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INECE's 8th International Conference for Environmental Compliance & Enforcement in 2008 in Cape Town called on INECE to:

Promote compliance with measures that restrict emissions that contribute to climate change, including greenhouse gases, ozone depleting substances, and black carbon (or soot), and that protect carbon sinks and reservoirs, including forests and soils, with emphasis on measures that maximize co-benefits, such as improvements in public health and ecosystem services.

INECE's efforts focus on strengthening compliance with existing laws that can help mitigate climate change. This includes laws regulating emissions of black carbon (soot). Although designed primarily to protect public health, compliance with these laws provides climate co-benefits, as black carbon is the second or third largest contributor to climate warming. In addition, because black carbon stays in the atmosphere only a few weeks, improving compliance with these laws provides fast mitigation that can help reduce the risk of passing thresholds, or tipping points, for abrupt and irreversible climate impacts. INECE issued a Compliance Alert on Black Carbon to focus attention on this important climate mitigation strategy.

Forest destruction is another major driver of climate change, contributing up to 20% of emissions. INECE issued a second Compliance Alert focusing on an amendment to the U.S. Lacey Act that makes it a powerful compliance tool for protecting forests.

Climate mitigation strategies must be both effective and efficient, and emissions trading and other flexibility mechanisms are considered useful for keeping costs down. But markets only work if compliance is high. Otherwise, investors will be reluctant to participate. To help ensure that markets work as intended, INECE is launching a Carbon Market Compliance Network to help ensure environmental benefits and financial integrity.

This Special Report is available online at <http://inece.org/climate/>.

Improving compliance with existing multilateral environmental agreements (MEAs) also can enhance climate co-benefits. These include MEAs addressing shipping, regional air pollution, and protection of the stratospheric ozone layer. The ozone MEA, known as the Montreal Protocol, is in fact the most effective climate treaty to date. The Montreal Protocol has provided direct climate mitigation of up to 222 billion tonnes of CO₂-equivalent between 1990 and 2010, at a cost of about \$2.7 billion. This compares to the Kyoto Protocol, which has set a goal of 5 to 10 billion tonnes of CO₂-equivalent mitigation during the initial commitment period, which runs from 2008-2012.

When implementing domestic climate mitigation strategies, environmental managers must have adequate knowledge and capacity to assure compliance and to measure and manage their compliance and enforcement resources and activities. INECE resources, including its work on indicators and its *Principles of Environmental Compliance and Enforcement Handbook*, support policymakers around the world in designing effective requirements, monitoring compliance, conducting enforcement response.

The tools and theories described in this Special Report will help all countries strengthen their capacity to implement and ensure compliance with new and existing climate obligations.

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What Reason Demands: Making Law Work for Sustainable Development¹

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“[Because] human altruism is limited in range and intermittent...,
what reason demands is voluntary co-operation in a coercive system...”
H. L. A. Hart, *THE CONCEPT OF LAW* (2nd ed. 1994).

I. Introduction

Faced with climate change and other environmental threats, as well as persistent poverty for billions of the Earth's people, “what reason demands” is that we improve the way law works for sustainable development. Law must be strengthened, and compliance must be ensured, to achieve this paramount goal of society. The challenges are difficult. Two billion people subsist on the equivalent of US\$2 dollars a day or less, while millions over-consume, and billions more are being encouraged to join their ranks. At the same time, critical ecosystems are under increasing stress at global, regional, and local levels from the externalities of globalization and continuing population growth, as well as from climate change. Scientists are now predicting that the Earth is fast approaching thresholds, or tipping points, for catastrophic and irreversible climate impacts, perhaps within a matter of decades.² Successfully addressing the complex and interrelated issues of sustainable development and climate protection requires designing and implementing appropriate governance systems, which in turn must be built on the foundation of good governance, the rule of law, and compliance, even as this foundation is being strengthened in many States and built or rebuilt in many others.

Law is society's architecture for achieving our common purposes and common aspirations, including sustainable development.³ Society has other governance mechanisms, but law – both formal and informal – is central.

What law does is to allow a society to choose its future. Law is made in the past, to be applied in the present, in order to make society take a particular form in the future. Law carries society's idea of its own future from the past into the future. ... For example, a law on environmental management ... conditions the behavior of those who may be planning a new industrial project, ... the behavior of those who want to react, [and] those who have power to permit, prohibit, or modify the proposal...

That is the way law works. It enacts in a particular form the common interest of society as a whole. It then disaggregates that common interest by relating it to the actual detailed behavior of particular society members. And the result is that, in taking their individual self-interested decisions, individual society members, if they act in conformity with the law, also and inevitably serve the common interest of society.... So, in conforming to the law, we are society's agents in making a future for society which is within the range of possibilities which society has chosen.... For those who suffer, in body or in spirit, from the imperfection of the human world as it is, the best way to make a better world is the way of law.⁴

This essay sets discussions of compliance in the broader context of rule of law and good governance, which are required to achieve sustainable development and climate protection. It presents an argument whose logic is straightforward: sustainable development, including climate protection, depends upon good governance, good governance depends upon the rule of law, and the rule of law depends upon effective compliance. None are sufficient alone, but together they form an indivisible force that is essential for survival, for climate protection, and for sustainable development. Underpinning this essay is a belief that the role of compliance in this equation is often insufficiently appreciated, and that it must be strengthened if the rule of law and good governance are to become more effective in meeting the challenges of sustainable development and climate protection, and in securing, from the possibilities of the present, a future that we as a society would like to share.

