

# THE INTERNATIONAL ENVIRONMENTAL LAW COMMITTEE NEWSLETTER

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Dear Committee Members:

Over the past several months we have spoken or exchanged correspondence with many of you about the role and activities of our Committee and efforts we might undertake to make it more responsive to your needs and interests. A good number of you expressed appreciation for the work of the Committee in providing insight into emerging trends in the field of international environmental law, for which we are most grateful. This encouragement prompted us to reflect on whether we might do even more in this regard, as well as upon ways we might provide additional coverage of important developments in other regions. With such ends in mind, we established a Committee Newsletter and are pleased to present this, our first issue. We hope you will find it a helpful, and that you will contribute suggestions for improvements and perhaps even an occasional article.

We have designed the Newsletter, and specifically the contributions from a carefully selected pool of foreign reporters, to be integrated with the Library section of the Committee's web site, [http://www.abanet.org/intlaw/committees/business\\_regulation/environment/home.shtml](http://www.abanet.org/intlaw/committees/business_regulation/environment/home.shtml). Each issue of the Newsletter will provide a set of abstracts from correspondent reports for the period at issue, and such reports can be identified and reviewed on-line using a geographical index. These reports, and the pool of correspondents, will be augmented over time and our expectation is to soon receive periodic reports from leading practitioners on every continent.

It was our pleasure to see many of you at the Section's Spring Meeting in Washington, D.C., and we hope to see even more of you when the American Bar Association convenes its Annual Meeting in Chicago from August 4-9, 2005. Our Committee will hold a breakfast on Saturday, August 6th from 7:30 - 8:30 a.m. at the Fairmont Hotel, Gold Room, 2nd Level. If you are in Chicago for the Annual Meeting, please plan to join us!

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## Implementing the Kyoto Protocol: The European Emissions Trading Scheme

Dr. Charlotte Streck

### I. INTRODUCTION

The Kyoto Protocol entry into force combined with the commencement of the Emissions Allowance Trading Scheme of the European Union (EU ETS) has significantly impacted the world's carbon markets. Volumes of emission credits and allowances<sup>1</sup> traded in the first three months of 2005 were 3.5 times higher than the whole of 2004. This year's growth follows a five-fold increase in 2004 and brings the total volume in the 18 months between January 2004 and March 2005 to 56 million tons of carbon credits traded.<sup>2</sup> Government targets and the capping of European industries' the carbon dioxide emissions have jointly created unprecedented demand for emission rights. Under the EU ETS, approximately 14,000 operators of carbon emitting installations have received an allowance allocation that authorizes the holder to emit a designated amount of CO<sub>2</sub>. These allowances are transferable and fungible among the member states of the EU. The objective is to achieve an effective and cost-efficient reduction of industrial greenhouse gas pollution in the European Union.

This article summarizes the status of the EU implementation of the Kyoto Protocol, with particular attention to the EU ETS. The ETS is the most innovative and prominent of the measures adopted by the European Community (EC)<sup>3</sup> and its member states to meet the targets established under

Kyoto.

### II. THE EU AND THE KYOTO PROTOCOL

The EU and its member states ratified the Kyoto Protocol on May 31, 2002.<sup>4</sup> By ratifying the Protocol, they agreed to a target of 1990 levels of greenhouse gas emissions minus 8%, which equals a reduction of some 336 metric tons of carbon dioxide equivalent (Mt CO<sub>2</sub>e).<sup>5</sup> The specific nature of the EU, as well as the allocation of competence and responsibilities between the EU, the EC, and the member states, raises several legal and political questions that merit brief explanation.

Generally, the European legislator competent to adopt internal rules is also authorized to represent the EU externally. Such competence includes the authority to enter into treaties and bind the community and its member states in its area of competence. Where the EC is competent to adopt legal instruments, such as in the area of environmental policy, such competence includes international environmental negotiations. Internationally, the EC is generally represented by the European Commission, while the country holding the presidency of the EU presents any position coordinated between the member states. In the process of negotiating the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, EC member states coordinated their negotiating positions into an emerging common climate change strategy. The European Commission failed to procure a mandate to coordinate the EU position, so development of a coherent negotiation position largely depended (and still depends) on the

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country holding the EU Presidency. The influence of the Commission cannot be underestimated, however, since it has consistently adopted a pro-active attitude and has played a key role in the development and adoption of new policy instruments.

The UNFCCC and the Kyoto Protocol fall under so-called 'mixed agreements' due to their cross-cutting character. Generally, these agreements concern rights and obligations which relate to the Community on one hand, and to the member states on the other. Since both the UNFCCC and the Kyoto Protocol have been ratified by the EC and the member states, it has attracted close examination. A number of states were concerned about the commitments they were assuming, especially where they had doubts that they could individually meet their commitments for greenhouse gas (GHG) emission stabilization (UNFCCC) and reduction (Kyoto Protocol) without a negotiated internal reallocation of targets.

The EU pushed for language in both treaties to reflect this desire to establish a joint and not several commitment under the UNFCCC and the Kyoto Protocol. Article 4(2) (b) of the Convention talks of the aims of "returning [GHG emissions] individually, or jointly, to their 1990 levels..." This wording is echoed in Article 3(1) of the Protocol, which contemplated that Annex I emission limitation commitments be made individually or jointly. It was further developed in Article 4 in response to the EU's strong requests that its commitments be met within the EU group of nations as a whole.

In the case of the UNFCCC, the EU member states failed to negotiate an

internal burden sharing agreement, making it questionable whether the member states are required to take positive steps to ensure the achievement of the shared target of stabilizing GHG emissions. For the Kyoto Protocol, the outcome was different. Soon after adopting the Protocol in June 1998, the European Council reached an agreement on reallocating the -8% target of the EC between member states under a "Burden Sharing Agreement" that adjusted the national targets under the Kyoto Protocol within a common European "bubble".<sup>6</sup> This burden sharing agreement is a legally binding agreement under Community law, meaning the Kyoto targets were allocated among the member states and made binding obligations long before the Protocol entered into force.

### III. IMPLEMENTING THE KYOTO PROTOCOL

Europe has developed a broad suite of domestic "policies and measures" to meet its Kyoto target. In June 2000, the EU established the European Climate Change Programme (ECCP) to help identify the most efficient, cost-efficient and environmentally friendly measures to reduce GHGs. A year later, the EC formulated a package of twelve priority measures, including the establishment of an emission trading scheme, a combined heat and power (CHP) directive, a regulatory framework for fluorinated gases, and an action plan for the implementation of these measures. Since then, the EC has designed and implemented a number of the listed measures, such as adopting a Directive promoting CHP<sup>7</sup> and establishing a 22% target share of renewables in power generation.<sup>8</sup> The most prominent measure is the Directive establishing a

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Community-wide emissions allowance trading scheme.<sup>9</sup>

### **A. The History of the EU Emissions Allowance Trading Scheme**

Traditionally, the EU had eyed the US experience with emissions trading with some reservations. In Kyoto, the EU opposed the trading of ‘pollution rights’ as part of the Protocol, while the US promoted it. For reasons of environmental integrity, the EU opposed the US-supported idea of international emissions trading. Somewhat paradoxically, the EU pushed at the same time for a European bubble that would allow member states to meet their commitments jointly. Throughout the process, the EU as a whole (although not supported by all member states) showed reluctance and skepticism towards Kyoto’s flexibility mechanisms: Joint Implementation (JI), the Clean Development Mechanism (CDM), and International Emissions Trading (IET).

Interestingly, US support for emission trading has faded since Kyoto, and today the EU is implementing an emissions trading scheme ten times the size of the US Acid Rain Program. Motivated by the introduction of emissions trading in the Kyoto Protocol and disillusioned by the bleak prospects of introducing a carbon tax anytime in the near future, the EU Commission laid the groundwork for the European emissions trading scheme shortly after Kyoto’s adoption.

In its post-Kyoto Communication Strategy of June 3, 1998, the EU Commission proposed that the Council develop an emissions trading scheme by 2005 to ensure the cost-efficient achievement of the Kyoto targets.<sup>10</sup> Two years later, on March 3, 2000, the

Commission published a Green Paper on Greenhouse Gas Emissions Trading in the European Union, which made a strong case for emissions trading in the EU.<sup>11</sup> However, it was the US withdrawal from the Kyoto Protocol that accelerated the development of an emissions trading scheme, because the EU wished to show its continuous strong support for Kyoto. On October 23, 2001, the Commission published a Directive proposal to establish a greenhouse gas emission allowance trading scheme within the Community.<sup>12</sup> Almost exactly two years later, on October 25, the final and adopted Directive was published on October 25 in the Official Journal of the European Union as *Directive 2003/87/EC of the European Parliament and of the Council, of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC*. This Directive establishes the scheme to trade authorizations to emit a certain amount of greenhouse gases in the European Union from January 1, 2005.

Since the EU ETS was adopted as a Directive, each member state had to transpose the Directive into national law. Therefore, the EU ETS legally and technically consists of 25 emission allowance trading schemes, all of which are linked.

### **B. Functioning of the EU Emissions Allowance Trading Scheme**

To implement the EU ETS, member states must develop so-called National Allocation Plans (NAPs). The NAPs establish the number of emission allowances each respective country’s covered installations receive. Countries develop the NAPs using community guidelines and must submit their draft

NAPs to the EU Commission for approval.

Countries must establish emissions limitations for all sectors listed in the Directive annex: combustion installations with a rated thermal input exceeding 20MW, mineral oil refineries, coke ovens, production and processing of ferrous metals, mineral industry (cement clinker, glass and ceramic bricks) and pulp, paper and board activities. Starting in the year 2005, all operators of installations covered by the Directive must hold an EU ETS permit that establishes the quantity of emissions each installation is allowed. Permit holders will receive a matching amount of allocations each year (in accordance with the national NAPs). Each year, they must surrender allowances equal to the total emissions permitted for their installations during the preceding calendar year. Allowances can be traded in the marketplace and transferred between electronic accounts via an internet-based registry system.<sup>13</sup> The allowances are issued and traded as electronic units clearly identifiable by serial number. The Commission is in the process of establishing a Community Independent Transaction Log (CITL). The CITL will eventually be linked to the International Transaction Log and will check for irregularities in the issue, transfer, and cancellation of allowances. If irregularities are identified, the transfer will not be completed.

The objective is to give industry flexibility to identify the most cost-efficient green house gas abatement possibilities. The EU ETS's effectiveness depends largely on the allocation of allowances to the covered installations. The scheme is based on 5-year periods with a pilot period covering the years 2005-2007. At the time of writing, the

allocation of allowances for the first period is almost complete. The national allocation plans are generally very generous, which will limit the degree of achievable emission reductions. Hopefully, once governments and operators become more comfortable with the scheme, the second allocation of allowances will be more stringent, thereby bringing the EC closer to its Kyoto target.

### **C. Linking the EU ETS with other Emissions Trading Schemes**

The EU ETS not only requires allowances to be freely transferred between natural and/or legal persons within the EU, it also opens the door to linking the EU ETS with emissions trading schemes of other industrialized countries, provided such countries have entered into an agreement with the Community for the mutual recognition of their allowance trading schemes.<sup>14</sup> The EU is in discussions with a number of interested, non-EU, European countries. Additionally, the EU is evaluating whether to link the scheme with other Annex I countries (such as Japan and Canada) and US states.

The Directive initially did not link the EU ETS to emission credits under the Kyoto Protocol. It therefore did not allow Emission Reduction Units (ERUs) or Certified Emission Reductions (CERs) generated by JI or CDM projects, respectively, to be used for compliance purposes. To remedy this, the EU has adopted a Directive amending the EU ETS and linking the scheme to emission reduction units that comply with the Kyoto Protocol.<sup>15</sup> Member states are transposing the Directive, commonly known as "Linking-Directive", into national law.<sup>16</sup> The objective is to further

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decrease the costs of compliance with the Kyoto targets in Europe by using credits generated by the Kyoto mechanisms. The Linking Directive promotes development of project-based mechanisms while adhering to the environmental and social responsibility policies of the EU and respecting concerns that project-based mechanisms should only supplement, not replace, domestic actions. Attempting to balance these goals, the EU has imposed a number of quantitative and qualitative limits on using Kyoto credits for compliance purposes. Quantitatively, member states must establish limits on which operators are allowed to use CERs and ERUs imported into the system. Qualitatively, the Directive excludes credits generated by nuclear facilities and sequestration projects.

#### **D. The Political Importance of the EU ETS**

The EU ETS is one – if not the – core instrument with which the EU wants to achieve Kyoto compliance. It is first and foremost designed to tap cost-efficient GHG reduction potential within the territory of the Union. Its coverage includes the newly acceded member states of Central and Eastern Europe. Since these countries already meet their emissions targets and have further reduction potential at their disposal, the EU ETS will likely foster credits transfers from East to West. In doing so, it operationalizes emissions trading as foreseen by the Kyoto Protocol. The EU ETS further establishes an infrastructure which enables the community to rely on emissions capping and trading in the medium- and long-term. Since the system infrastructure is independent of the Kyoto Protocol, it will likely survive even if the international post-Kyoto regime is significantly different from the Kyoto

system. Finally, by linking with the CDM and JI, the EU ETS allows EU companies to further decrease their compliance cost while channeling climate friendly investments into developing countries.<sup>17</sup>

#### **IV. CONCLUSION: THE EU AS CLIMATE LEADER?**

Ever since the United States announced its decision not to ratify the Kyoto Protocol, the EU has assumed the role of international climate leader. When the US left the table, the EU found itself with a half negotiated set of implementation guidelines for the Kyoto Protocol and a treaty which had a long time to go before it would enter into force. Under the umbrella of the EU, a small group of active member countries managed to forge a consensus on the so-called 2001 Marrakesh Accords and ceaselessly lobbied for ratification of the Protocol by the Russian Federation.

European persistence was crowned with success when the Kyoto Protocol entered into force on February 16, 2005. While much energy was required to reach this point, even more will be needed to comply with the Protocol's obligations and commitments. In parallel, negotiations on the “second commitment period” or the “post-Kyoto” regime are scheduled to start this year. While an active US leadership role is unlikely, the EU will have to show whether it can live up to the challenge of helping to formulate a sustainable, fair, and effective international climate change policy.

The European Community and its member states have adopted an impressive set of policy instruments designed to curb GHG emissions in the

EU territory. The creation of a community-wide emission allowance trading scheme is only the most recent and at the same time most innovative of such instruments. While a few member states (notably the UK and Germany) seem likely to meet their emission reduction targets, set both under the Kyoto Protocol and the EU Burden Sharing Agreement, most are behind schedule and a number (such as Spain, Portugal, and Italy) are far behind. Progress in implementing national policy measures is slow; transport emissions are steadily increasing throughout the Community; and energy supply and generation still largely relies on the often inefficient use of fossil fuels.

It remains to be seen whether the EU can live up to the challenge to become a true climate leader. Whereas the EU acted as “environmental leader” throughout the UNFCCC/Kyoto Protocol process, pushing for more stringent targets, it assumed political leadership only after the US pulled out of the Kyoto Protocol. Whether the EU can live up to the task of a real leader of the process will depend on not only on meeting the Kyoto targets, but also on its ability to find positions acceptable for a broad number of countries. Its leadership role will depend on its diplomatic skills, flexibility, creativity, and sense for the possible, conditioned upon an increased efficiency in its internal decision making.

