''The WTO as an Environmental Agency'' instead. Given the WTO's vast membership, economic clout and binding rules and obligations, it is typically thought of as the dominant or (using Oberthür and Gehring's vocabulary) ''source'' institution affecting the content, operations and effectiveness of other institutions. Certainly, the previous chapters show how the negotiations for the newer biosafety regime were influenced and circumscribed by the regulatory space already occupied by the WTO. However, the WTO is not immune to or cut off from interactive effects from other institutions. In fact, as Steve Charnovitz shows in his fresh and provocative chapter, the WTO too is the target of influence from various other institutions, and this has affected the content, the operation and, some would argue, the effectiveness of the WTO. In short, the WTO has in fact ''endogenized'' some of the influences of interplay emanating from the environmental side.

Notes

During the preparation of this chapter Claudia ten Have was a Japan Society for the Promotion of Science (JSPS) Fellow at UNU-IAS.

1. See, for example, Phillips and Kerr (2000), Gupta (2000), Bail et al. (2002), Safrin (2002), Brack et al. (2003) and Rivera-Torres (2003).
2. An exception is the recent edited volume by Oberthür and Gehring (2006), which brings together a number of case studies of interplay at the international and European Union level.
3. ''Institutions'' are here understood in their broadest sense as ''sets of rules, decision-making procedures and programmes that define social practices, assign roles to the participants in these practices, and guide interactions among the occupants of individual roles'' (Young 2002: 5).
4. In December 2006, IDGEC held its Synthesis Conference in Bali, Indonesia, where the work thus far on ''interplay'' was reviewed. See Sebastian Oberthür and Thomas Gehring's conference paper, ''Interplay: Exploring Institutional Interaction''; available at 〈http://www2.bren.ucsb.edu/~idgec/responses/Sebastian%20Oberthuer%20et%20al%20-%20Interplay.doc〉 (accessed 2 July 2007).
5. The term ''biotechnology'' refers to any technological application that uses biological systems or living organisms, or derivatives thereof, to make or modify products or processes for specific use. Traditional biotechnology includes fermentation techniques as well as plant- and animal-breeding techniques such as hybridization. In modern biotechnology, researchers can take a single gene from a plant or animal cell and insert it in another plant or animal cell to produce a desired characteristic, such as a plant resistant to a particular pest. In the Cartagena Protocol on Biosafety (see Article 3), modern biotechnology means the application of:

a. in vitro nuclei techniques, including recombinant DNA and direct injection of nucleic acid into cells or organelles, or
b. fusion of cells beyond the taxonomic family

that overcome natural physiological reproductive or recombination barriers and that are not techniques used in breeding and selection.

6. As is shown in greater detail in Chapter 2 by Aarti Gupta, important countries that have *not* ratified the Cartagena Protocol on Biosafety include the United States, Canada, Australia and Singapore. The United States is also not party to the Protocol's parent agreement, the Convention on Biological Diversity.
7. See Chapter 2 for detail on the choice of the term ''living modified organism'' (LMO) instead of ''genetically modified organism'' (GMO), as well as on the wording of the preamble.
8. The most prominent case in this regard is the May 2003 complaint by the United States, Argentina and Canada to the WTO about the de facto moratorium on the approval of new GMOs, as well as a number of marketing and import bans (so-called ''safeguard measures''), in certain European Union countries. See Baumüller et al. (2006).

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Institutional Interplay: Biosafety and Trade

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International institutions and the consequences of their interplay are emerging as a major agenda item for research and policy. As governments enter into an ever-increasing number of international agreements, questions arise about the overlap of issues, jurisdiction and membership. Of particular interest to practitioners and analysts is how this mélange of institutions at the international level intersects and interrelates to influence and affect the content, operation, performance and effectiveness of a specific institution, as well as the functioning of the overall global governance context. Biosafety, which is an issue that is relevant to numerous institutions, offers an excellent case study for exploring and applying interplay in practical terms.

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