II. The Challenges of Sustainable Development and Climate Protection: A Growing Sense of Urgency

We face unprecedented challenges. In the last 70 years, world population has tripled to 6 billion and is projected to peak at nearly 9 billion by 2050. Human

effects on the Earth have been accelerating for the past three centuries, until we now are such a dominant force that our era has been called the Anthropocene era – a human dominated geological epoch.⁵ Human domination is reflected in a growing number of environmental threats such as climate change, water scarcity, and biodiversity loss. Among the most pressing of these global challenges is climate change – a compelling example of the issues arising from our domination of the natural world. Current emissions of anthropogenic greenhouse gases (GHGs) have already committed the planet to an increase in average surface temperature by the end of the century that may be above the critical threshold for the tipping elements of the climate system into abrupt change with potentially irreversible and unmanageable consequences. Fast actions are needed to mitigate greenhouse gas emissions, avoid the abrupt climate change, and realize the co-benefits for air protection and public health improvement.⁶

III. The Role of Governance for Sustainable Development and Climate Protection

Addressing these challenges requires more effective national governance. The need to enhance governance to address climate challenges and to promote sustainable development had been repeatedly recognized at international meetings, including the World Summit on Sustainable Development and the United Nations Millennium Summit. But understanding of the governance systems needed to implement sustainable development lags far behind the rhetoric.

In a world of increasing interdependence – among people and societies, and nature – new approaches to governance are needed at the local, national, regional, and global levels. Existing governance systems must also become more effective at ensuring compliance with legal mechanisms that are already in place. This requires strengthening the foundation of the rule of law and good governance, the many multilateral environmental agreements and the national legal systems that implement them, as well as other national laws. It also requires improving diagnostic tools to determine why people and firms are not complying with domestic laws, in an effort to tailor effective and efficient compliance responses. Capacity building strategies must be developed where non-compliance is based on lack of capacity, as it often is with weak States and small and medium-size enterprises. It requires, as well, strengthening the social norms that complement and underpin the law.

IV. Good Governance and the Rule of Law

The term *good governance* is given different meanings by different organizations, but is generally characterized as referring to openness, participation, accountability, predictability, and transparency. Good governance depends, in turn, on the *rule of law*, which is generally characterized as referring to States where conduct is governed by a set of rules that are applied predictably, efficiently, and fairly by independent institutions to all members of society, including those who govern. Good governance and the rule of law are complemented and supported by corresponding social norms that guide and constrain the exercise of power,⁷ as well as by more explicit norms including those that foster environmental commitment.⁸

V. Compliance Is an Indivisible Part of the Rule of Law

Compliance is an indivisible part of the rule of law. Without compliance, the rule of law has no meaning.⁹ The importance of compliance, rule of law, and good governance is nowhere more important than in the field of climate protection and sustainable development. These and other affirmations by the international community, international organizations, and donor agencies support the indivisible nature of compliance and the rule of law; they also support the central role these concepts play in good governance and

sustainable development.¹⁰ Unfortunately, the presence of all three does not in itself ensure that a society is well run nor does it guarantee sustainable development or climate protection. However, their absence can severely limit the possibility of good governance and can, at worst, severely impede it. Without the rule of law and compliance to promote social stability and legal certainty, firms are less willing to make the investments and assume the risk that form the basis of market economy development.¹¹ Furthermore, lack of compliance with the rule of law encourages high rates of corruption, with further devastating consequences on the confidence of economic actors.¹² This lack of investment, in turn, can slow economic growth and deprive governments of resources needed to invest in education, social safety nets, and sound environmental management, all of which are critical for sustainable development¹³ and climate protection.

VI. Making Compliance a Priority for Sustainable Development and Climate Protection

The efforts of various governments and institutions are helping advance the rule of law and good governance. However, these efforts must be further strengthened by increasing the focus on compliance and enforcement. Among other things, enhancing compliance requires:

Strengthening the empirical foundations of compliance. Effective policies, including those relating to compliance, must be based on a sound empirical foundation. More empirical research is required about the behavior of different actors – states, firms and individuals in different circumstances.¹⁴

Applying new analytical tools. New analytic techniques need to be applied to problems of compliance, including systems approaches, simulation and modeling techniques, configurational comparisons and meta-analyses, case studies, counterfactuals and narratives, and structured stakeholder interviews, all of which provide a toolkit for understanding the broader human-environment interactions.

Strengthening the theoretical foundations of compliance. Empirical data is interpreted and given meaning through theories, and theories generate testable hypotheses. Theories about compliance provide accounts of why different actors comply or do not comply with international and domestic laws. To be effective, policymakers must understand the various theories and when they will be useful, make their own theoretical assumptions explicit, measure these assumptions against the evolving empirical results to ensure they are sound, and make adjustments as required.

Diagnosing specific problems. Reliable empirical data and sound theory can help diagnose underlying problems of non-compliance accurately. New tools are being developed to help diagnose compliance problems, although further efforts are required in many countries to develop effective diagnostic tools to promote compliance.

Understanding and empowering key actors. When diagnosing problems, policymakers at all levels should take an expansive system-wide view of the actors in the universe they are attempting to regulate. Several of the more recent theories of compliance tend to recognize that States and firms are not unitary actors, but rather are made up of numerous entities and are influenced by various forces that all contribute to compliance behavior. Actors such as scientists, the media, NGOs, and financial institutions, in addition to the individuals and departments that comprise States and firms, all have important roles to play in promoting compliance, the rule of law, climate protection and sustainable development. Policymakers should consider how these actors could best be empowered, in order to most efficiently and effectively generate the desired behavioral changes in the regulated community.