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<sup>1</sup> Carbon allowances refer generally to emission rights allocated by a public entity, while carbon credits are generated by project-based mechanisms. For the purposes of this article, “emission right” shall serve as an umbrella term

for both types of credits.

<sup>2</sup> The World Bank: State and Trends of the Carbon Market 2005. <http://carbonfinance.org/docs/CarbonMarketStudy2005.pdf>

<sup>3</sup> While the term “European Union” describes the policy union created by the Maastricht Treaty in 1992, the term “European Community” describes the supranational organisation of currently 25 Member States that forms one part of the European Union. The European Community is the source of much of the law directly applicable in the Member States. The pillars of the Union consist of the European Community, the Common Foreign and Security Policy, and Cooperation and Justice in Home Affairs.

<sup>4</sup> Council Decision 2002/358/EC – concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilments thereunder. By the time of their accession, all EU candidate countries had also completed their ratification processes.

<sup>5</sup> European Commission (2003), Second ECCP Progress Report: *Can we meet our Kyoto targets?* [http://europa.eu.int/comm/environment/climat/pdf/second\\_eccp\\_report\\_xsum.pdf](http://europa.eu.int/comm/environment/climat/pdf/second_eccp_report_xsum.pdf), p.5.

<sup>6</sup> EU Bulletin 6-1998, 1.3.141.

<sup>7</sup> Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC, Official Journal L 052 , 21/02/2004 P. 0050 – 0060.

<sup>8</sup> Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced for renewable energy sources in the internal electricity market, 27.10.2001; OJ L 283/33, 2001.

<sup>9</sup> Directive 2003/87/EC of the European Parliament and of the Council, of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

<sup>10</sup> Communication from the Commission to the Council and the European Parliament, Climate Change – towards an EU post Kyoto strategy COM (1998) 353, June 3, 1998.

<sup>11</sup> Green Paper on greenhouse gas emissions trading within the European Union, COM (2000)87.

<sup>12</sup> Proposal for establishing a Directive establishing a scheme for greenhouse gas emission allowance trading within the

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Community and amending of Council Directive 96/91/EC, COM (2001), 581, October 23, 2001.

<sup>13</sup> The standard for registries and the CTL are established through the Registry Regulation: Commission Regulation of 21 December 2004 for a standardized and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision 280/2004/EC of the European Parliament and of the Council.

<sup>14</sup> See Articles 12 and 25.

<sup>15</sup> Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.

<sup>16</sup> The deadline for the integration of the regulations of the Linking Directive into member state law is November 13, 2005.

<sup>17</sup> With insufficient emission reduction in the EU, governments as well as the private sector will have to make use of the Kyoto flexible mechanisms, CDM, JI and IET to meet the Community target. It is therefore likely that the EU, which initially opposed including the mechanisms in the text of the Kyoto Protocol, will be the greatest user and beneficiary of the flexibility provided.

## **Managing Dispute Risks in CDM Transactions**

Ricardo Nogueira

### **I. INTRODUCTION**

After more than seven years of uncertainty, the Kyoto Protocol finally entered into force on February 26, 2005. While the Protocol's ratification was met here and there with popping champagne corks, the prevailing mood among carbon market participants was that of measured relief rather than elation. Investors and traders were rightfully relieved that the question of the Protocol's effectiveness was put to rest. Nevertheless, ratification has not resolved all investment risks associated with the absence of clear laws and policies (both internationally and on a host country level) governing the Clean Development Mechanism (CDM). Instead, the still evolving nature of the CDM legal and policy infrastructure, along with the complexities normally associated with any cross-border transaction, serve to heighten the likelihood of disputes arising in CDM projects. This article identifies some of the risks inherent in CDM projects, as well as useful tools to hedge these risks when negotiating Emission Reduction Purchase Agreements (ERPAs).

As a general rule, parties to a CDM transaction need not reinvent the wheel when structuring and drafting their ERPAs. Successful market participants have drawn on elements of traditional cross-border business agreements such as joint venture agreements, Build-Operate-Transfer agreements and international performance contracts from the energy sector. What is more, efforts to

standardize CDM agreements and develop model ERPAs offer a good starting point and a resource for drafting language and issue identification. However, because of significant variations among different projects and different host countries, a “one-size fits all” approach does not yet work.

## II. THE RISKS ASSOCIATED WITH CDM PROJECTS

CDM projects face a variety of unique risks in addition to the traditional risks encountered in any cross-border transaction, such as currency risks, foreign investment hurdles and counterparty creditworthiness. On the climate change side of the risk ledger, there are risks associated with 1) changing climate change policies, 2) the fluctuation of certified emission reductions (CER) market pricing, and 3) country risks.

### A. Policy Risks

A continuing CDM project stumbling block is uncertainty surrounding the status of climate policy at both national and international levels. Internationally, CDM investment decisions are chilled by the limited amount of registered CDM projects and acceptable methodologies. On the domestic front, many developing countries have been unable to institute a Designated National Authority (DNA) process. Policy risk is not limited to a host country’s specific climate change policy. Changes to other relevant host country laws can have an adverse impact on CDM projects. For instance, changes in domestic energy policy or emission standards can render a project non-additional, and hence ineligible for CERs. CDM market participants require a considerable level of risk tolerance due to

the lack of established rules and policy.

### B. Pricing Risks

In asset purchase transactions, pricing decisions are often the ultimate risk allocation tool between contracting parties. Price negotiations provide a neat and tidy way to allocate risk while avoiding potentially complicated contractual constructions. We see this tendency in ERPA negotiations as well. CDM transaction parties will deal with difficult risk issues by simply shifting them to one party and reflecting that burden in the price. Theoretically, this should work in a mature market where parties can make reliable assumptions as to long-term pricing curves. This is not the case currently in the CDM market, however, which has seen substantial price volatility both for CERs and European allowances. Additionally, there is also a non-trivial price gap between European allowances in the EU Emissions Trading Scheme and CERs generated through the CDM.

Pricing concerns are particularly touchy in the CDM context due to the sizeable time period between initial investment and receipt of revenues from the sale of CERs. For instance, if the current CER market price rises above the fixed ERPA pricing, the CER seller may be tempted to maximize revenues by selling the CERs in the marketplace rather than delivering them pursuant to the ERPA terms. The inverse is true from a buyer’s perspective, who might be tempted to disclaim its ERPA should the current CER price fall substantially below the fixed ERPA pricing. Clearly, pricing issues carry with them the seeds of future disputes. Some CDM parties understandably have become more sensitive to overdependence on pricing

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as a risk mitigation method for fear of being “left holding the bag” should the market move adversely against them.

### C. Country Risks

Country risk is linked to direct government action or changes to the political landscape that threaten a given project’s viability. This type of project risk is not restricted to CDM projects, although it poses a special concern due to the multi-year nature of ERPAs. Even in the best of circumstances, it is difficult to forecast and anticipate governmental actions over an extended term. Specific examples of country risk include property expropriation, foreign exchange restrictions, changes to foreign investment laws (i.e. profit repatriation) and withdrawal of host country support for the Kyoto Protocol. Country risk can also include the incompatibility of different legal and business systems. For instance, market participants from common law jurisdictions are often susceptible to over-reliance on contract terms that may be unenforceable in a host country’s civil law jurisdiction under existing code.

## III. STRATEGIES TO MANAGE POTENTIAL DISPUTES

### A. Stop, Look and Listen

This past May, market participants attending the CarbonExpo in Cologne raised many of the same concerns touched upon here – i.e., the need for rule clarity from the Executive Board and host countries, whether DNAs will foster or hinder development of CDM, etc. Notwithstanding these concerns, the most oft heard refrain was “Do you know of any good projects?” Much of this demand is driven by new funding

sources and market entrants moving into the carbon finance space in the post-ratification world. Many of these new entrants are facing real compliance concerns and there is a temptation to rush headlong into ERPAs with CDM projects. Furthermore, for many of these entities, carbon finance is far afield of their core business and they lack comfort with the CDM process. These ingredients magnify the likelihood of future project-related disputes. To avoid disputes, the successful participant must stop, look and listen each step of the way.

#### 1. Stop

At the early stages of the CDM project cycle, it is important for a prospective CER purchaser to “stop” and take stock of the project before committing to an ERPA. This will normally take the form of a due diligence review. This concept may not be groundbreaking, but many companies that normally conduct extensive due diligence of new business partners and opportunities fail to afford CDM projects the same level of scrutiny. In part, this may be explained by the lack of definitive climate change legislation and the novelty of these projects. Otherwise, it is simply the age-old attorney lament that clients will show up only after a problem has arisen and not at an earlier juncture when it could have been avoided with less trouble.

In addition to traditional business concerns, such as the creditworthiness of counterparts and whether they have the legal authority to bind their companies (particularly important in civil law jurisdictions), an effective due diligence process should also troubleshoot Kyoto-specific concerns. Fundamentally, the Kyoto Protocol is the first international

accord which attempts to resolve an environmental problem with a commercial solution. This dichotomy means that the CDM has mandates not typically found in ordinary commercial sector projects, such as sustainable development requirements and expectations of public participation by international environmental NGOs. Indeed, parties conducting due diligence often fail to gauge the level of potential NGO resistance to the project itself. Before a CDM project can be registered with the Executive Board it must undergo a public consultation process. This provides an opportunity for local interest groups to contest, among other things, whether the project meets the sustainable development requirements of the host country. In many jurisdictions, adverse local community response has curtailed projects or, at best, altered their economic appeal.

By identifying local community concerns early, parties can preemptively fashion a suitable response – for example, allocating part of the CER revenues to a local development and adaptation fund. NGO opposition is not limited to the local community, however, as the current crop of proposed CDM projects demonstrates. Because of the high profile of these projects, international environmental NGOs have routinely intervened in CDM developments worldwide.

Another issue peculiar to carbon finance is the ownership of emission reductions from a given project. Unlike other asset purchases, an investigating party can not find comfort by simply ordering up a title search for the project's emission reductions. The absence of definitive statutory law in many jurisdictions opens the door to colorable third party

ownership claims based on local law and/or prior contractual arrangements with the CDM project developer. For example, a landfill methane capture/combustion project could have competing claims to its emission reductions. The off-taker of power might base a claim on its power purchase agreement. Another potential claim could arise from the operating agreement between a landfill operator and the underlying property owner. Because disputes as to ownership of emission reductions could be costly and fatal to a CDM project, it is not enough that a project proponent simply warrants that it holds title to the project's emission reductions. For this reason, a due diligence review of ownership issues should examine contractual relationships that underlay the project.

## 2. Look

The due diligence process is designed, in part, to identify project risks that may ultimately lead to a dispute. The information uncovered through due diligence is also fundamental to making an informed threshold decision as to whether a project is worth pursuing. If the answer is yes, the now-identified risks can be either prevented or allocated appropriately between the parties. It is then up to the contracting parties to “look” for ways to mitigate these risks. Typically, this is accomplished through contractual arrangements in the governing ERPA. Simply put, the ERPA serves as a way to apportion both responsibility for the performance of project related tasks and the risks associated with the project. There are several negotiation and contractual mechanisms that can help accomplish this equitably.

**“By identifying local community concerns early, parties can preemptively fashion a suitable response – for example, allocating part of the CER revenues to a local development and adaptation fund.”**

**“One thing is certain about the carbon market: it will not remain static. Conditions and rules will change in ways that may pose a challenge to ERPAs that rely on inflexible and overly rigorous provisions, particularly related to delivery and default.”**

A useful tactic in negotiating an ERPA is for the parties to jointly develop a Letter of Intent (LOI). Generally speaking, a LOI is a precursor agreement to entering into a more detailed contractual relationship within a specified timeframe. In the LOI, the parties can agree up front to basic deal terms (CER price range, amounts and delivery) while they negotiate, on an exclusive basis, the nuts and bolts of a long-term ERPA. A LOI usefully creates a context where parties can flesh out the parameters of the deal while maintaining the confidentiality of the parties' proprietary information. Should an irresolvable issue arise in the due diligence or during the ERPA negotiations, the LOI acts as an off-ramp without creating any lasting entanglements.

Another effective contractual instrument is to make use of “condition precedents.” The term “condition precedent” refers to a fact or event that must exist or occur before a duty of immediate performance arises. The effectiveness of the ERPA can be tolled until such time as a triggering event occurs or is caused, such as host country project approval or, more rigorously, it can be conditioned upon registration with the Executive Board.

Condition precedents are useful contractual tools for sellers of emissions reductions. A prevalent concern of sellers is that they often are required to assume a great deal of the project development risk without hope for payment until a much later date. This pattern is changing as the relative bargaining strength of buyers and sellers has begun to equilibrate. It is now more commonplace for buyers to make advanced payments to cover some of the transaction costs associated with taking the project through the CDM

development cycle. Condition precedent provisions have served a useful role in delineating the project milestones that would trigger such advanced payment obligations. Under such a provision, a buyer may be obliged to provide monies to the seller upon the occurrence of a specific milestone, such as successful completion of an environmental impact assessment.

Lastly, a successful dispute avoidance strategy considers which areas of the CDM project cycle should be left to one party without interference of the other. Sometimes parties involve themselves in facets of the CDM project cycle that are better suited to their counterpart. This is particularly true when the interests and concerns of both parties are aligned. For instance, it is in the interest of both parties that the selected Designated Operational Entities (DOEs) be competent and capable of fulfilling their roles in validating the project and subsequently monitoring and verifying the CERs generated. With this in mind, it is not always necessary for the CER purchaser to have a substantial say in the DOE selection process. The likelihood of disputes associated with DOE performance and selection could be minimized by removing the active involvement of one party.

### 3. Listen

One thing is certain about the carbon market: it will not remain static. Conditions and rules will change in ways that may pose a challenge to ERPAs that rely on inflexible and overly rigorous provisions, particularly related to delivery and default. Onerous ERPAs can quickly find themselves unenforceable. In light of this, another important strategy for avoiding disputes is to build flexibility

into the ERPA, thus allowing the agreement and the parties to adapt to changing circumstances. In this way, the ERPA parties can “listen” for potential disputes and resolve them before they occur.

One method of building in flexibility is to permit delivery of “Replacement CERs” in satisfaction of a seller’s ERPA obligations. In other words, subject to reasonable approval by buyer, a seller could deliver either CERs from another project or some other fungible product such as Assigned Amount Units. Consequently, the seller is afforded an opportunity to cure a delivery failure and avoid triggering a contractual breach. Another approach is to avoid excessive penalty provisions that have no rational link to CER pricing. Instead, a flexible penalty provision could provide for liquidated damages that more closely resemble the potential/actual damages suffered by the CER buyer. For instance, CER delivery failure could cause an obligation on the seller’s part to pay a cash settlement equal to the difference between the ERPA CER price and the market price (plus some punitive adder).

In terms of delivery amounts, many ERPAs build in flexibility by contracting for a CER amount less than the amount of emission reductions projected from the underlying CDM project. This is coupled by a grant to the buyer of a right of first refusal to CERs generated from the project in excess of the ERPA contracted amount. In this fashion, the seller is afforded breathing room in its delivery obligations while the buyer preserves an ability to maximize the amount of CERs available from the given project. These provisions can get tricky; careful drafting is necessary to ensure the ERPA does not provide either party with

an incentive to game the CER market.