Strengthening the role of civil society. Enhancing compliance requires tools that empower citizens to participate in governance, including through access to justice, with opportunities to apply pressure on and through the judicial and legal systems. The Aarhus Convention guarantees the rights of access to information, public participation in decision-making, and access to justice in environmental matters.¹⁵ These rights empower citizens to ensure that environmental laws are properly enforced and complied with, as well as foster norms that complement and support the rule of law and good governance.

Building capacity of regulators and those they regulate. Building capacity is essential, to enhance both the ability of those in the regulated community to comply and the knowledge and capability of those seeking to secure compliance – judges, policymakers, and other governmental officials. To this end, organizations such as UNEP, the Global Environment Facility, and the United Nations Economic Council for Europe have produced guidelines to facilitate implementation and compliance with Multilateral Environmental Agreements (MEAs). It is important for policymakers and regulators to complement a deterrence-based framework with appropriate compliance assistance and capacity building needed to achieve compliance, climate protection and sustainable development. Successful models for such frameworks exist at the international level (the Montreal Protocol), and at the regional level (the European Union accession process).

Building political will and expanding funding. The fundamental changes that are needed to promote the rule of law, climate protection and sustainable development require the support and commitment of the key decision-makers within the system – whether in government or civil society. This core group needs enabling assistance to help build the essential internal political-will that reforms require. Donor assistance is critical, but so is the will to reform, which must be fostered from within.

Strengthening the norms that complement and support compliance and rule of law. Efforts to strengthen compliance and the rule of law must be complemented by broader efforts to replace cultures of noncompliance and corruption with cultures of compliance. Institutions built on cultures of non-compliance, like buildings erected on sand, are likely to founder. Additional efforts must be made to promote social norms that complement and support the rule of law and that support legal and judicial reform. This includes general norms such as the norms of good governance; rule of law; and compliance, obedience, and law-abidingness. More specific environmental norms also should be considered.

Endnotes

¹ This article is adapted from Chapter 1 in INECE's two-volume compilation of the best literature on environmental compliance and enforcement: *Making Law Work: Environmental Compliance & Sustainable Development* (Durwood Zaelke, Donald Kaniaru & Eva Kružíková, eds., Cameron May, Ltd., 2005). The article was revised by Xiaopu Sun.

² Mario Molina, Durwood Zaelke, K. Madhava Sarma, Stephen O. Andersen, Veerabhadran Ramanathan, & Donald Kaniaru, *Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions*, Special Issue, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, USA (2009), available at <http://www.pnas.org/content/early/2009/10/09/0902568106.full.pdf+html>. See also United Nations Environment Programme, *Climate Change Science Compendium 2009*, 21 November 2009, available at <http://www.unep.org/compendium2009/>; I. Allison et al., *The Copenhagen Diagnosis, 2009: Updating the world on the Latest Climate Science*, the University of New South Wales Climate Change Research Centre (CCRC), Sydney, Australia, 60pp; Tim Lenton et al., *Major Tipping Points in the Earth's Climate System and Consequences for the Insurance Sector*, November 2009, WWF - World Wide Fund for Nature (formerly World Wildlife Fund), Gland, Switzerland and Allianz SE, Munich, Germany; Met Office, *Four Degrees and beyond*, 28 September 2009, available at <http://www.metoffice.gov.uk/climatechange/news/latest/four-degrees.html>.

³ Hernando de Soto, *Making Sustainable Development Work: Governance, Finance, and Public-Private Cooperation*, remarks at the Meridian International Center, Washington, DC (October 18, 2001), available at <http://www.state.gov/g/oes/rls/rm/6811.htm>.

⁴ Philip Allott, *The True Function of Law in the International Community*, 5 IND. J. GLOBAL LEG. STUD. 391, 399-400, 404 (1998).

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⁶ Mario Molina, Durwood Zaelke, K. Madhava Sarma, Stephen O. Andersen, Veerabhadran Ramanathan, & Donald Kaniaru, *Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO2 emissions*, Special Issue, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, USA (2009), available at <http://www.pnas.org/content/early/2009/10/09/0902568106.full.pdf+html>.

⁷ Amir N. Licht, Chanan Goldschmidt, & Shalom H. Schwartz, *Culture Rules: The Foundations of the Rule of Law and Other Norms of Governance* (William Davidson Inst. at the Univ. of Mich. Stephen M. Ross Bus. Sch., Working Paper No. 2003-605).

⁸ See Paul C. Stern, et al., *A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism*, 6 HUMAN ECOLOGY REV 1999, No. 2, 81-97. See

also, Michael P. Vandenberg, *Beyond Elegance: A Testable Typology of Social Norms in Corporate Environmental Compliance*, 22 STAN. ENVTL. L. J. 55 (2003), excerpted in Chapter 2: Compliance Theories. Both Licht, et al. and Vandenberg rely on the Schwartz Norm Activation Theory. See generally, Shalom H. Schwartz, *Normative Influences on Altruism*, in ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY, Vol. 10, 221-279 (L. Berkowitz, Ed.).

⁹ See e.g., James Spigelman, Chief Justice of the Supreme Court of New South Wales, *Address at the ICAC-Interpol Conference*, Hong Kong (Jan. 22, 2003), available at http://www.lawlink.nsw.gov.au/sc%5Csc.nsf/pages/spigelman_300103. See also Ernst-Ulrich Petersmann, *How to Promote the International Rule of Law?*, 1 J. INT'L ECON. L. 25 (1998).