General contractual safeguards such as *force majeure* provisions and indemnity language can also provide an opportunity to make the ERPA more responsive to dramatic changes in the CDM market. Lastly, greater flexibility can be achieved by utilizing approaches that go beyond the four corners of the ERPA. The use of third party guarantees to deal with credit risk, the laying off of project risk on third parties where appropriate (i.e., DOEs), and the use of escrow arrangements to control payment and delivery flows are all ways to mitigate against the likelihood of disputes.

At the end of the day, none of these strategies will ensure a zero risk of disputes. ERPAs will still need to incorporate a dispute resolution procedure that complies with relevant law. If good faith negotiations fail, arbitration offers an ideal method to resolve disputes. One advantage of arbitration is that an arbitration clause can be designed to ensure that neither party has a “home field” advantage. This is not always the case when adjudicating a dispute within a national court system, which can have structural biases favoring local parties. Further, the parties have more autonomy in arbitration than in adjudication because they can choose procedures and have a say in the composition of the tribunal. This is important for CDM-based disputes because the parties can ensure that the arbiters have the requisite understanding of the Kyoto Protocol. Moreover, by being able to choose procedures, parties can speed up the arbitral process and further cut costs. Although the costs of arbitration may be sizeable, they are generally lower than adjudication. For instance, many court jurisdictions require

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“Notwithstanding its advantages, arbitration is not a panacea. Before selecting arbitration as a dispute resolution instrument, it is important that the parties understand and appraise the risks associated with enforcing arbitral awards.”

foreign claimants to post civil bonds in the form of cash deposits in local banks as a form of performance guarantee. Depending on the size of the dispute, these amounts can be significant and can remain out of reach for many years.

Notwithstanding its advantages, arbitration is not a panacea. Before selecting arbitration as a dispute resolution instrument, it is important that the parties understand and appraise the risks associated with enforcing arbitral awards. Although many countries have well-developed legal mechanisms for enforcing foreign arbitral awards, this is not true in all cases. In many jurisdictions, arbitral awards are simply not enforceable or require confirmation by a local court before becoming enforceable. The confirmation process can offer losing litigants a second bite at the apple. In Brazil, for instance, confirmation may be denied on several grounds. The local party can intervene on due process grounds, on a claim of an invalid arbitration clause, or simply that the arbitral award infringes on Brazilian public policy. Such catch-all provisions are common in many civil law jurisdictions.

#### IV. CONCLUSION

In any commercial transaction, it is generally preferable to avoid disputes; this is particularly true in the CDM context. There are few market participants that would relish an opportunity to explain the intricacies of the Kyoto Protocol in a foreign court jurisdiction or to undergo the sometimes costly and generally lengthy process of enforcing a foreign judgment. With this in mind, we have touched on some useful dispute avoidance methods. First, it is important to “stop” and evaluate the

CDM opportunity through a proper due diligence. Due diligence can provide an early warning of project and CDM specific risks. Second, parties should take advantage of LOIs, milestones and condition precedents to “look” for and avoid disputes. Finally, the likelihood of disputes arising can be mitigated by building flexibility into the ERPA, so as to create an opportunity for parties to “listen” for potential disputes and resolve them preemptively.

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## Climate Change, Hydrocarbons & Sustainable Energy

*Lakshman Guruswamy & Kevin Doran*

### I. INTRODUCTION

The United States and the world face an unprecedented energy crisis. We are rapidly approaching the end of the age of oil, and yet we are woefully unprepared for the environmental, socioeconomic, and geopolitical consequences of this transition. The ineffectual and incoherent mechanisms enshrined in the Kyoto Protocol are not an answer to this crisis. Not only is the Kyoto Protocol preposterously inadequate when it comes to minimizing the potentially devastating risks of global warming, it also entirely fails to explain how carbon dioxide emissions will be adequately reduced – particularly when faced with a phenomenal rise in energy demand from both the developed and developing world.

This article presents two compelling reasons—**independent of global warming and the Kyoto Protocol—for shifting the world’s reliance on hydrocarbons to more sustainable forms of energy: the environmental consequences of the hydrocarbon cycle and, most importantly, the end of oil.** When, for these more compelling and comprehensive reasons, hydrocarbons are replaced with new sources of sustainable energy, greenhouse gases (GHGs) will automatically be reduced, and Kyoto will be relegated to a footnote in the saga of energy and environmental security.

### II. THE ENVIRONMENTAL CONSEQUENCES OF THE HYDROCARBON CYCLE

#### A. The Flaws of Kyoto in Reducing GHGs

Kyoto advocates argue that cutting back on GHGs is crucial because “business as usual”<sup>1</sup> emissions of carbon dioxide will lead to catastrophic consequences. Despite an overwhelming scientific consensus that human emissions of carbon dioxide will lead to higher temperatures, an equally persistent and not insignificant group of naysayers remain unconvinced.<sup>2</sup> Given the magnitude of the risks presented by global warming, as well as the considerable scientific evidence and consensus regarding anthropogenic forcing of this phenomenon, we believe that global action should be taken to mitigate and adapt to this threat. However, the Kyoto Protocol’s approach to reducing GHGs is entirely misguided, as it is based on two fundamentally weak and unsupported premises.

The first flawed premise is that the carbon dioxide reductions required by Kyoto will avoid global catastrophe. Even if Kyoto is fully implemented, the resulting temperature reductions will amount to 1/5th of one degree. The scientific premise and conclusions underlying Kyoto demand far greater carbon dioxide reductions. To abate or avoid catastrophic global warming, advocates for reducing GHGs have argued for reductions in the range of 60-70% below 1990 carbon dioxide levels, not the 4-5% called for by Kyoto. Moreover, the future extent and severity of global warming impacts is unclear. The Intergovernmental Panel on Climate Change (IPCC) has offered seven

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primary scenarios that model potential future human impact on the climate, and it is perfectly possible that the global community could adapt to some scenarios but not to others.<sup>3</sup>

Second, Kyoto advocates do not explain how carbon dioxide emissions can be drastically reduced when faced with a phenomenal rise in energy demand—particularly from the developing world. The undeniable energy context, often ignored in the globing warming debate, is that today’s current primary global power consumption of about 12 terawatts (TW) will reach 30 TW by 2040.<sup>4</sup> Given that one TW equals one trillion watts of electricity, such figures guarantee a massive increase in consumption. Other forecasts suggest total global energy consumption will expand by 58% between 2001 and 2025.<sup>5</sup> Developing countries may represent a significant and troubling part of this projected increase in energy demand to the extent they rely primarily upon the combustion of hydrocarbons to meet their energy needs.<sup>6</sup>

Developing countries are projected to exceed the industrialized nations in carbon dioxide emissions by the year 2020. This increase is attributed to increasing reliance on fossil fuels (particularly coal, the most carbon-intensive of fossil fuels) and is despite lower projected energy consumption levels than industrialized nations. In 2001, developing nations consumed about 64% as much oil as industrialized nations; by 2025, they are expected to consume about 86% as much oil as industrialized nations.<sup>7</sup>

Kyoto advocates thus appear oblivious to the collision course between the developing world’s legitimate energy

expectations and reductions of carbon emissions in the absence of alternative sources of sustainable energy. In reality, we can only reduce hydrocarbon based emissions by creating new sustainable sources of energy.<sup>8</sup>

### **B. Hydrocarbon Lifecycle and its Environmental and Health Consequences**

Apart from the actual and potential impacts of global warming, there are other critical reasons for moving away from a hydrocarbon economy. The entire hydrocarbon life cycle of production, mining, transportation, refinement, use, and waste treatment are fraught with adverse environmental and public health problems.<sup>9</sup> The environmental and public health impacts of acid rain, heavy metals, urban smog—created by the mining and burning of fossil fuels—can be extremely damaging to both developed and developing countries. Fossil fuels burnt for electricity produce sulfur oxides, nitrogen oxides, hydrocarbons, soot, smoke, dust and other suspended matter—pollutants that are linked to serious health problems such as asthma, bronchitis, lung irritation, pneumonia, cancer, decreased resistance to respiratory infections, and early death. In addition, these pollutants combine to form ozone, another harmful pollutant that causes lung damage, exacerbates asthma and can contribute to premature death. The exploration, extraction, and use of fossil fuels can also cause significant harm to land and water resources. Oil spills, for instance, destroy animal and plant life, and leave waterways and their surrounding shores uninhabitable for extended periods of time.

## II. THE END OF THE OIL ERA

The most important reason for transitioning from a hydrocarbon economy is the looming demise of oil as an economically viable source of energy. We are witnessing the sunset of a civilization built on oil. The entire edifice of modern society straddling transportation, food, agriculture, medicine, public health and information technology is built on oil or its by-products. Indeed, to note just one example of the extent to which agriculture is intertwined with oil, in the United States food travels an average distance of 1,500 to 2,500 miles from farm to plate—virtually all of which is traversed using petroleum-based vehicles.<sup>10</sup>

Developing alternative sources of energy cannot fully alleviate of the potential impacts of the demise of oil. The end product of many alternative sources of energy—such as wind, solar, geothermal, hydroelectric and nuclear power—is electricity; they cannot replace oil's critical role in producing a host of products ranging from fertilizers and medicines to plastics and inks. In addition to hundreds of thousands of oil derived products, globalization and free trade are highly dependant on the existence of affordable and reliable sources of oil.

Despite controversy as to the extent and the anticipated lifespan of oil reserves, the end of the age of oil is in sight. At the optimistic end of the spectrum, the U.S. Energy Information Agency (EIA) suggests that oil production will peak around 2037.<sup>11</sup> Ominously, by 2025 the U.S. will be importing nearly 70% of its petroleum.<sup>12</sup> If we assume a “business as usual” scenario, this figure could rise to

90% by 2038. Additionally, the EIA forecasts that the developing nations will consume about 86% as much oil as the industrialized nations by 2025.

What happens when oil production begins its decline twelve years later around 2037? The potential economic, environmental, social and geopolitical ramifications of this event are staggering. The year 2037 may seem distant enough to allow a degree of breathing room for our transition from a global hydrocarbon economy. However, a conspicuous lack of alternative and sustainable sources of energy, coupled with the time required to develop the needed technologies, and the significant lead times required for mass-market penetration of new energy technologies, strongly advise against insouciance with respect to both supply-side and demand-side research and development.

## III. THE NEED FOR NEW SOURCES OF SUSTAINABLE ENERGY

We are confronting an energy and environmental crisis that marks the end of an oil-based civilization. To meet the future energy demands of a growing global population while staving off the risks of global climate change and the many other adverse environmental impacts of hydrocarbons, the world needs a massive infusion of sustainable energy. Unfortunately, there are no showstoppers waiting in the wings. In pushing for emissions reductions without providing alternative and sustainable sources of energy, advocates of Kyoto are putting the cart before the horse. It is time for environmentalists to understand that this crisis calls for invention and creativity that fall outside the province of command-and-control regulations —

**“The most important reason for transitioning from a hydrocarbon economy is the looming demise of oil as an economically viable source of energy.”**

“What is needed is for the environmental movement to break free of the regulatory mold epitomized by Kyoto, and to move toward strategic thinking and creative solutions for securing sustainable energy on a massive and global scale.”

however fond they have become of this method of government intervention. It is not possible to command new sources of energy into existence. The sustainable sources of energy that will enable us to meet the challenges of this crisis must be created. This will require massive amounts of research and development funds directed at fundamental research, technical and engineering solutions, and new legal and policy frameworks designed to facilitate market penetration of sustainable energy technologies.

The Kyoto Protocol fails on two critical and interrelated fronts. It fails to mount an even remotely adequate response to the risks of global warming, and it fails to secure new forms of sustainable energy that will meet the energy demands of a growing global population. Situated in the context of population growth, efforts to grow national GDPs, increasing per capita energy intensity, and the demise of oil as economically viable energy source, Kyoto's regulatory approach to reducing CO<sub>2</sub> emissions is doomed to failure. What is needed is for the environmental movement to break free of the regulatory mold epitomized by Kyoto, and to move toward strategic thinking and creative solutions for securing sustainable energy on a massive and global scale. Only then will we be equipped to navigate a successful path to a truly sustainable global energy future.

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<sup>1</sup> The term “business as usual” is used by the Intergovernmental Panel on Climate Change (IPCC) to denote what they forecast as the most likely future CO<sub>2</sub> emissions scenario. This “business as usual” scenario assumes that the population and economic growth rates, as well as nuclear energy costs, will not change significantly in the future.

<sup>2</sup> For a discussion of global warming sceptics, see LAKSHMAN GURUSWAMY, INTERNATIONAL ENVIRONMENTAL LAW NUTSHELL 181 (2nd ed. 2003). See also PATRICK J. MICHAELS, MELTDOWN: THE PREDICTABLE DISTORTION OF GLOBAL WARMING BY SCIENTISTS, POLITICIANS, AND THE MEDIA (2004); CHRISTOPHER ESSEX AND ROSS MCKITRICK, TAKEN BY STORM: THE TROUBLED SCIENCE, POLICY AND POLITICS OF GLOBAL WARMING (2003); GLOBAL WARMING AND OTHER ECO MYTHS: HOW THE ENVIRONMENTAL MOVEMENT USES FALSE SCIENCE TO SCARE US TO DEATH (Ronald Baily ed., 2002); PATRICK J. MICHAELS AND ROBERT C. BALLING, JR., THE SATANIC GASES (2000). Michael Crichton's fictitious novel, State of Fear (2004), has also generated quite a bit of controversy regarding the validity of global warming science.

<sup>3</sup> The IPCC draws a clear distinction between *mitigation* (or reduction) and *adaptation* responses to global warming. In this context, the IPCC reports on Adaptation and the decision of the Meeting of the Parties of the UNFCCC in Delhi is significant in that it appears the developing world is tending to favor adaptation over mitigation. The developing world may favor the adaptation because it transfers resources from the developed countries in way that mitigation does not.

<sup>4</sup> Future energy scenarios are the product of developmental assumptions for complex demographic, socioeconomic and technological factors and may thus vary significantly. See Martin I. Hoffert et al., *Advanced Technology Paths to Global Climate Change: Energy for a Greenhouse Planet*, 298 SCIENCE 981 (2002); Martin I. Hoffert et al., *Energy Implications of Future Stabilization of Atmospheric CO<sub>2</sub>*, 395 NATURE 881, 883 (1998); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SPECIAL REPORT ON EMISSION SCENARIOS, 95–96, 221 (2000). One terawatt

(TW) equals one thousand gigawatts or one million megawatts.

<sup>5</sup> The U.S. Department of Energy Information Administration's (EIA) "reference case" projects that total world energy consumption will increase from 404 quadrillion British Thermal Units (BTU) in 2001 to 640 quadrillion BTU in 2025—an average annual increase of 1.9%. See ENERGY INFORMATION ADMIN., U.S. DEP'T OF ENERGY, INTERNATIONAL ENERGY OUTLOOK 2003 7 (2003) (hereinafter IEA 2003).

<sup>6</sup> The developing countries of Asia are projected to have the strongest energy consumption growth rate, accounting for nearly 40% of the entire projected increase in world energy consumption through 2025. *Id.* at 7 (Table 1: World Energy Consumption and Carbon Dioxide Emissions by Region, 1990–2025). For developing Asia alone, CO<sub>2</sub> emissions are projected to increase from 1.6 billion metric tons carbon equivalent in 2001 to 3.3 billion metric tons in 2025. *Id.* During this same period, total U.S. CO<sub>2</sub> emissions from energy use are projected to increase from 1.6 to 2.2 billion metric tons carbon equivalent. ENERGY INFORMATION ADMIN., U.S. DEP'T OF ENERGY, ANNUAL ENERGY OUTLOOK 2003 7 (2003). Currently, the U.S. emits considerably more CO<sub>2</sub> from burning oil than any other country—e.g., more than Africa and Western Europe combined and 2.7 times as much as India and China combined. ENERGY INFORMATION ADMIN., U.S. DEP'T OF ENERGY, INTERNATIONAL ENERGY ANNUAL 235 (2001) (Table H2: World Carbon Dioxide Emissions from Petroleum Consumption, 1992–2001).

<sup>7</sup> IEA 2003, *supra* note 5, at 14.

<sup>8</sup> Indeed, according to Martin Hoffert, a distinguished physicist from NYU and noted expert on sustainable energy pathways, if the U.S. were to build a 1,000 megawatt power plant every day until 2050, every rooftop in the country had a solar array, everyone drove 80-mpg hydrogen powered vehicles, and all of the wind power of the Dakotas was harnessed (making it the "Saudi Arabia of wind"), population growth and higher-per capita electrical use would erase the gains won by these monumental achievements, and leave the U.S. with CO<sub>2</sub> emissions *higher* than 1995 levels. Martin I. Hoffert, *Creating a Sustainable Energy Future: Moving from Theory to Reality*, Presentation at the *Colorado Sustainable*

*Energy Forum* (April 25, 2005) (presentation slides available upon request).

<sup>9</sup> See, e.g., The Center for Health and the Global Environment, Harvard Medical School, *Oil: A Life Cycle Analysis of Its Health and Environmental Impacts* (Paul R. Epstein & Jesse Selber eds., 2001) (provides a thorough analysis of the environmental and human health impacts of oil recovery).

<sup>10</sup> Brian Halweil, Worldwatch Institute Paper No. 163, *Home Grown: The Case For Local Food In A Global Market*, ISBN: 1-878071-66-1 (2002).

<sup>11</sup> John Wood and Gary Long, Energy Information Administration Report, *Long Term World Oil Supply: A Resource Base/Production Path Analysis* (2000); John Wood, Gary Long and David Morehouse, Energy Information Administration Report, *Long-Term World Oil Supply Scenarios: The Future Is Neither as Bleak or Rosy as Some Assert* (2004). The problem is not that we are literally "running out of oil," but rather that we are losing the ability to produce the 2% more barrels each year needed to meet a global demand that increases about 2% annually. The world will never physically run out of crude oil. However, as the resource base diminishes, it will eventually and increasingly become very expensive to recover. *But see* PETER R. ODELL, WHY CARBON FUELS WILL DOMINATE THE 21ST CENTURY'S GLOBAL ENERGY ECONOMY (2004) (arguing that improvements in oil technology, non-conventional oil sources such as Canada's "tar sands," and price signals all indicate that oil production will not peak until the end of the 21st century).

<sup>12</sup> In the absence of abundant, affordable and reliable alternative sources of energy, this growing dependency of the U.S. on foreign oil will increasingly strain U.S. efforts to maintain geopolitical stability in key oil producing regions. The International Energy Agency (IEA) reports that through the year 2010 nearly 80 percent of the expected increase in the world's demand for oil is likely to be supplied by Kuwait, Iran, Iraq, Saudi Arabia, the United Arab Emirates, and the Caspian Region—with Venezuela as the only major low-cost, non-Middle Eastern petroleum producer. According to an assessment by the Center for Strategic and International Studies, fully half of the world's oil demand will be met from countries that pose a high risk of internal instability by the year 2020. CENTER FOR

STRATEGIC AND INTERNATIONAL STUDIES (CSIS), EXECUTIVE SUMMARY: THE GEOPOLITICS OF ENERGY INTO THE 21ST CENTURY—REPORT OF THE CSIS STRATEGIC ENERGY INITIATIVE (2000).

“The most imposing barrier to Kyoto’s effective implementation was the decision by the United States, responsible for more than 20 percent of the world’s anthropogenic greenhouse gas emissions, to not become a Party to the Protocol.”

## Potential Causes of Action for Climate Change Damages in International Fora: The Law of the Sea Convention

Dr. William C.G. Burns

### I. INTRODUCTION

The Kyoto Protocol’s coming into force in February of this year<sup>1</sup> was met with a sense of both relief and exhilaration by those who view it as a milestone in international climate change policy. However, for many of the nations most vulnerable to climate change, such as the world’s small island States,<sup>2</sup> Kyoto may prove illusory.

The most imposing barrier to Kyoto’s effective implementation was the decision by the United States, responsible for more than 20 percent of the world’s anthropogenic greenhouse gas emissions,<sup>3</sup> to not become a Party to the Protocol.<sup>4</sup> President Bush’s proposed a domestic alternative, the “Clear Skies Initiative,” is an extremely tepid response that under the Administration’s own projections would result in U.S. emissions rising by 32 percent above 1990 levels by 2010,<sup>5</sup> whereas ratification of the Kyoto Protocol would have committed the U.S. to reduce its emissions by 7 percent below 1990 levels by 2012.<sup>6</sup>

Moreover, even if the Kyoto Protocol were faithfully implemented by all industrialized nations as originally drafted,<sup>7</sup> it would only constitute an extremely modest down payment on what ultimately is necessary to stabilize atmospheric concentrations of greenhouse gas emissions. Climate researchers have estimated that full

implementation of Kyoto would reduce projected warming in 2050 by only about one twentieth of one degree.<sup>8</sup> By contrast, stabilization of atmospheric greenhouse gases at levels that produce no more than a 2-3° C increase in temperatures from pre-industrial levels will require the world community to reduce greenhouse gas emissions by 60-70 percent by 2050.<sup>9</sup> This will necessitate participation by the United States and developing States with rapidly growing emissions, such as China and India.<sup>10</sup> This is a truly daunting task given the substantial resistance to the far more modest Kyoto accord.

According to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), by 2100 stratospheric carbon dioxide concentrations will have risen 90-250% above pre-industrial levels, to 540 to 970 parts per million.<sup>11</sup> This rise, in conjunction with other greenhouse gases, will result in an increase of globally averaged temperatures of 1.4 to 5.8° C by the end of this century.<sup>12</sup> A more recent study by the United Kingdom's Hadley Centre projected that a doubling of carbon dioxide from pre-industrial levels will most likely increase temperatures by 3.5° C, with a 90% probability that warming will be between 2.4° C and 5.4° C.<sup>13</sup> Moreover, the IPCC has projected that sea level will rise by 9 to 88 centimeters by 2100 (with a mid-range estimate of approximate 50 centimeters) due to thermal expansion and the loss of mass from glaciers and ice caps.<sup>14</sup> More forebodingly, a recent study focusing on the potential impacts of warming on the Greenland ice-sheet concluded that if annual temperatures increase by more than 3° C in the region, which is highly likely by the end of this century, globally averaged sea-levels could increase by 7

meters over a period of 1000 years or more.<sup>15</sup>

As a consequence, several States and peoples in recent years have contemplated or taken active steps to initiate actions against other States in international fora,<sup>16</sup> including the International Court of Justice,<sup>17</sup> the World Trade Organization,<sup>18</sup> the Inter-American Commission on Human Rights,<sup>19</sup> as well as under the dispute resolution mechanisms of the United Nations Convention on the Law of the Sea Convention (UNCLOS),<sup>20</sup> and the Straddling Fish Stocks Agreement.<sup>21</sup> This article will focus on the potential viability of actions under UNCLOS.

## II. POTENTIAL ACTIONS UNDER UNCLOS

UNCLOS, which currently has 148 parties,<sup>22</sup> establishes "a comprehensive framework for protecting and preserving the marine environment."<sup>23</sup> While the Convention recognizes the sovereign right of States to exploit their natural resources, States must exercise this sovereignty consistent with "their duty to protect and preserve the marine environment."<sup>24</sup> Under the Convention, party States are required "to prevent, reduce and control pollution of the marine environment from any source,"<sup>25</sup> including "the release of toxic, harmful or noxious substances, especially those that are persistent<sup>26</sup> ... from or through the atmosphere ...."<sup>27</sup> Moreover, State liability is triggered for failure to fulfill these responsibilities: "States are responsible for the fulfillment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law."<sup>28</sup>

**"As a consequence, several States and peoples in recent years have contemplated or taken active steps to initiate actions against other States in international fora, including the International Court of Justice, the World Trade Organization, the Inter-American Commission on Human Rights, as well as under the dispute resolution mechanisms of the United Nations Convention on the Law of the Sea Convention (UNCLOS), and the Straddling Fish Stocks Agreement."**

“Part XV of the Convention establishes a comprehensive framework for adjudication of disputes that might arise under its provisions. States are provided with four potential fora for settling disputes: the International Tribunal for the Law of the Sea (ITLOS) established under the Convention, the International Court of Justice, an arbitral panel, or a special arbitral panel.”

The Convention adopts an expansive definition of the term “pollution of the marine environment”:

“[P]ollution of the marine environment” means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.<sup>29</sup>

Part XV of the Convention establishes a comprehensive framework for adjudication of disputes that might arise under its provisions. States are provided with four potential fora for settling disputes: the International Tribunal for the Law of the Sea (ITLOS) established under the Convention,<sup>30</sup> the International Court of Justice, an arbitral panel, or a special arbitral panel.<sup>31</sup> States may choose to declare their choice of forum, but if they do not, or Parties to a dispute disagree on the procedure for dispute settlement, the dispute may only be submitted to binding arbitration unless otherwise agreed.<sup>32</sup>

Several potential manifestations of climate change in the world’s oceans may give rise to actions under the Convention’s marine pollution provisions. These are the potential impacts of rising sea surface temperatures, rising sea levels and changes in ocean pH as a consequence of rising levels of carbon dioxide in sea water. Each of these will be examined briefly in turn.

## A. Rising Temperature Impacts

Projected increases in temperature over the next century<sup>33</sup> will have many adverse ocean impacts that could give rise to claims under the Convention. For example, coral reefs have extremely narrow temperature tolerances of between 25-29°, with some species in Pacific Island Developing Countries (PIDCs) currently living near their threshold of thermal tolerance.<sup>34</sup> Projected sea temperature rises in the Pacific region over the next century are likely to result in a “catastrophic decline” in coral cover,<sup>35</sup> with serious ramifications for PIDCs. In the Pacific region, reefs provide habitat for fish and other marine species that meet 90 percent of the protein needs of PIDC inhabitants<sup>36</sup> “and represent almost the sole opportunity for substantial economic development for many of the small island nations.”<sup>37</sup> Loss of coral reefs could have similar implications in other regions, including the Indian Ocean and Caribbean Sea.<sup>38</sup> Overall, the World Bank has estimated that 50 percent of lost subsistence and artisanal fisheries will result from reefs that die due to coral bleaching from climate change.<sup>39</sup>

Rising sea surface temperature associated with climate change could also result in a substantial decline in fishery productivity in some regions. For example, one study projected that primary productivity in the central and eastern Pacific tuna fisheries will decline due to increased stratification between warmer surface waters and colder deeper waters caused by increased sea surface temperatures, resulting in a reduction in nutrient upwelling.<sup>40</sup> Projected rises in sea surface temperatures are likely to result in major

shifts in the abundance and distribution of plankton species, in turn affecting the abundance of herbivores and fish further up the food chain.<sup>41</sup> Moreover, warming may result in radical shifts of the distribution of some fish species, both denying certain States control of these resources within their Exclusive Economic Zones (EEZs) and threatening the viability of species that may migrate to less propitious ecosystem niches.<sup>42</sup>

### **B. Impacts of Rising Sea Levels**

Mangroves, also known as mangals, are a group of 34 tree species that grow in sheltered conditions in shallow tropical and subtropical waters<sup>43</sup> and cover a quarter of the world's tropical coastline.<sup>44</sup> In addition to providing a range of products for humans, including construction material, firewood, tannin, and herbal medicines,<sup>45</sup> mangroves are a critical ecosystem in many regions, serving as important nursery and feeding sites for nekton, including many fishery species, with surveys of fish and crustacean assemblages around mangroves recording high levels of diversity and abundance.<sup>46</sup> Also, mangrove trees serve as filters for sediment that threaten coral reefs<sup>47</sup> and help to detoxify contaminants in many areas.<sup>48</sup> Economically, mangroves provide about \$10,000 per hectare annually.<sup>49</sup>

Should the IPCC's middle-range estimates of sea-level rise come to fruition over the next century, high island mangroves with sediment accumulation rates of 45 centimeters per century could also be threatened.<sup>50</sup> Increased salinity caused by sea-level rises may also result in decreased net productivity and stunted growth in certain species.<sup>51</sup>

Rising sea levels could also alter the coastlines of some States, leading to a shift of their EEZs.<sup>52</sup> This in turn could have profound implications for the economic interests of such States. As Tol and Verheyen explain:

The alteration of a coastline due to sea level rise will otherwise lead to a shift of the EEZ while most likely leaving unaffected the continental shelf zone. The overall size of a country's EEZ would remain the same, but it would shift landwards. Since many fish stocks are dependent on the topography of the seabed rather than the distance of the coast, this could lead to fish stocks becoming high seas stocks that formerly were located in or straddled the EEZ of a given country. Since coastal states would lose their (restricted) sovereign rights over these stocks, such shift of EEZ could also be defined as a damage.<sup>53</sup>

### **C. Impacts of Reduced Ocean Alkalinity and Calcification Rates of Ocean Species**

As Gattuso and Buddemeier recently observed, while most concerns about rising levels of carbon dioxide in the atmosphere focus on climatic effects, there may also be direct biological effects.<sup>54</sup> Ocean species may suffer the most serious of these impacts.

In the past few decades, only half of the carbon dioxide released into the atmosphere from anthropogenic sources has remained in the atmosphere, with 30 percent of the remainder being taken up by the oceans and 20 percent by the terrestrial biosphere.<sup>55</sup> By the end of this

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century, projected increases in atmospheric carbon dioxide will result in an almost threefold increase in surface ocean carbon dioxide concentrations relative to pre-industrial levels.<sup>56</sup>

When carbon dioxide dissolves into the ocean, less than one percent remains in this form, with the remainder breaking down into compounds of its components, for the most part  $\text{HCO}_3^-$  (bicarbonate ion) and  $\text{CO}_3^{2-}$  (carbonate ion).<sup>57</sup> The dissolution of carbon dioxide results in the production of an acid that lowers the pH of seawater and thus increases its acidification.<sup>58</sup> The tremendous anticipated increase this century in global ocean carbon dioxide uptake may result in larger pH changes than have been inferred from the geological record in the past 300 years.<sup>59</sup>

Acidification of the oceans will result in a decrease in the concentration of carbonate and related ions that reef building and other calcifying organisms draw upon to produce calcium carbonate.<sup>60</sup> Recent research indicates that calcification rates could decline between 16-83 percent by 2100.<sup>61</sup> This is expected to result in weaker skeletons in coral organisms, reduced extension rates, increased susceptibility to erosion,<sup>62</sup> and heightened susceptibility to storm damage and disease.<sup>63</sup> Reefs in the Red Sea, west central Pacific and Caribbean would be most imperiled under these conditions.<sup>64</sup>

### III. POTENTIAL BARRIERS TO CAUSES OF ACTION UNDER UNCLOS

Any action under the UNCLOS would face many imposing challenges, including the following:

#### A. Potential Parties

While the U.S. might appear to be the most logical target for litigation – given its status as the leading producer of anthropogenic greenhouse gas emissions and its failure to ratify Kyoto – it is not currently a party to the Convention. The Bush administration has expressed U.S. support for ratification of the Convention, and the Senate Foreign Relations voted unanimously in 2003 to send the Convention to the full Senate. Its fate remains uncertain, however, given continued opposition by some powerful conservative groups.<sup>65</sup> Some commentators have suggested that most provisions of UNCLOS now constitute customary international law,<sup>66</sup> a position that the Reagan administration also embraced for “most” of its provisions.<sup>67</sup> Thus, a moving party might succeed in invoking Convention provisions against the United States in another forum, such as the International Court of Justice or a domestic court.