¹⁰ See, e.g., Johannesburg Principles on the Role of Law and Sustainable Development (2002), available at http://www.inece.org/wssd_principles.html. The Principles were adopted at the Global Judges Symposium held in Johannesburg, South Africa, on 18-20 August 2002, an event co-sponsored by INECE.

¹¹ Inter-American Development Bank, *Rule of Law*, available at http://www.iadb.org/sds/SCS/site_2776_e.htm. According to studies undertaken for the World Bank among global investors, the predictability of judicial enforcement is the most robust predictor

of economic growth. See Spigelman, *supra* note 7; Thomas Carothers, *The Rule of Law Revival*, 77 FOREIGN AFFAIRS, 95, 97 (1998).

¹² Inter-American Development Bank, *Rule of Law*, *supra* note 9.

¹³ See, OECD, Policy Brief, *Working Together Towards Sustainable Development: The OECD Experience*, 5-6 (July 2002); *Draft Handbook on Promoting Good Governance in EC Development and Co-operation*, 5, available at http://europa.eu.int/comm/europeaid/projects/eidhr/pdf/themes-gghandbook_en.pdf.

¹⁴ Helmut Breitmeier, Oran R. Young, and Michael Zürn, *Analyzing International Environmental Regimes: From Case Study to Database*, Cambridge, MA: MIT Press, 2006 (This book presents the International Regimes Database (IRD), an analytical tool designed to move regime analysis from its emphasis on the use of discrete case studies to the use of a relational database encompassing comparable data on a large number of cases and facilitate quantitative as well as qualitative analyses of hypotheses dealing with international regimes.).

¹⁵ Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, June 25, 1998, available at <http://www.unece.org/env/pp/treatytext.htm>. The Convention came into force on October 31, 2001 and has been ratified thus far by 33 countries.

Compliance Is Essential to the Environmental and Financial Integrity of Carbon Markets

Kenneth J. Markowitz and Meredith R. Koparova¹

Despite thirty-five years of lawmaking at the international, national, and local levels, numerous indicators show continued degradation of air, water, land, and biodiversity resources. These declines impose serious costs on society, threatening ecosystem goods and services, public health, and ultimately humanity's well being and survival. There is a growing realization amongst policymakers that these declines are caused not by the lack of environmental laws, but often by the lack of effective compliance with those laws.

Climate change is the world's most pressing environmental challenge. Market-based mechanisms, in which regulated facilities are able to buy and sell credits to meet their regulatory obligations, are emerging as key strategies for achieving compliance with laws that limit or "cap" the greenhouse gas (GHG) emissions responsible for climate change. These systems, commonly referred to as cap-and-trade, are in theory more cost effective than command-and-control regulation. Almost five years ago, the European Union launched the first major carbon market to facilitate its mitigation commitment under the Kyoto Protocol. Markets supplying carbon offset credits quickly followed, along with complex financial products and derivative trading schemes.² Sophisticated trading, risk management challenges, and cross-border transactions characterize the current \$126 plus billion annual global carbon market.³

The best-designed environmental laws and policies will fail without widespread compliance. Compliance is dependent upon effective law enforcement and capacity building. This is true in both command-and-control and market-based systems, and all other regulatory programs along that continuum. It holds true in civil and common law societies, and applies in the context of assuring domestic compliance with international obligations, as well in upholding the rule of law through enforcement of domestic policies and measures.

The complexity of the carbon markets, which enable regulated facilities to buy and sell pollution credits to meet their compliance obligations, creates significant challenges for regulators and law enforcement officials to detect non-compliance, provide technical assistance for the regulated community to comply, and take meaningful, swift enforcement against violators. As these markets proliferate and attract new investment, there is a need to strengthen the environmental and financial integrity through improved monitoring, reporting, verification, and communications.

This article discusses integrity in the carbon markets, focusing on ensuring the delivery of intended environmental benefits by guaranteeing transparent and accountable financial transactions. We discuss best practices for assuring compliance in cap-and-trade programs, the future directions in

carbon market oversight and enforcement, and how trans-governmental networks such as the International Network for Environmental Compliance and Enforcement (INECE) can foster enforcement cooperation and build capacity to assure compliance in the emissions markets throughout the world.

I. Market Integrity Basics

Regulatory agencies, market players, and consumers have critical roles in ensuring the integrity of any global market system. Carbon trading markets, with disparate and inconsistent compliance systems, present unique challenges to building a global oversight network. These challenges are especially difficult because that system must ensure both the financial and environmental integrity necessary to grow a robust, sustainable market that facilitates compliance with long-term targets and timetables for GHG emission reductions. New laws and policies concerning over-the-counter transactions and derivative trading also add to those challenges.

The financial community, and particularly securities market regulatory agencies, can provide guidance on how to protect the integrity of sophisticated markets. The principles of designing and regulating markets are well-documented and emphasize clearly written and consistently enforced regulations; public oversight of private markets; assurance of fair competition and open exchange of accurate information in the marketplace; independent auditing; and multiple layers of oversight. Transparency and accountability are the cornerstones for building investor and consumer trust in markets.⁴

In financial markets, regulators are concerned with whether products can be manipulated and how such manipulation could impact the demand for and price of a commodity. In carbon markets, participants — whether compliance buyer, speculator, or philanthropist — must be able to trust that a credit representing a ton of emission reduction in one place is the same as a ton reduced elsewhere. This is extremely difficult because carbon emissions are an intangible good; therefore our conception of these products is limited, and we find it hard to intuitively evaluate the veracity of these claims. Without adequate protection, geographical, technical, and financial risks in carbon markets create vulnerabilities upon which unscrupulous actors can game the system and negatively impact the environment.