#### B. Standard of Care

Although Parties to the Convention are obligated to “protect and preserve the marine environment,” there is no absolute prohibition against pollution. Rather, this provision is interpreted as a due diligence obligation to minimize pollution and to act with appropriate care.<sup>68</sup> Article 235 may provide an appropriate standard of care, mandating that States are responsible for fulfilling international obligations that contribute to protection and preservation of the marine environment.<sup>69</sup>

The most germane international obligation may be the UNFCCC, which, *inter alia*, acknowledges the potential impacts of climate change on natural

ecosystems<sup>70</sup> and the need to specially consider countries with fragile ecosystems.<sup>71</sup> The UNFCCC called on Annex I Parties to reduce their greenhouse emissions back to 1990 levels by 2000.<sup>72</sup> A Party to UNCLOS could argue that all Parties who have not met their UNFCCC obligations are liable for damage under UNCLOS.<sup>73</sup> One could make a similar argument under the Kyoto Protocol should some of its Parties fail to meet their obligations, as is likely when the commitment period ends in 2012.<sup>74</sup> Should foreseeability be the standard applied to resolve a climate change action under UNCLOS, moving Parties could convincingly argue that both the language of the UNFCCC and the comprehensive assessment reports of the Intergovernmental Panel on Climate Change<sup>75</sup> have put all States on notice of climate threats.

### C. Causality Issues

A moving Party would face an imposing challenge establishing causal links between climate change and alleged damages to marine resources, as well as the link between a Party's discrete greenhouse gas emissions and alleged damages. For example, in the former issue, coral reefs face many threats that may also contribute to their degradation, including terrestrial runoff,<sup>76</sup> disease,<sup>77</sup> predators,<sup>78</sup> and pollution.<sup>79</sup> Thus, it may be extremely difficult to attribute damages solely, or even substantially, to the degradation of reefs. Establishing links of this nature will require very expensive research, stretching the resources of small and vulnerable States.<sup>80</sup>

In terms of linking specific greenhouse gas emissions to damages, it will be impossible to ascribe responsibility for

marine damages to the emissions of any individual country. An equitable and manageable approach is suggested by Allen, who advocates that liability should be apportioned according to emissions of individual States from a designated date.<sup>81</sup> However, it is unclear whether this approach will be embraced by ITLOS or any of the alternative bodies that might hear such a case. A Party facing such an action might also argue that all other responsible Parties must be brought into the dispute; however, a moving Party could cite the International Court of Justice's decision in the *Nauru* case,<sup>82</sup> and Article 47 of the International Law Commission's Draft Articles on Responsibility of States for International Wrongful Acts,<sup>83</sup> both of which support the proposition that a moving Party need not bring claims against all possible Parties where joint liability may lie.

### IV. CONCLUSION

Given the failure of world's major greenhouse gas emitting nations to meaningfully address climate change domestically or through international regimes, climate change litigation has become an unavoidable alternative for many nations that may bear the brunt of climate impacts during this century and beyond. While very few of the UNCLOS drafters may have contemplated its use as a mechanism to confront climate change, it may play this role in the future. At the very least, the specter of litigation may help to deepen the commitment of States to confront the most pressing environmental issue of our generation.

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**“Given the failure of world’s major greenhouse gas emitting nations to meaningfully address climate change domestically or through international regimes, climate change litigation has become an unavoidable alternative for many nations that may bear the brunt of climate impacts during this century and beyond.”**

<sup>1</sup> The Kyoto Protocol entered into force on February 16, 2005 after ratification by Russia. United Nations Framework Convention on Climate Change, *Issues Arising in the Context of Entry into Force of the Kyoto Protocol*, Conference of the Parties, Tenth Session, FCCC/CP/2004/9 (2004), <http://unfccc.int/resource/docs/cop10/09.pdf>, site visited on May 21, 2005. As of April, 150 States and regional economic integration organizations have deposited instruments of ratification, accession, approval or acceptance. United Nations Framework Convention on Climate Change Secretariat, *Status of Ratification*, <http://unfccc.int/resource/docs/cop10/09.pdf>, site visited on May 21, 2005.

<sup>2</sup> The United Nations defines “small island states” as islands with less than 10,000 square kilometers in land mass and less than 500,000 inhabitants. John C. Pernetta, *Impacts of Climate Change and Sea-Level Rise on Small Island States*, GLOBAL ENVTL. CHANGE, Mar., 1992, at 20. Small island States in the Indian and Pacific oceans and Caribbean Sea are, as Gillespie observes, “at the edge of extreme risk.” Alexander Gillespie, *Small Island States in the Face of Climatic Change: The End of the Line in International Environmental Responsibility*, 22 UCLA ENVTL. L. & POLY 107, 112 (2003/2004). As such, they are likely to face some of the earliest and most severe impacts over the course this century. William C.G. Burns, *Pacific Island Developing Country Water Resources and Climate Change*, THE WORLD’S WATER 2002-2003 (2003), at 113.

<sup>3</sup> Kevin Baumert & Jonathan Pershing, *Climate Data: Insights and Observations*, Pew Center on Global Climate Change (2004), at 3. The United States is also responsible for almost 30 percent of cumulative carbon dioxide emissions since 1850. *Id.* at 12.

<sup>4</sup> White Office of the Press Secretary, *Remarks by the President on Global Climate Change*, June 11, 2001, <http://www.whitehouse.gov/news/releases/2001/06/20010611-2.html>, site visited on Apr. 26, 2004. Australia also opted not to ratify the Kyoto Protocol. Overall, Kyoto’s limits apply to countries accounting for 32 percent of global emissions. Pew Center on Global Climate Change, *Q&A: Kyoto Protocol*, [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_world/kyoto\\_enters\\_into\\_force/russia\\_kyoto\\_q\\_a.cfm?source=google](http://www.pewclimate.org/what_s_being_done/in_the_world/kyoto_enters_into_force/russia_kyoto_q_a.cfm?source=google), site visited on June 19,

2005.

<sup>5</sup> Detlef van Vuuren, et al., *An Evaluation of the Level of Ambition and Implications of the Bush Climate Change Initiative*, 2 CLIMATE POL’Y 293, 295 (2002); A.P.G. de Moor et al., *Evaluating the Bush Climate Change Initiative*, Dutch Ministry of Environment, RIVM Report 278001019/2002 (2002), at 13.

<sup>6</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, FCCC/CP/1997/L.7/Add. 1, 37 I.L.M. 22, at Annex B. The Clear Skies Initiative, which calls for a voluntary approach to reduce the greenhouse gas intensity of the U.S. economy, (the ratio of greenhouse gas emissions to economic output) is currently stalled in Congress. The Initiative also establishes mechanisms to reduce emissions of sulfur dioxide, nitrogen oxides and mercury. Shankar Vedantam, *EPA Nominee Blocked Over ‘Clear Skies Test,’* Washingtonpost.com, Apr. 15, 2005, <http://www.washingtonpost.com/wpdyn/article/s/A54697-2005Apr14.html>, site visited on May 21, 2005; The Whitehouse, *Global Climate Change Policy Book*, Feb. 2002, <http://www.whitehouse.gov/news/releases/2002/02/climatechange.html>, site visited on May 20, 2005. Other components of U.S. climate change policy include the Climate Change Technology Program, which coordinates and prioritizes the nearly \$3 billion that the U.S. invests annually in climate-related research and development, demonstration, and deployment, and Climate VISION, Climate Leaders, and Smart Way Transport Partnership, programs that seek to stimulate voluntary reductions in greenhouse emissions by industry. Spencer Abraham, *The Bush Administration’s Approach to Climate Change*, 305 SCI. 616, 616 (2004).

<sup>7</sup> Due to compromises crafted during drafting of detailed implementation provisions to the Kyoto Protocol, UNFCCC Annex I Parties (developed countries and countries with economies in transition) may be permitted a 9 percent increase in greenhouse gas emissions by 2010. Mustafa H. Babiker, et al., *The Evolution of a Climate Regime: Kyoto to Marrakech and Beyond*, 5 ENVTL. SCI. & POLY 195, 201 (2002). It is far from clear whether the primary greenhouse emitting States that have ratified Kyoto, including the European

Union bloc and Japan, will meet their targets. James Brooke, *Japan Leads Way in Finding More Use in Less*, INT'L HERALD TRIBUNE, June 6, 2005, at 1, LEXIS-NEXIS, Newsfile (“...Japan's emissions were 8.3 percent above the 1990 level for the fiscal year that ended on March 31, 2004”); *Kyoto Protocol Implementation an 'Imperfect First Step,'* U.S. FED N., Feb. 22, 2005, LEXIS-NEXIS, Newsfile (“In Europe, Portugal, Spain, and Greece have doubled their carbon dioxide emissions since 1990. The Netherlands, and Italy are miles apart from reaching their [self-proclaimed] goals.”); Frank Gagelmann & Bern Hansjürgens, *Climate Protection Through Tradable Permits: The EU Proposal for a CO<sub>2</sub> Emissions Trading System in Europe*, 12 EUR. ENV'T 185, 187 (2002) (Most EU countries likely to “fall far short” of their obligations under the Kyoto Protocol).

<sup>8</sup> Martin Parry et al., *Buenos Aires and Kyoto Targets Do Little to Reduce Climate Change Impacts*, 8(4) GLOBAL ENVTL. CHANGE 285, 285 (1998). See also Mustafa H. Babiker, *The Evolution of a Climate Regime: Kyoto to Marrakech and Beyond*, 5 ENVTL. SCI. & POL'Y 195, 202 (2002).

<sup>9</sup> Jonathan Pershing & Fernando Tudela, *A Long-Term Target: Framing the Climate Effort*, BEYOND KYOTO: ADVANCING THE INTERNATIONAL EFFORT AGAINST CLIMATE CHANGE (Joseph E. Aldy, et al., eds. 2004), Pew Center on Global Climate Change, at 23, <http://www.pewclimate.org/docUploads/Long%2DTerm%20Target%20Epdf>, site visited on June 9, 2005 (Stabilization of atmospheric carbon dioxide levels at 550 parts per million, yielding an estimated 1.6-2.9° C increase in temperatures from pre-industrial levels, necessitates 60 percent reduction in emissions), UK Meteorological Office, *The Greenhouse Effect and Climate Change*, A briefing from the Hadley Centre, Oct., 1999, at 5.

<sup>10</sup> “By 2025, the developing country share of global emissions is projected to be approximately 55 percent (compared to 48 percent in 2000).” China is projected to surpass the United States by that point as the world's largest emitter of greenhouse gases. Baumert & Pershing, *supra* note 3, at 16. “Most plausible emission scenarios suggest that even with strong efforts in developed countries, developing country emissions must fall below business-as-usual projections if

atmospheric GHG concentrations are to be stabilized by 2100.” Thomas C. Heller & P.R. Shukla, *Development & Climate: Engaging Developing Countries*, in Aldy, et al., *supra* note 9, at 111-112. See also Asbjørn Torvanger, et al., *Broadening The Climate Regime: Design and Feasibility of Multi-Stage Climate Agreements*, CICERO Rep. 2005-2 (2005), at 1, <http://www.cicero.uio.no/media/3604.pdf>, site visited on June 13, 2005.

<sup>11</sup> Intergovernmental Panel on Climate Change, Working Group I, *Summary for Policymakers* (2001), at 7 (hereinafter IPCC).

<sup>12</sup> *Id.* at 8.

<sup>13</sup> Hadley Centre, *Uncertainty, Risk and Dangerous Climate Change* (2004), at 13, <http://www.metoffice.com/research/hadleycentre/pubs/brochures/B2004/global.pdf>, site visited on Dec. 19, 2004.

<sup>14</sup> IPCC, *supra* note 11 at 10; The Royal Society of the United Kingdom, *Joint Science Academies' Statement: Global Response to Climate Change*, <http://www.royalsoc.ac.uk/displaypagedoc.asp?id=13034>, site visited on June 8, 2005, at 1. See also Hadley Centre, *Climate Change: Observations and Predictions* 12 (2003), at <http://www.metoffice.com/research/hadleycentre/pubs/brochures/2003/global.pdf>, site visited on June 8, 2005.

<sup>15</sup> Jonathan M. Gregory, Philippe Huybrechts & Sarah C.B. Raper, *Threatened Loss of the Greenland Ice-Sheet*, 428 NATURE 616, 616 (2004).

<sup>16</sup> There have also been a number of actions initiated domestically in the United States. See: *Friends of the Earth, Inc., et al. v. Peter Watson et al.*, Civ. No. C 02 4106 JSW (N.D. Cal. 2002), [http://www.climatelawsuit.org/documents/Complaint\\_2Amended\\_Declr\\_Inj\\_Relief.pdf](http://www.climatelawsuit.org/documents/Complaint_2Amended_Declr_Inj_Relief.pdf), site visited on June 2, 2005 (suit by several U.S. cities, NGOs and individuals alleges failure of the Overseas Private Investment Corporation and the Export-Import Bank of the U.S. to comply with NEPA pursuant to its funding of fossil fuel projects that produce substantial greenhouse gas emissions); *Commonwealth of Massachusetts, et al., Petitioners v. Environmental Protection Agency, Respondent, and Alliance of Automobile Manufacturers, et al., Intervenor*, US Court of Appeals, DC Circuit, Case No. 03-1361 (consolidated with 03-1362, 03-1363, 03-1364, 03-1365, 03-1366, 03-1367 and 03-1368), <http://www.ago.state.ma.us/sp.cfm?>

pageid=986&id=1110, site visited on June 2, 2005 (suit by 12 States and several cities and NGOs seeks to compel the U.S. Environmental Protection Agency to regulate carbon dioxide emissions under the Clean Air Act). *See generally*, Madhusree Mukerjee, *Greenhouse Suits*, SCI. AM., Feb. 2003, at 14-15. Additionally, “[e]nvironmentalists and state attorneys general are honing potential legal strategies to file tort suits against companies over their alleged contributions to global warming.” *Clean Air Report*, InsideEPA.com, February 26, 2004, Issue: Vol. 15, No. 5. In Germany, two NGOs, Germanwatch and BUND (Friends of the Earth Germany), have initiated a legal action to compel the German government to disclose the climatic impact of projects funded by Germany’s export credit agency, Euler Hermes AG. Germanwatch & BUND, *German Government Sued Over Climate Change, Briefing* (2005), <http://www.germanwatch.org/rio/herbpe04.pdf>, site visited on June 2, 2005.

<sup>17</sup> *See* Rebecca Elizabeth Jacobs, *Treading Deep Waters: Substantive Law Issues in Tuvalu’s Threat to Sue the United States in the International Court of Justice*, 14 PAC. RIM L. & POL’Y 103, 105 (2005); Andrew Strauss, *The Legal Option: Suing the United States in International Forums for Global Warming Emissions*, 33 ENVTL. L. REV. 10185, 10185-10187 (2003).