Earning the trust and confidence of investors, the public, and governments in carbon markets requires proper measurement, accurate reporting, and independent verification of emissions data. Not unlike command-and-control programs, measurement, reporting, and verification are the basic tools for assuring compliance and the delivery of environmental benefits in

carbon markets. Effective implementation of well-designed laws requires the collection and reporting of accurate data from both regulated installations and in offset projects. This in turn allows enforcement authorities to provide assurance that all parties are following the rules. Without independently verified data, it is impossible to establish the rule of law within the marketplace. And without proper enforcement of the rules governing the market, the system will not deter non-compliant behavior nor deliver environmental benefits.

II. Current Cap-and-Trade Experiences

Managing regulatory risks is essential for market participants; it requires predictability, transparency, and certainty. This section illustrates how first generation cap-and-trade programs manage risk and assure environmental integrity.

1. The United States' Acid Rain Program

The United States' Acid Rain Program (ARP) was the first major cap-and-trade program designed for environmental compliance purposes. Beginning operations in 1995, the program regulates sulfur dioxide (SO₂) and nitrogen oxides (NO_x) emissions from coal, oil, and gas fired power plants, primarily in the Midwest and on the East Coast. SO₂ and NO_x are the major anthropogenic contributors to acid rain, which damages trees, lakes and rivers, soil, buildings, as well as human health.

The ARP has produced significant environmental benefits at substantially lower costs than originally predicted,⁵ reducing "SO₂ emissions by more than 6.3 million tons from 1990 levels."⁶ The US Government found that "the Acid Rain Program has accounted for the largest quantified human health benefits of any federal regulatory program implemented in the last 10 [years]."⁷

The success of the Acid Rain Program is a direct result of the strong monitoring, reporting, and verification requirements.⁸ The regulations create an automated reporting system, in which data is submitted to the US Environmental Protection Agency (US EPA) electronically in a standardized format. US EPA must verify and certify the emissions monitoring systems at each facility.⁹

In order to assure compliance and system integrity, US EPA regulations strongly deter the use of non-certified equipment and deter leaving gaps in emission reporting data. In addition to other penalties, US EPA assumes that during any period of non-compliance or non-reporting, emissions are based on the "maximum possible concentration of SO₂["]¹⁰ This means that facility owners face a significant financial burden for gaps or errors in data collection, and makes compliance the less expensive option.

Although the ARP is not a carbon market, it shows that cap-and-trade schemes — with sufficient compliance and enforcement regimes — can deliver substantial environmental benefits at low costs, and may serve as a model for carbon markets. It also highlights the importance of designing significant and credible penalty policies that deter non-compliance and illustrates the possibility of a country using its existing sanctions for providing false or fictitious information to the government in the context of environmental markets.

2. The European Union Greenhouse Gas Emission Trading Scheme

The European Union launched the EU Emissions Trading Scheme (EU-ETS) in 2005. Now operational within twenty-seven European countries, the EU-ETS provides a flexible mechanism for meeting the EU's commitments under the Kyoto Protocol. The EU-ETS is more complex than the ARP, and faces several compliance challenges. Major challenges include integrating twenty-seven different regulatory cultures with varying legal systems and levels of sophistication.

In January 2004, the European Commission issued a Directive establishing guidelines for monitoring and reporting GHG emissions.¹¹ This Directive sets out facility-level reporting requirements and requires independent, third-party verification. The monitoring methodology is a "tier-system" that attempts to balance the need for monitoring flexibility between industries while maintaining a level playing field across the EU. Facility operators must apply the highest tier, which has the most specific monitoring requirements, unless they can prove that doing so would be unreasonably expensive. In such cases, use of a lower tier may be permitted. The end result is that facilities can end up with different reporting requirements and compliance costs, which adds uncertainty about data accuracy and potentially creates opportunities. Facilities that are unable to comply with the Directive's requirements are prohibited from trading allowances in the EU-ETS; violators face fines of 100€ per ton and other punitive measures.

Although the European Commission oversees the EU-ETS, the United Nations retains enforcement powers to ensure integrity within the Kyoto Protocol.¹² In April 2008, the enforcement branch of the Kyoto Protocol's Compliance Committee suspended Greece's participation in international emissions trading. This first enforcement action of the Compliance Committee determined that Greece failed to demonstrate accurate measurement and reporting of GHG emissions.¹³ The decision temporarily suspended Greece from participating in the EU-ETS, as well as the Clean Development Mechanism (CDM) until the country developed adequate controls and processes for measuring and reporting GHG emissions. Greece was reinstated into these mechanisms seven months later, in November 2008.¹⁴ This decision provides a dual function for ensuring integrity — not only does it ensure that credits derived from bad data do not enter the market and compromise its integrity, it also deters other countries from non-compliance with UNFCCC mandates.