<sup>18</sup> Strauss, *supra* note 17, at 10188.

<sup>19</sup> The Inuit people of Canada and Alaska have launched a human rights case against the United States before the Inter-American Commission on Human Rights. *See* Martin Wagner & Donald M. Goldberg, *An Inuit Petition to the Inter-American Commission on Human Rights for Dangerous Impacts of Climate Change*, EarthJustice/CIEL (2005), [http://www.ciel.org/Publications/COP10\\_Handout\\_EJCIEL.pdf](http://www.ciel.org/Publications/COP10_Handout_EJCIEL.pdf), site visited on May 23, 2005; Paul Brown, *Global Warming is Killing Us Too, Says Inuit*, GUARDIAN INTERNATIONAL, Dec. 11, 2003, <http://www.guardian.co.uk/international/story/0,3604,1104241,00.html>, site visited on June 2, 2005.

<sup>20</sup> U.N. Convention on the Law of the Sea, Dec. 10, 1982, U.N. Doc. A/Conf.62/121, 21 I.L.M. 1261 (1982).

<sup>21</sup> The Agreement for the Implementation of the

Provisions of the U.N. Convention on the Law of the Sea 10 Dec. 1982 Relating to the Conservation and Management of Straddling Fish Stocks and High Migratory Fish Stocks, Aug. 4, 1994, U.N. Doc. A/CONF.164/37.

<sup>22</sup> UN Oceans and the Law of the Sea, *Chronological Lists of Ratifications of, Accessions and Successions to the Convention and the Related Agreements as at 01 February 2005*, [http://www.un.org/Depts/los/reference\\_files/chronological\\_lists\\_of\\_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea](http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea), site visited on June 2, 2005.

<sup>23</sup> Jonathan L. Hafetz, *Fostering Protection of the Marine Environment and Economic Development: Article 121(3) the Third Law of the Sea Convention*, 15 AM. U. INT’L L. REV. 583, 596 (2000).

<sup>24</sup> U.N. Convention on the Law of the Sea, *supra* note 20, at art. 193.

<sup>25</sup> *Id.* at art. 194(1).

<sup>26</sup> *Id.* at art. 194(3).

<sup>27</sup> *Id.* at art. 194(3)(a). *See also id.* at art. 212 (“States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from or through the atmosphere . . .”).

<sup>28</sup> *Id.* at art. 235.

<sup>29</sup> *Id.* at art. Art. 1(4).

<sup>30</sup> *Id.* at Annex VI.

<sup>31</sup> *Id.* at art. 287(1).

<sup>32</sup> *Id.* at art. 287(3)-(5).

<sup>33</sup> *See supra* note 13.

<sup>34</sup> William C.G. Burns, *The Possible Impacts of Climate Change on Pacific Island State Ecosystems*, Occasional Paper of the Pacific Institute for Studies in Development, Mar. 2000, at 4.

<sup>35</sup> Brian C. O’Neill & Michael Oppenheimer, *Climate Change Impacts are Sensitive to the Concentration Stabilization Path*, 101(47) PROC. NAT. ACAD. SCI. 16411, 16414 (2004) (“Model studies suggest that Earth may enter an era of sustained bleaching and widespread demise of reefs if global mean temperature increases by > 1°C from recent levels”).

<sup>36</sup> Ismail Serageldin, *Coral Reef Conservation: Science, Economics, and Law*, in CORAL REEFS: CHALLENGES & OPPORTUNITIES FOR SUSTAINABLE MANAGEMENT 5 (Marea E. Hatzios, Anthony J. Hooten & Martin Fodor

eds., 1998).

<sup>37</sup> John E. Hay, et al., *Climate Variability and Change and Sea-Level Rise in the Pacific Island Regions*, SPREP (2003), at 53.

<sup>38</sup> Hillary Mayell, *Global Warming Blamed for Caribbean Coral Kill*, nationalgeographic.com, May 5, 2000; Charles R.C. Sheppard, *Coral Decline and Weather Patterns over 20 Years in the Chagos Archipelago, Indian Ocean*, 28(6) *AMBIO* 472, 475 (1999).

<sup>39</sup> O. Hoegh-Guldberg, et al., *Pacific in Peril*, Greenpeace, Oct. 2000, at 54.

<sup>40</sup> The World Bank, Papua New Guinea & Pacific Island Country Unit, *Cities, Seas, and Storms*, IV, *Adapting to Climate Change*, Nov. 13, 2000, at 27.

<sup>41</sup> JOHN T. HARDY, *CLIMATE CHANGE: CAUSES, EFFECTS, & SOLUTIONS* 140 (2003). *See also*, Y. Tian et al., *Variations in the Abundance of Pacific Saury from the Northwestern Pacific in Relation to Oceanic-Climate Changes*, 60 *FISHERIES RES.* 439, 449-50 (2003).

<sup>42</sup> Alison L. Perry, et al., *Climate Change and Distribution Shifts in Marine Species*, Scienceexpress, May 12, 2005, at 2, <http://www.scienceexpress.org>, site visited on June 9, 2005.

<sup>43</sup> Dexter Hinckley, *Assessing the Condition of Tropical Island Ecosystems and their Responses to Climatic Change*, unpublished manuscript supplied to the author, at 8.

<sup>44</sup> AAAS Atlas of Population & Environment, *Mangroves and Estuaries*, <http://atlas.aaas.org/index.php?part=2&sec=eco&sub=mangroves>, site visited on June 9, 2005.

<sup>45</sup> Clive R. Wilkinson & Robert W. Buddemeier, *Global Climate Change and Coral Reefs: Implications for People and Reefs*, Report of the UNEP-IOC-ASPEI-IUCN Global Task Team on the Implications of Climate Change on Coral Reefs (1994), at 72; Joanna C. Ellison & David R. Stoddart, *Mangrove Ecosystem Collapse During Predicted Sea-Level Rise: Holocene Analogues and Implications*, 7 *J. COAST. RES.* 159, 159 (1991).

<sup>46</sup> M. Dorenbosch, *The Relationship of Fish Reef Densities to the Proximity of Mangrove and Seagrass Nurseries*, 60 *ESTUARINE, COASTAL & SHELF SCI.* 37, 37 (2004); S.Y. Lee, *Tropical Mangrove Ecology: Physical and Biotic Factors Influencing Ecosystem Structure and Function*, 24 *AUSTRALIAN J. ECOLOGY* 355-361 (1999).

<sup>47</sup> Michael E. Huber, *An Assessment of the Status of*

*the Coral Reefs of Papua New Guinea*, 29 (1-3) *MARINE POLLUTION BULL.* 69, 71 (1994).

<sup>48</sup> Vance P. Vincente, *Littoral Ecological Stability and Economic Development in Small Island States: the Need for an Equilibrium*, in *SMALL ISLAND STATES: MARINE SCIENCE & SUSTAINABLE DEVELOPMENT* 274 (George Maul ed., 1996).

<sup>49</sup> Salif Diop, *Vulnerability Assessments of Mangroves to Environmental Change*, 58 *ESTUARINE, COASTAL & SHELF SCI.* 1, 1 (2003).

<sup>50</sup> Joanna Ellison, *How South Pacific Mangroves May Respond to Predicted Climate Change and Sea-Level Rise*, in *CLIMATE CHANGE IN THE SOUTH PACIFIC: IMPACTS & RESPONSES IN AUSTRALIA, NEW ZEALAND, AND SMALL ISLAND STATES* 294 (Alexander Gillespie & William C.G. Burns eds., 2000).

<sup>51</sup> *Id.* at 296.

<sup>52</sup> The Law of the Sea Convention allows its Parties to declare an Exclusive Economic Zone that may extend to “200 nautical miles from the baselines from which the breadth of the territorial sea is measured.” U.N. Convention on the Law of the Sea, *supra* note 20, at art. 57. Within the EEZ, States exercise, *inter alia*, “sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living . . . *Id.* at art. 56(1)(a).

<sup>53</sup> Richard S.J. Tol & Roda Verheyen, *State Responsibility and Compensation for Climate Change Damages — A Legal and Economic Assessment*, 32 *ENERGY POL’Y* 1109, 1116 (2004).

<sup>54</sup> Jean-Pierre Gattuso & Robert W. Buddemeier, *Calcification and CO<sub>2</sub>*, 407 *NATURE* 311, 311 (2000).

<sup>55</sup> Richard A. Feely, *Impact of Anthropogenic CO<sub>2</sub> on the CaCO<sub>3</sub> System in the Oceans*, 305 *SCI.* 362, 362 (2004). *See also* Christopher L. Sabine, et al., *The Ocean Sink for Anthropogenic CO<sub>2</sub>*, 305 *SCI.* 367-71 (2004).

<sup>56</sup> Ulf Riebesell, et al., *Reduced Calcification of Marine Plankton in Response to Increased Atmospheric CO<sub>2</sub>*, 407 *NATURE* 364, 364 (2000).

<sup>57</sup> Joan A. Kleypas, et al., *Geochemical Consequences of Increased Atmospheric Carbon Dioxide on Coral Reefs*, 284 *SCI.* 118, 118 (1999).

<sup>58</sup> *Id.*

<sup>59</sup> Ken Caldeira & Michael Wickett, *Anthropogenic Carbon and Ocean pH*, 425 *NATURE* 365, 365

(2003). A doubling of atmospheric carbon dioxide levels from pre-industrial levels will lower pH by 0.3 pH units. Graeme C. Hays, Anthony J. Richardson & Carol Robinson, *Climate Change and Marine Plankton*, 20(6) TRENDS ECOLOGY & EVOLUTION 337, 341 (2005). It is projected that pH may decline by 0.7 pH units by 2300, which “will exceed anything experienced in the past 300,000 yr of earth history.” Anja Engel, et al., *Testing the Direct Effect of CO<sub>2</sub> Concentration on a Bloom of the Coccolithophorid *Emiliania huxleyi* in Mesocosm Experiments*, 50(2) LIMNOLOGY & OCEANOGRAPHY 493, 494 (2005).

<sup>60</sup> O. Hoegh-Guldberg, et al., *Pacific in Peril*, Greenpeace Rep., Oct. 2000, at 14.

<sup>61</sup> Riebesell, et al., *supra* note 56, at 366. *See also*, Chris Langdon, *Review of Experimental Evidence for Effects of CO<sub>2</sub> on Calcification of Reef Builders*, Proceedings 9<sup>th</sup> International Coral Reef Symposium (2000), at 1093 (citing empirical evidence of substantial declines in calcification rates under conditions of lower pH). For a dissenting view, *see* Ben I. McNeil, Richard J. Matear & David J. Barnes, *Coral Reef Calcification and Climate Change: The Effect of Ocean Warming*, 31 GEOPHYSICAL RES. LETTERS, L22309 (2004), at 2 (“annual average coral reef calcification rate will increase with future ocean warming and eventually exceed pre-industrial rates by about 35% by 2100”).

<sup>62</sup> Kleypas, et al., *supra* note 57, at 119.

<sup>63</sup> Langdon, *supra* note 61, at 1097.

<sup>64</sup> Kleypas, et al., *supra* note 57, at 119. Reduced carbonate precipitation could also adversely affect the formation of calcareous skeletons by planktonic microorganisms, particularly coccolithophorids, “major contributors to marine primary production and an important component of open ocean and coastal marine ecosystems.” Riebesell, et al., *supra* note 56, at 364. *See also* Engel, et al., *supra* note 59, at 495.

<sup>65</sup> Martin Schram, *A Sunken Treaty*, Scripps Howard N. Service, LEXIS-NEXIS, Newsfile, Apr. 12, 2005; Nicholas Brulliard, *Oil Firms See Hope for Future in Treaty*, ATLANTA CONST., Mar. 26, 2005, at 1E, LEXIS-NEXIS, Newsfile.

<sup>66</sup> Jon M. Van Dyke, *Giving Teeth to the Environmental Obligations in the LOS Convention*, in OCEANS MANAGEMENT IN THE 21<sup>ST</sup> CENTURY: INSTITUTIONAL FRAMEWORKS & RESPONSES 167 (Alex G. Oude Elferink & Donald R. Rothwell,

eds. 2004); Strauss, *supra* note 17, at 10188.

<sup>67</sup> Proc. No. 5030, 19 Wkly Comp. Pres. Doc. 383 (Mar. 10, 1983), 48 Fed. Reg. 10605 (Mar. 10, 1983), 3 C.F.R. 22 (1984). The administration pledged that the United State would adhere to “most” of the provisions of the Convention, while carving out a claim to sea bed mining rights within 200 nautical miles of its shoreline.

<sup>68</sup> UN Secretary General, *Law of the Sea — Protection and Preservation of the Marine Environment*, 18 Sept. 1989, UN Doc. A/44/461, para. 30.

<sup>69</sup> U.N. Convention on the Law of the Sea, *supra* note 20, at art. 235.

<sup>70</sup> United Nations Conference on Environment and Development: Framework Convention on Climate Change, May 9, 1992, 31 I.L.M. 849, at Preamble.

<sup>71</sup> *Id.* at art. 2(8)(g).

<sup>72</sup> *Id.* at art. 4(2)(a)(b).

<sup>73</sup> All industrialized countries are Parties to the UNFCCC.

<sup>74</sup> *See supra* note 7.

<sup>75</sup> The IPCC, comprised of 2500 climate scientists from throughout the world, was established by the United Nations in 1988 to gather information and coordinate research related to climate change, to evaluate proposals for reducing greenhouse gas emissions, and to assess the viability of response mechanisms. G.A. Res. 43/53, U.N. GAOR, 2d Comm., 43rd Sess., Supp. No. 49, at 133, U.N. Doc. A/43/49 (1989). The IPCC prepares, on regular intervals, comprehensive assessments of the state of knowledge on climate change. The First Assessment Report was completed in 1990, the Second Assessment Report in 1995 and the Third Assessment Report in 2001. Intergovernmental Panel on Climate Change, *About IPCC*, <http://www.ipcc.ch/about/about.htm>, site visited on June 17, 2005. All three reports included extensive discussions of the potential impacts of climate change on marine environments.

<sup>76</sup> D.R. Bellwood, et al., *Confronting the Coral Reef Crisis*, 429 NATURE 827, 827 (2004).

<sup>77</sup> Toby A. Gardner, *Long-Term Region Wide Declines in Caribbean Corals*, 301 SCI. 958, 960 (2003).

<sup>78</sup> *Id.*

<sup>79</sup> Jordan M. West & Rodney V. Salm, *Resistance*

*and Resilience to Coral Bleaching: Implications for Coral Reef Conservation and Management*, 17(4) CONSERVATION BIO. 956, 957 (2003); R.J. Jones & A.L. Steven, *Effects of Cyanide on Corals in Relation to Cyanide Fishing on Reefs*, 48 MAR. & FRESHWATER RES. 517-22 (1997).

<sup>80</sup> See generally, Choon-ho Park, *Judicial Settlement of International Maritime Disputes — An Overview of the Current System*, 28 STETSON L. REV. 1035, 1044 (1999) (“In the case of many developing countries, the availability of domestic expertise and financial resources is an obstacle to access to the courts, because international litigation is an expensive undertaking”).

<sup>81</sup> Myles Allen, *Liability for Climate Change*, 421 NATURE 891, 892 (2003).

<sup>82</sup> *Certain Phosphate Lands in Nauru* (Nauru v. Australia), 1992 ICJ Rep. 240.