3. Flexibility Mechanisms

The Kyoto Protocol defines three flexibility mechanisms designed to help Parties meet their mitigation commitments: the CDM, the joint implementation mechanism, and international emissions trading. The CDM allows industrialized countries to utilize emission credits from "carbon offset" projects based in developing countries for compliance purposes. Carbon offset projects can take many forms — renewable energy projects, energy efficiency gains at existing plants, methane capture from agriculture or landfills, as well as forest restoration (afforestation). Beyond the technical, political, financial, and geographic risks, there are potential integrity concerns with inadequate administrative procedures. These problems can lead to questions over whether the projects are creating actual emission reductions, or whether benefits are being double-counted and sold to multiple parties.¹⁵

While there have occasionally been accusations of problems of non-compliance with the CDM markets — often dealing with the modification of records in order to satisfy the CDM's additionality requirements — the compliance authorities of the CDM have only uncovered non-compliance in a few instances. Specifically, the CDM Executive Board suspended two different European project verification firms for irregularities and outright violations in their certification procedures. Another potential enforcement question that was presented to the CDM EB involved accusations of double counting for a French firm that was accused of using credits it generated to meet both voluntary emissions reduction commitments and to feed into the CDM system—but this was found to be outside the purview of the CDM EB.

Much has been learned from the first several years of implementing the flexible mechanisms, particularly in terms of the governance structure and operations of the CDM Executive Board, the designated national authorities, third party verifiers, and other market participants. The new proposed strategies such as a *sectoral approach* (which provides incentives for emission reductions in the most energy intensive sectors); *upscaled CDM*, which incorporates fundamental principles of administrative law and creates efficiencies in the certification process that will drive investment to reductions outside sectoral crediting); and a *transitional phase* for existing projects in the pipeline, all will be dependent on strong compliance regimes.

Green investment schemes are “financing mechanisms in which the proceeds from emissions trading under the Kyoto Protocol are reinvested in projects in the host country’s economy with the objective of further reducing emissions.”¹⁶ GIS typically apply income generated through the sale of surplus assigned allowance units (AAUs) to projects that reduce the host country’s emissions or for other environmental improvements.

The implementation of GIS has come to attention recently as sales of AAUs have initiated: AAU transactions are estimated at a value of US\$1.2 billion in late 2008/early 2009 compared to no AAU transactions in 2007.¹⁷ Because AAU/GIS are an emerging market, the necessary monitoring, reporting, and verification of GIS projects is not yet established, introducing concern that there may be inadequate follow through on the projects’ implementation.

4. Voluntary Markets

Voluntary carbon markets enable “un-capped” businesses and individuals to lessen their impact on the planet by offsetting their own carbon emissions by paying for reductions elsewhere. Integrity is even a larger concern with voluntary credits, which are evaluated against numerous widely differing standards.¹⁸ Much of this uncertainty arises due to verification and certification standards – there are no licensing requirements for certification agencies, so there is virtually no way to verify if their work is accurate. This problem, among others, has led to recent government attention, which is detailed in the following section.

III. Initiatives to Strengthen Enforcement in Carbon Markets

1. Activity in the United States

The US Congress has proposed significant legislation to establish a cap-and-trade program in the US to mitigate carbon emissions in both the House and the Senate. Both the Senate’s Kerry-Boxer bill and the House’s Waxman-Markey bill include economy-wide cap-and-trade programs, have strong provisions to enable responses to market fraud, and promote the robust use of offsets for compliance. While the two chambers have taken somewhat different approaches to the details of implementing cap-and-trade, both bills give significant attention to delivering environmental benefits while maintain the financial integrity of the market.

In terms of market oversight and non-compliance response, the Senate bill appears to rely on the Carbon Markets Oversight Act, another bill that would prohibit “price or market manipulation, misleading statements, or fraud in connection with the trading of regulated instruments.”¹⁹ Any violations are punishable by administrative, civil and criminal remedies. The House bill, intent on sending a strong deterrent message to market participants, prohibits similar offenses, with violations considered felonies, punishable by fines of up to \$25 million (or \$5 million if the violator is an individual) or imprisonment of not more than 20 years or both. Under the House bill, the government also can recover costs associated with the prosecution and prohibit the violator from holding or trading a regulated instrument for up to five years.

In the House bill, actions that are punishable include: using any manipulative or deceptive device or contrivance in violation of regulations; cheating or defrauding, or attempting to cheat or defraud, any other person; falsifying, concealing or covering up by any trick, scheme or artifice a material fact; making any false, fictitious, or fraudulent statements or representations; and making or using any false writing or document that contains a false, fictitious, or fraudulent statement or entry to an entity on or through which transactions in regulated instruments occur, or are settled or cleared.

For market manipulation, the bill provides strong enforcement mechanisms, including prohibitions on trading, suspension of registration for up to six months, and a daily civil penalty of \$1 million while the violation continues, as well as disgorgement, restitution, and the ability to enforce cease and desist proceedings.

To help ensure the delivery of cost-effective environmental benefits through the cap-and-trade program, both the Senate and House bills call for the robust use of domestic and international offsets to satisfy compliance obligations. These are subject to rigorous oversight and enforcement provisions.

While the legislative branch is moving forward with comprehensive legislation, federal administrative agencies are beginning to act on their own. In September 2009, US EPA released a final rule creating mandatory reporting of nearly all of the nation’s GHG emissions.²⁰ The program includes both upstream sources of emissions, such as the suppliers of fossil fuels and industrial GHGs, and downstream sources of emissions, such as industrial emitters of over 25,000 tons of GHGs. The program also requires vehicle and engine manufacturers to report the GHG emissions rate of their products. The data collected under this new rule will serve as the basis for setting the national cap and for allocating facility-level emissions allowances under a future US cap-and-trade program.

2. Recent Developments in Europe

The European government is moving ahead to strengthen its emissions trading markets beyond 2012. The European Commission adopted Directive 2009/29/EC in April 2009 that will govern Phase III of the EU-ETS beginning in 2013.²¹ The Directive addresses some of the integrity concerns that currently limit the market. It focuses on the need to harmonize verified emissions data between countries to ensure that market participants have access to accurate information. This effort is the result of an incident involving verified 2005 emissions data, which showed much lower than expected overall emissions, causing the price of allowances to drop suddenly.²²

In addition, the EU-ETS will continue to exclude credits derived from land use and forestry projects, due to the fact that “[i]nsufficient solutions have been developed to deal with the uncertainties, non-permanence of carbon storage and potential emissions ‘leakage’ problems arising from such projects. The temporary and reversible nature of such activities would pose considerable risks in a company-based trading system and impose great liability risks on Member States.”²³

Box: INECE Carbon Market Compliance Network

INECE is launching a new initiative, the Carbon Market Compliance Network, which will raise the level of compliance in carbon offset programs and emission trading systems to ensure delivery of environmental benefits and maintenance of the financial integrity of the market. The Network will bring together multidisciplinary practitioners from developed and developing country governments, United Nations programs and other international organizations, international financial institutions, and representatives from the private sector and civil society.

The Compliance Network will promote principles and best practices for environmental compliance within the CDM and Joint Implementation markets and will evolve to include any post-Kyoto project-based mechanisms. It also will seek to strengthen the rules and procedures governing the behavior of the market participants and the CDM Executive Board. The Network may also identify areas of non-compliance that may be contributing to the increasing spreads of offset and allowance prices and to combat the perception that offsets pose higher environmental and regulatory risks.

Key activities will include facilitating enforcement cooperation across countries and regions and designing and implementing capacity building programs in response to compliance gaps in the climate markets. The Network will integrate, to the extent practicable, efforts around the world to increase compliance in the carbon markets, including the work of the International Emissions Trading Association, the IMPEL Network, the Regional Greenhouse Gas Initiative, and Interpol. Information on this new network will be made available through the INECE web site, <http://inece.org>.

One particular type of fraud has been a problem for European emissions trading; this fraud, unique to Europe, exploits the “value-added tax” or VAT. Fraudulent traders buy credits in jurisdictions where the VAT did not apply, then sell them where it did; they would then disappear without paying VAT to the government. The three EU states where the major European carbon exchanges are located – Britain, France, and the Netherlands – have all taken steps to combat this fraud, either by exempting carbon credits from the VAT, or applying a VAT rate of 0% on the credits. This creates somewhat of a problem in the EU, however, because these actions have been taken unilaterally. An EU-wide agreement is needed to avert further problems related to this type of fraud.

IV. Conclusion

Cap-and-trade programs, when designed and administered properly, offer the ability to provide significant environmental benefits at substantially lower costs than traditional command-and-control legislation. However, markets will only deliver environmental benefits through a proper balance of compliance promotion and strict enforcement.

In order to build and assure environmental integrity, there must be strong measurement, reporting, and verification programs in place to safeguard each component of the market system. These programs provide the basic assurance for market participants, allowing them to manage the risks inherent in environmental projects and market-based programs. Government must work together with business and civil society to ensure the next generation of cap-and-trade programs build on the experience from the ARP, the CDM, and EU-ETS as the international community seeks to implement second generation carbon markets, including sectoral approaches, an upscaling of the current CDM, and new compliance markets in the US and elsewhere.

Enforcement alone is not sufficient to ensure compliance. Building the capacity of the regulators and within the regulated community is a necessary function to balance to assure compliance. Consistent monitoring, reporting, and verification and effective enforcement are critical for emissions markets to deliver real emissions reductions. INECE is poised to contribute significantly to ensuring markets deliver verifiable environmental benefits and operate with the highest levels of financial integrity, while maximizing the cost effectiveness of emission reductions.

Endnotes

¹ Kenneth J. Markowitz is the lead consultant to the INECE Secretariat, President of Earthpace LLC, and the Senior Climate Change Consultant for Akin Gump Strauss Hauer and Feld. Meredith R. Koparova is Senior Project Manager at the INECE Secretariat and Earthpace LLC. The authors would like to thank Jeremy Schiffer and Max Schwartz for their assistance with this article.

² Voluntary markets allow individuals and businesses not subject to legally binding emission limits to “offset” their emissions by purchasing credits from certified projects. Other trading schemes, either in operation or development phases, include the Regional Greenhouse Gas Initiative (<http://www.rggi.org>), the Western Climate Initiative (<http://www.westernclimateinitiative.org/>), and the Australian Climate Exchange (<http://www.climateexchange.com.au/>).

³ The World Bank, State and Trends of the Carbon Market 2009, at http://siteresources.worldbank.org/EXTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2009-FINALb.pdf.

⁴ Improving Efficiency, Effectiveness, & International Harmonization of Compliance Activities in Emissions Trading Conference Report, INECE Secretariat, 2007, at http://inece.org/emissions/dublin/WorkshopReport_final.pdf.

⁵ Acid Rain Program, at <http://www.epa.gov/airmarkets/progsregs/arp/basic.html#model>.

⁶ Acid Rain Program 2006 Progress Report, at <http://www.epa.gov/airmarkets/progress/arp06.html>.

⁷ John Schakenbach, Robert Vollaro, and Reynaldo Forte, Fundamental of Successful Monitoring, Reporting and Verification under a Cap-and-Trade Program, 56 Journal of the Air & Waste Management Association 1576 (Nov. 2006).