<sup>83</sup> International Law Commission, *Draft Articles on Responsibility of States for International Wrongful Acts*, Fifty-Third Session, Nov. 2001, at art. 47, [http://www.un.org/law/ilc/texts/State\\_responsibility/responsibilityfra.htm](http://www.un.org/law/ilc/texts/State_responsibility/responsibilityfra.htm), site visited on June 18, 2005.

## **Economic Freedoms Caught in the Whipsaw? The Implementation of the EU ETS Directive 2003/87/EC in Germany**

**Roland C. Kemper**

### **I. INTRODUCTION**

In July 2004, several U.S. states, including New York, California, and Wisconsin, filed a complaint in the United States District Court for the Southern District of New York seeking an order that would require electric power corporations “to reduce their emissions of carbon dioxide, thereby abating their contribution to global warming, a public nuisance.”<sup>1</sup> From a German perspective, this situation seems turned upside down. Indeed, Germany’s implementation of the EU Emission Trading System Directive (“EU ETS” or “ETS Directive”) has triggered the first proceedings in German administrative courts. These proceedings question the validity of the implementing federal laws of the EU ETS and of administrative decisions interpreting them. Operators of CO<sub>2</sub>-emitting installations attack these decisions because they solidify the operators’ duty to reduce CO<sub>2</sub>-emissions. This article does not intend to dissect every possible flaw of the German legal implementation process. Rather, it attempts to shed light on legal characteristics of the implementation process in Germany, especially those giving rise to economic and environmental policy debates or litigation.

**“Germany’s implementation of the EU Emission Trading System Directive (“EU ETS” or “ETS Directive”) has triggered the first proceedings in German administrative courts.”**

“Due to the defaults in the ETS Directive and consequently in the ETA, the NAP lies at the heart of the implementation process both technically and with regard to its economic impact.”

## II. HISTORY OF GERMAN IMPLEMENTATION: DISPUTE WITHIN THE GOVERNMENT

In sketching the history of ETS implementation in Germany, one should distinguish three basic legal implementation instruments: the Emission Trading Act 2004 (“ETA”), the National Allocation Plan (“NAP”), and the Act on the Allocation of Emission Allowances 2007 regarding the first trading period (“EAA”).<sup>2</sup> On May 28, 2004 and June 11, 2004, the federal legislative chambers passed the legal framework for implementing the reductions required by the Kyoto Protocol, the ETA. The ETA establishes the general rules applicable both to the 3-year trial period from 2005 onwards and the subsequent 5-year reduction period from 2008 onwards. In accordance with article 12 (3) of the ETS Directive, ETA Section 6 (1) breaks these trading periods down into calendar years and creates the operator’s cardinal duty to surrender her used allowances after each year.

The NAP anticipated the EAA, detailing the ETS Directive’s allocation rules. As a result, the EAA contains the rules applicable to the first trading period and is the primary regulatory instrument within the general framework of the ETA. ETA Section 7, clause 2 requires that the NAP’s rules governing the first allocation of allowances be later engrafted into the EAA.

The NAP is provisional insofar as it has no direct legal effect on the allocation of allowances to the individual operator of a CO<sub>2</sub>-emitting installation – the EAA furnishes this authority. Nonetheless, the NAP constitutes virtually the “point of no return” in substantive matters, because it binds the individual member

state to its ETS obligations in the first period. Member states were required to present the NAP to the commission on March 31, 2004.

In Germany, the federal department of environment presented the first draft of the NAP to the public on January 1, 2003. A heated, fiercely conducted debate ensued between Jürgen Trittin, the secretary of environment who advocated for more substantial emissions reductions, and Wolfgang Clement, the secretary of commerce who resisted major emissions cuts.<sup>3</sup> Trittin had proposed to lay out in the NAP’s so called macro-plan, an overall CO<sub>2</sub>-emissions reduction from 505 million tons per year to 488 million tons per year for the trial period and 480 million tons per year for the subsequent period. Only one day before the dead-line elapsed, the parties compromised and the final version of the NAP was sent to the commission, with Clement prevailing on major points. The parties compromised with 503 and 495 million tons per year, respectively.<sup>4</sup> The parliamentary chamber (“Bundestag”) passed the EAA on May 28, 2004.

## III. IMPLEMENTATION TECHNIQUE: THE NAP LIES AT THE HEART OF IT

Due to the defaults in the ETS Directive and consequently in the ETA, the NAP lies at the heart of the implementation process both technically and with regard to its economic impact. ETS Directive Article 9 and ETA Section 7 each mandate that the NAP establish both the aggregate amount of allowances to be emitted in one trading period and the criteria of allocation. The actual allowance allocation depends on which allocation criteria, i.e. which allocation

“key”, the NAP contains.<sup>5</sup> This key has immediate economic impact on the operator’s duty to reduce her emissions or on whether it is prudent to forestall allowances on the market. In addition to the allocation key, the German NAP sets forth in enumerative fashion both a list of all installations required to participate and the number of allowances allotted to each installation.

ETS Directive article 11 (3), clause 2 does not precisely address whether the member state can permit a CO<sub>2</sub>-emitting newcomer (“new entrant”) to buy allowances on the market or whether the member state must maintain a reserve for this purpose.<sup>6</sup> The Directive does expressly address “early action” scenarios, however, where a participant successfully reduces emissions prior to ETS implementation.<sup>7</sup> It orders the member state to accord due deference to such efforts while fashioning the allocation key of the NAP. The same applies as to clean, energy saving technologies like modern power-heat coupling technology (“CHP”).<sup>8</sup>

To adequately describe the implementation of the ETS Directive’s defaults, one must focus on three facets of German implementation: the data model on which the NAP relies, the macro-plan, and the micro-plan.

#### **A. Data Model: Grandfathering Instead of Benchmarking<sup>9</sup>**

The allocation of allowances to individual installations depends on how the actual emissions of the installation and its reduction potential are measured. The EU ETS Directive does not specify any particular method of appraisal. Rather, it delivers rough guidelines with respect to the allocation rules. In principle, one can

distinguish two measures: grandfathering and benchmarking. With respect to old installations, the NAP favors the so-called “grandfathering” method, as reflected in EAA Section 7(2). Grandfathering means that an installation’s historical average emissions per annum constitutes the basis of the first trading period allocation, as measured from January 1, 2000 until December 31, 2002 (“basis period”). The NAP designates the benchmarking method for new installations, meaning the amount a facility individually emits per production unit when best possible technology is applied, or what a specific industrial sector emits per production unit when best possible technology is applied.<sup>10</sup>

In choosing grandfathering for old installations, the regulatory regime requires that historical annual emissions be multiplied with a compliance factor in order to yield an installation’s individual reduction goal. EAA Section 5 sets forth a reduction factor (“compliance factor”) of 0.9709 for the first trading period. This results in an average annual reduction obligation of 2.91% for the trial period. In other words, the installation receives allowances equaling 97.09% of its average emissions from the beginning of 2000 until the end of 2002.

Equal protection requires additional allocation of allowances for early actions. A difficulty arises, however, with how to differentiate meaningful emissions reductions from meaningless ones. For example, a modernization that applies energy-saving equipment is a meaningful reduction, whereas an individual shutdown stemming from an economic downturn is meaningless. The benchmarking-method tackles this difficulty. However, the legislator must

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then cope with the technical complexities of databases established on a theory of benchmarking.<sup>11</sup> The German legislator could not meet this challenge due to the precipitance of the legislative process.

One further distorting factor of the grandfathering-method is worth discussing. During the 200-2002 basis period, the average emissions in Germany were particularly low due to a general economic downturn. Despite this, the NAP does not provide for additional allowances in the event of economic growth.<sup>12</sup> It is the German government's responsibility to achieve the reduction target under the EU burden-sharing agreement, and the government who will have to forestall allowances in the future. It would be unfair to shift this burden on private agents who enlarge installations or who enter the ETS later.

### **B. Macro-plan: Macro-Sectors within the Economy and Participating Types of Installation**

As reflected in EAA Section 4, the macro-plan lays out the allocation of allowances en bloc to the various industrial sectors in the economy (“macro-sectors”) that are subject to the EU ETS trial period. It reflects the ETS Directive's general requirements concerning the aggregate amount of allowances, the allowances assigned to each industrial sector whether actually participating or not, and the development trend towards the 2012 reduction target pursuant to annex III (2) of the ETS Directive. The macro-plan further identifies within each macro-sector the participating types of installations. Two particularities are notable. The macro-plan does not take into account a voluntary self-commitment by the

German industry to reduce CO<sub>2</sub>-emissions by 45 million tons until 2010 based on 1998 emissions.<sup>13</sup> This self-commitment came into power on December 12, 2003. Another particularity is the macro-plan's consideration of the nuclear power production phase-out in Germany. This phase-out requires the compensation of an estimated additional amount of 1.5 million tons of CO<sub>2</sub>. EAA Section 15 (1), clause 3 incorporates this requirement.

### **C. Micro-plan: Allocation Criteria with Respect to the Individual Installation**

As discussed above, the individual installation's need for allowances and its reduction potential are assessed using a grandfathering standard. Obviously, the sum of the historical emissions of each installation that participates in the ETS exceeds the aggregate amount of admissible emissions as laid out in the macro-plan. This explains the need for a general compliance factor. The general compliance factor is calculated using the ratio of the aggregate emission budget of the macro-plan and the sum of each installation's historical emissions data.<sup>14</sup>

A second issue relates to early actions, new entrants, and similar situations like process related thermodynamic emissions and CHP. As to all of these, equal protection and environmental policy rationales call for governmental banking of allowances and an allocation using a more lenient compliance factor. The EAA's Sections 6, 11-15 provide the pertinent rules. Pursuant to these, the aggregate amount of available allowances is restrained by allowances reserved for newcomers. Newcomers get the allowances free of charge. Early actions benefit from a compliance factor of 1.

The same applies to installations that do not emit CO<sub>2</sub> due to combustion, but primarily due to thermodynamic processes, as in the production of cement, lime, soda, ammonium, and metals. The micro-plan also fosters CHP, although this technology emits more CO<sub>2</sub> than a mono-production would emit.

Remarkably, the German micro-plan does not opt to bank allowances from the 2005-2008 period towards the subsequent reduction period (“external banking”), as provided for in the ETS Directive. EAA Section 20 expressly abrogates this option, which is set forth in ETA 6(4). The risk is that an ample transfer of allowances into the subsequent period jeopardizes the achievement of the 2012 reduction goal required under the Kyoto Protocol. Consequently, unused allowances from the trial period will be cancelled with the transition to the subsequent period. In contrast, ETA Section 6(4) allows for a banking within the trial period (“internal banking”). Unused allowances can be transferred to a subsequent year within the same trading period. By the same token, ETA Sections 6(4) and 9(2), clause 3, allow for a “borrowing” of allowances from a future year within the same trading period (“internal borrowing”).

#### **D. Other Salient Aspects of the Implementation in Germany**

Other salient aspects of implementation include the financial status of the allowances, administration and institutionalization of the ETS, and the economic impact of the ETS. As to the financial status of the allowances, ETA Section 15 states that allowances are not financial instruments under the German act on securities regulation. Hence, the German Federal Financial Services

Authority does not supervise the trade and brokering of allowances.<sup>15</sup> Trading began on March 9, 2005 on the European Energy Exchange (“EEX”) in Leipzig.<sup>16</sup> Since then, the price for one ton of CO<sub>2</sub> rose from 10.4 Euros to 16 Euros on April 11, 2005.<sup>17</sup>

With respect to administrative matters, ETA Section 4 requires that the operator of an installation apply for the general permit to emit CO<sub>2</sub>, corresponding to ETS Directive article 4. ETA Section 9 provides the operator with the affirmative right to claim an amount of allowances that are consistent with the micro-plan determinations in the NAP. The operator has the burden of proving the factual basis of this claim in her application. ETA Section 11 (1), clause 2 mandates that a recognized expert verify the data on which the application rests. Since this decision largely relies on information adduced by the applicant, the agency in principle can resume the allocation procedure and correct an allocation decision ex officio.

Institutionally, a “German bureau of emission trading” was created within the federal environmental protection agency. The bureau administers the ETS and in particular the national emission trading registry which is interlinked with the European emission trading registry. Of note, the German legislator accommodates the frictions caused by the ETS within the German environmental laws, particularly the traditional command and control approach and the defaults of the European “Integrated Pollution Prevention and Control” (“IPPC”) Directive. Under these programs, the operator has the positive duty to achieve energy efficiency on the spot and the negative duty to avoid harmful emissions

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as far as possible. The German legislator tackles this friction by enacting a new Section 5 (1) no. 2-4 within the old federal act on protection against nuisances. It exempts the operator from sanctions under the old laws if she satisfies the demands of the ETA.

Finally, it cannot be understated that entrepreneurial decisions must take into account the considerable economic consequences of the ETS. A salient example is the diligence required in conjunction with purchases of installations that need to hold allowances or of acquisitions of pertinent undertakings.

#### **IV. CONSISTENCY OF THE IMPLEMENTATION WITH GERMAN FUNDAMENTAL RIGHTS**

The German implementation of the ETS Directive raises a host of constitutional questions, in particular with respect to German fundamental rights as provided in the federal constitution (“Basic law”). A small selection of these issues is discussed below using three court proceedings, although a separate review of each fundamental right is beyond the scope of this article. As of today, these decisions are the only ones published that confront the aforementioned spheres of conflict.

##### **A. Administrative Court in Augsburg, September 1, 2004<sup>18</sup>**

In this 2004 case, the applicant for an injunction against the Federal Republic attacked the constitutionality of the ETA.<sup>19</sup> The applicant maintained that the ETA created a “mixed administration” of the ETS in Germany – i.e., an impermissible assignment of

administrative tasks to the federal environmental protection agency. As a matter of principle, the state administrative agencies execute the federal laws. The basic law proscribes a “mixed administration” between federal and state agencies to the extent that the state administrative agencies’ competence to execute the laws is paralleled by the competence of a federal administrative agency. The court ruled that the applicant had standing to institute this constitutional attack because the constitutionally warranted freedom of action (Article 2 I) allows her to challenge a federal law that is inconsistent with the allotment of administrative power provided in the basic law. It is considered a mediated, but sufficiently intense, encroachment of individual freedom. The applicant did not ultimately prevail, however, in bringing this claim. The court found that the ETA sufficiently delineated a clear separation of administrative powers.

##### **B. Administrative Courts in Karlsruhe, October 18, 2004, and Würzburg, November 9, 2004<sup>20</sup>**

The opinions rendered by the administrative courts in Karlsruhe and in Würzburg discuss to a larger extent the issue of fundamental rights.<sup>21</sup> At issue are administrative decisions that use the ETA as a basis to modify older permits which pre-date the ETA. In both proceedings, the applicants argued that the modifications represented an illegal taking, an illegal restriction of the substantive content of their property, and an undue burden on their entrepreneurial freedom. The courts ruled against the applicants on each of these contentions.

As to illegal takings, under German constitutional law, an illegal taking

requires the intentional removal of a concrete, separable property right. In these cases, the courts found that the modifications did not remove a concrete, separable property right, but rather were modifications to the maintenance obligations of the installation. As to the applicants' second argument – that the modifications imposed an illegal restriction of the substantive content of their property – the courts ruled that the owners of installations do not enjoy absolute reliance on their old permits. The courts held that the ETS constitutes a permissible redefinition of the contours of the property right as embodied in the permits.

For both the property right and undue burden on entrepreneurial freedom arguments, the courts considered whether the redefinition of the property complied with the demands of proportionality, answering this question in the affirmative. Proportionality requires that a governmental interference fulfill a three pronged test: 1) it must be an adequate means of achieving the desired objective; 2) it must be necessary, meaning there are no alternate, equally effective means; and 3) it must be appropriate in the sense that it “does not break a butterfly on the wheel.” While the novelty of the ETS as regulatory instrument could raise concerns about its adequacy, the courts accord considerable deference to the legislator's discretion in the context of economic regulation. This discretion is measured only against a reasonability threshold. In addition, the German legislator discharged its duties under the EU treaty and under article 20(a) of the basic law by implementing the ETS. The latter provision demands that the government take into account its responsibility for future generations with regard to the environment. As to the

“necessary” prong, the court presumed that a traditional command and control system would engender a much more intense interference with property rights. For the “appropriateness” prong, the courts engaged in a comprehensive balancing of the competing interests. In particular, they favorably ruled that the legislative scheme of the ETA contained appropriate provisions to avoid undue burden in exceptional cases, e.g. early actions.

#### **V. CONCLUDING REMARKS: LEGAL VIABILITY AND COMPETITIVE DISADVANTAGES FOR OPERATORS**

The legal implementation of the ETS in Germany leaves room for many questions, and certainly for litigation. Despite this, this author finds it unlikely that such litigation will reverse the ETS in Germany. Rather, the many detailed micro-plan rules and the discretionary leeway of administrative agencies invite case-by-case litigation. Given the narrow deadlines and precipitance of the legislative process, it is impressive that such a novel regulatory instrument has been implemented into practice.

It remains disputed whether the German implementation creates grave competitive distortions and disadvantages for German operators. In fact, two very recent articles in European and German law reviews present almost diametrically opposed opinions. Some commentators<sup>22</sup> believe that Germany's ETS implementation reconciles the societal aim of environmental protection with the freedom of private agents. They posit that Germany “cuts the edge” in reducing CO<sub>2</sub> while promoting competitive advantages – e.g., the development of energy saving

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technology.

Other commentators grant<sup>23</sup>, “From a distance-to-target perspective, Germany is on a safe path towards achieving its [21% reduction target] under the Burden-Sharing-Agreement [at the end of] the 2008 to 2012 period.” In 2002, it has exceeded its obligation by 6% as measured against the distant-to-target path. Other than Germany, only France, Sweden, and the UK have met or surpassed their reduction obligations in 2002 as measured against the distance-to-target-path.<sup>24</sup> The second article engages in a critical comparative analysis of the member states allocation plans, noting that the EU ETS Directive leave the member states with considerable discretion to design of the allocation key. In this critique, Germany is within a minority of EU member states who demand large emission reductions from operators within the first period. In this respect, the allocation keys of other member states impose on operators a considerably lower reduction burden. Hence, the article concludes that “it seems obvious that the operators of German installations will suffer competitive disadvantages as a result ...”<sup>25</sup>

This author finds that the second article paints too black a picture of the competitive situation. Indeed, some member states rest their reduction efforts more on JI and CDM – i.e., the project-related flexible mechanisms under the Kyoto protocol which are neutral with respect to the competitive situation of individual undertakings. However, the member states that grant more competitive leeway to operators in the first trading period will have to compensate for this indulgence in the subsequent trading period.

<sup>1</sup> Available under [www.oag.state.ny.us/press/2004/jul/jul21a\\_04\\_attach.pdf](http://www.oag.state.ny.us/press/2004/jul/jul21a_04_attach.pdf), last visited May 10, 2005.

<sup>2</sup> Instruments available at [www.bmu.de/emissionshandel](http://www.bmu.de/emissionshandel), last visited May 10, 2005; see English version of the NAP, [www.bmu.de/english/emissions\\_trading/national\\_allocation\\_plan/doc/5894.php](http://www.bmu.de/english/emissions_trading/national_allocation_plan/doc/5894.php).

<sup>3</sup> See <http://www.germanwatch.org/kliko/ks24.htm>, last visited May 10, 2005; “Ordentlicher Kompromiss”, newspaper article, *Frankfurter Allgemeine Zeitung*, March 30, 2005.

<sup>4</sup> Only 499 million tons will be allocated in the first trading period. Four million tons are assigned to installations in the energy and the industrial sector that do not participate in this period.

<sup>5</sup> Carl-Stephan Schweer and Bernhard Ludwig, *Der erste nationale Zuteilungsplan für handelbare Emissionszertifikate*, 15 *Deutsches Verwaltungsblatt* (2004), 932, 934.

<sup>6</sup> *Id.*

<sup>7</sup> See ETS Directive Annex III, no. 7.

<sup>8</sup> See *id.* at no. 8.

<sup>9</sup> See PETER EBSEN, *EMISSIONSHANDEL IN DEUTSCHLAND* 28-47 (Köln 2004) (further details).

<sup>10</sup> Lars Oliver Michaelis and Christoph Holtwitsch, *Die deutsche Umsetzung der europäischen Emissionshandelsrichtlinie*, 30 *Neue juristische Wochenschrift* (2004), 2127, 2130.

<sup>11</sup> See Schweer and Ludwig, *supra* note 5, at 935.

<sup>12</sup> See Wolf Friedrich Spieth and Martin Hamer, *The Implementation of the EU ETS Directive in the EU Member states in the light of the German National Allocation Plan*, 2 *Journal for European Environmental & Planning Law* (2005), 112, 116.

<sup>13</sup> See Schweer and Ludwig, *supra* note 5, at 937.

<sup>14</sup> See *id.* (further details).

<sup>15</sup> See Michaelis and Holtwitsch, *supra* note 10, at 2129 (footnote omitted).

<sup>16</sup> See <http://www.eex.de>, last visited May 10, 2005.

<sup>17</sup> See “Kohlendioxid an der Börse“ and “Hundert Prozent Rendite für Klimafreundlichkeit“, newspaper articles, “*Die Tageszeitung*“, March 10, 2005 and April 11, 2005.

<sup>18</sup> Docket number Au 4 E 04.1231, 10 *Neue*

*Zeitschrift für Verwaltungsrecht* (2004), 1389 et seq..

<sup>19</sup> See Ludger Giesberts and Juliane Hilf, 1 *Zeitschrift für europäisches Umwelt- und Planungsrecht* (2004), 21, 28-29 (overview of remedies available in German and European courts). See also Michael Rodi, *Public Environmental Law in Germany*, Public Environmental Law in the European Union and the United States, 199-245 (Renée J.H.G. Seerden et al. ed., The Hague 2002). In Germany, disputes in conjunction with the ETS fall within the subject matter jurisdiction of administrative courts. The likelihood of success in a direct attack against the ETA or the EAA is slim. It is improbable that the lower courts submit these laws for review to the federal constitutional court. Only this court can reverse laws passed by the federal legislator. As a matter of principle, the plaintiff cannot institute a constitutional complaint with the Court unless she has exhausted the remedies in the lower courts.

<sup>20</sup> Docket number 10 K 2205/04, 1 *Neue Zeitschrift für Verwaltungsrecht* (2005), 112 et seq.; Docket number W 4 K 04.948, 2 *Infrastrukturrecht* (2005), 32 et seq..

<sup>21</sup> See Dirk Weinreich and Simon Marr, 16 *Neue juristische Wochenschrift* (2005), 1078, 1079-108.

<sup>22</sup> See Weinreich and Marr, *supra* note 23, 1084.

<sup>23</sup> See Spieth and Hamer, *supra* note 12, 122.

<sup>24</sup> See *id.* at 117. See also Technical Report No. 7/2004 European Environment Agency (EEA), available at [http://reports.eea.eu.int/technical\\_report\\_2004\\_7/en](http://reports.eea.eu.int/technical_report_2004_7/en), last visited May 16, 2005.

<sup>24</sup> See *id.* at 122.

## Summary of Foreign Correspondents' Reports

The Newsletter's foreign correspondents are an impressive group of environmental lawyers who will regularly share important developments from their countries. This issue's reports address a wide variety of legal and policy developments including: approaches to Kyoto Protocol commitments (France, Canada and Italy); recent developments in mining, forest conservation and other aspects of natural resource law (New Zealand, Peru and India); environmental crimes (Venezuela); changing environmental, health and safety standards impacting project finance projects worldwide (United Kingdom); and the adoption of certain American Clean Air Act standards (Israel).

The reports listed below are available on the Committee's web site:

### AMERICAS

#### Canada

*Canada's Project Green: A Plan for Honoring Canada's Kyoto Commitment*

by Gray E. Taylor

This report addresses Canada's recently announced plan to meet its Kyoto commitment. Aspects of Project Green include a climate fund for acquiring emission reduction credits, a partnership fund for large projects aimed at reducing emissions, reductions in emissions, and significant investment in renewable energy.

#### Mexico

*Legislative Activity, Environmental Law Trends, and the Creation of a "Mexican Environmental Code"*

by Daniel Basurto

This report surveys several environmental bills and explains why these environmental bills, like the environmental legal system as a whole, is unlikely to efficiently promote important environmental goals like sustainable development without a unifying environmental code. Such a code is currently being developed by the Mexican Industrial Sector.

#### Peru

*Financing Mine Closure and Reclamation of Orphan Mine Sites*

by Lorenzo de la Puente

Peruvian law will now require mines to post a guarantee for closure purposes. Financing mechanisms to reclaim orphan mine sites are being implemented on a voluntary basis.

#### Venezuela

*Environmental Crimes Now Subject to Statute of Limitations*

by Bernardo Wallis Hiller and Elisabeth Elijuri

Environmental crimes are now subject to a statute of limitations due to an April 15, 2005 decision of the Constitutional Chamber of the Supreme Tribunal of Justice. According to the decision, such crimes are distinct from crimes of *lèse-humanité* and serious human rights violations, to which a statute of limitations does not apply.

## EUROPE

### France

*Implementation in France of Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading*

By Marie-Léonie Vergnerie

This report is an overview of the implementation of greenhouse gas emission allowance trading in France, including the establishment of the national allocation plan and a registry.

### Italy

*Mitigating the Effects of Climate Change in Italy*

by Marco Mazzeschi

This report is an overview of Italy's recent efforts to reduce its greenhouse gas emissions in compliance with Kyoto Protocol of 1998

### United Kingdom

*IFC Review of Environmental, Health and Safety Guidelines Bears Watching*

by Nigel Howorth

This report is an overview of recent developments in IFC environmental, health and safety standards impacting project finance.

## MIDDLE EAST

### Israel

*Israeli Ministry for the Environment Applies U.S. EPA Clean Air Act Regulations to Israeli Industrial Plants*

by Tzvi Levinson

The Israeli Ministry of the Environment, which has been increasingly concerned about particulate, sulfur and other emissions from coal and fuel burning point sources, is applying the measurement and particulate matter standards of the American Clean Air Act of 1971 to those point sources.

## ASIA AND THE PACIFIC

### India

*T.N. Godavarman v. Union of India – The Application of “Continuing Mandamus As a Tool For Sustained Vigilance of Forest Conservation*

by Manu Nair

Through its orders in the forest conservation case, *T.N. Godavarman v. Union of India*, the Supreme Court of India has assumed the role of a policymaker and a super-administrator of all forest issues.

### New Zealand

*Reforms to Resource Management Law in New Zealand*

by Rob Fisher and Michelle van Kampen

This report is an overview of the reform to the 1991 Resource Management Act as proposed in the 2004 Resource Management and Electricity Legislation Amendment Bill.

## IELC Recent Events

### PROMOTING THE CHEMICALS AGENDA

Chemicals are everywhere, and so are efforts to regulate them. International chemicals regimes such as the Stockholm POPs Convention have entered into force and are regulating international trade in banned or restricted chemicals. In addition to global efforts, there are significant regional activities, including the European Commission's creation of an ambitious chemicals regulatory program called REACH (Registration, Evaluation, and Assessment of Chemicals). On the national level, states are taking a range of actions to ban or restrict certain toxic substances.

A June 16 event co-sponsored by the International Environmental Law Committee covered the globe and examined some of the key approaches to chemicals management. The program, called "The Chemicals Agenda: Multilateral, Regional & National Trends and Activities," was divided into two panels. The first panel was international in scope and discussed multilateral chemical activities and programs. The panel featured:

- John Buccini, Director of UNEP Chemicals and Acting Executive Secretary for the Secretariat of the Stockholm Convention, who discussed the Stockholm POPs Convention;
- Jim Willis, Director of EPA's Chemical Control Division within the Office of Pollution Prevention and Toxics and former Director of UNEP Chemicals, who discussed UNEP's Strategic Approach to International Chemicals Management;
- Robert Simon, Senior Director for

International Affairs at the Chlorine Chemistry Council, who discussed UNEP's mercury program; and

- Glenn Wiser, Senior Attorney for the Center for International Environmental Law, who discussed the Convention on Long-Range Transboundary Air Pollution's (LRTAP) Protocol on Persistent Organic Pollutants.

Each panelist provided an update on recent developments of each program and then outlined next steps.

The second panel focused on regional and national trends in chemicals management. Speakers included:

- Charlie Auer, Director, Office of Prevention, Pesticides, and Toxic Substances, USEPA, who identified Federal chemicals programs and activities in the US;
- Rob Donkers, Environment Counselor at the Delegation of the European Commission to the US, who discussed preparations for the implementation of the EU's REACH proposal;
- Daryl Ditz, Senior Policy Advisor for the Center for International Environmental Law, who examined some programs and activities at the US state level; and
- Jane Luxton, Partner with King & Spalding, who provided insights from a practitioner's perspective.

Both panels were quite informative with a lively question and answer session. Don't believe us? Then go to <http://www2.eli.org/seminars/pastevent.cfm?eventid=97> to listen to the audio recording. You can also review the powerpoint presentations at this site.

## About the International Environmental Law Committee

This Committee considers, informs and engages its members on public international environmental law, e.g., global, multilateral, regional and bilateral agreements on the environment. We address the international aspects of U.S. environmental law and, to a lesser degree, the domestic environmental legal regimes in other countries. We also address the environmental aspects of regional and multilateral trade accords and track the activities of international organizations that address environmental matters. We invite you to examine our website and look forward to your participation in the Committee.

### Visit Us Online at:

[http://www.abanet.org/intlaw/committees/business\\_regulation/environment/home.shtml](http://www.abanet.org/intlaw/committees/business_regulation/environment/home.shtml)

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## Join the International Environmental Law Committee!

Members of the Section of International Law may join as many committees as they want, including the International Environmental Law Committee. Visit <http://www.abanet.org/intlaw/committees/join.html> to join the committee(s) of your choice.

## Not a Member of the Section of International Law?

If you're not a member of the Section of International Law, visit <https://www.abanet.org/members/join/> to join today.

## Mark Your Calendars!

*The ABA Section of International Law-the gateway to international practice for the ABA's 405,000 members-looks forward to welcoming you to the 2005 Annual Meeting, August 5-8, 2005 "Hot International Topics for Today's Practitioner." The Annual Meeting will take place in Chicago, IL and the Section will be headquartered at the Fairmont Chicago. The Section has put together an attractive and informative program with over 15 practical and cutting-edge CLE sessions. Visit <http://www.abanet.org/intlaw/annual05/overview.html> for registration information.*

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