⁸ 40 CFR § 75.10(a)(1).

⁹ 40 CFR § 75.20.

¹⁰ Id. at § 72.20(a)(4)(iii).

¹¹ The 2004 Directive (2004/156/EC) was updated by Directive 2007/589/EC in July 2007.

¹² Kyoto Protocol Compliance Committee, decision 27/CMP.1 (2006).

¹³ Kyoto Protocol Compliance Committee, Enforcement Branch, decision CC-2007-1-8/Greece/EB (2008).

¹⁴ Informal note by the Secretariat, The compliance procedure with respect to Greece, available at http://unfccc.int/files/kyoto_protocol/compliance/application/pdf/informal_info_note_by_the_sec_on_the_compliance_procedure_with_respect_to_greece-rev-2.pdf

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¹⁶ The World Bank, State and Trends of the Carbon Market 2009, at http://siteresources.worldbank.org/EXTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2009-FINALb.pdf.

¹⁷ The World Bank, State and Trends of the Carbon Market 2009, at http://siteresources.worldbank.org/EXTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2009-FINALb.pdf.

¹⁸ For a comparison of how voluntary market standards differ, see Anja Kollmuss, Helge Zink, and Clifford Polycarp, Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards (Mar. 2008), available at http://assets.panda.org/downloads/vcm_report_final.pdf.

¹⁹ S. 1399, The Carbon Market Oversight Act of 2009, available at <http://www.opencongress.org/bill/111-s1399/text>.

²⁰ Environmental Protection Agency, Mandatory Reporting of Greenhouse Gases: Final Rule, 40 CFR Parts 86, 87, 89 et al. (Oct. 30th 2009).

²¹ See EU ETS post 2012, available at http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm.

²² See Questions and Answers on the Commission's proposal to revise the EU Emissions Trading System, MEMO/08/35 (Jan. 23, 2008).

²³ Id.

Box: Cutting Non-CO₂ Pollutants Can Delay Abrupt Climate Change, Solve “Fast Half” of Climate Problem

Writing in the *Proceedings of the National Academy of Sciences*, Nobel Laureate Dr. Mario Molina, Durwood Zaelke, and others present the case for “fast-action” climate mitigation strategies that can be implemented quickly to produce cooling in the near-term to help avoid abrupt climate changes. These strategies include reducing emissions of black carbon soot (BC) and tropospheric ozone; using the Montreal Protocol ozone treaty to phase down hydrofluorocarbons (HFCs); and expanding bio-sequestration through improved forest management and production of biochar. The authors emphasize that strong compliance mechanisms are essential to ensure the integrity of these and other climate mitigation strategies.

“HFCs, BC, tropospheric ozone, and other short-lived forcings can be addressed in large part through existing treaties as well as through coordinated local air pollution policies, along with funding and technology transfer through existing institutions. As noted by Pachauri, there is an important role for regulation to advance climate mitigation, including mandatory standards and codes in various sectors. Regulatory standards, including phase-downs, provide policy certainty to drive investment and innovation needed to accelerate solutions as shown by the Montreal Protocol, although market-based approaches also will be needed to expand biosequestration. Strong compliance mechanisms are needed.”

Reducing abrupt climate change risk using the Montreal Protocol and other regulatory actions to complement cuts in CO₂ emissions, by Mario Molina, Durwood Zaelke, K. Madhava Sarma, Stephen O. Andersen, Veerabhadran Ramanathan, and Donald Kaniaru: <http://www.pnas.org/>.

Effective International Compliance Is Needed to Avoid “Dangerous Anthropogenic Interference” with the Climate System

Peter J. Murtha

The United Nations Framework Convention on Climate Change (UNFCCC) negotiations since December 2007 in Bali have been focused on the three key issues: (1) greenhouse gas (GHG) mitigation target levels for developed countries, (2) whether to have binding commitments or non-binding nationally appropriate mitigation actions (NAMAs) for developing countries, and (3) the nature and extent of developed country financing and technology transfer for developing country mitigation and adaptation.

The unresolved state of these fundamental issues has left little space to discuss compliance, let alone to make it a priority. Indeed, in the “consolidated” 181 page negotiating text prepared for the final pre-Copenhagen negotiations, scarcely one page relates to compliance, and even that is mainly confined to either maintaining the compliance mechanism of the Kyoto Protocol, or perhaps starting over with a new (but unspecified) mechanism. But compliance ultimately will be a critical issue in any final legally binding agreement.

There are a number of significant compliance issues for the post 2012 climate change regime awaiting resolution, including:

- (1) How do we improve upon the existing Kyoto compliance mechanism's apparent inability to get all Parties to keep their commitments?
- (2) Assuming the nature of GHG mitigation commitments is different for developing countries as compared with developed countries (e.g., are something other than economy-wide targets), should there also be a different range of responses for non-compliance?
- (3) What is the relationship between measurement, reporting, and verification and compliance?
- (4) Will it be necessary to rely more on the facilitative aspect of compliance (that is, guiding Parties towards compliance), both because developing country Parties will need to be more fully integrated into the climate regime and because a number of developed country parties are on a noncompliance trajectory that could potentially be corrected before violations occur?
- (5) How should domestic climate compliance regimes relate to the international climate scheme (e.g., should they be subject to reporting in the national communication), especially if the parties adopt a climate agreement using a “bottom-up” approach?

Only the first issue is addressed here. The paramount objective of climate compliance is to ensure that those mitigation commitments and/or NAMAs agreed to by the Parties translate into effective actions “on the ground.” Under the Kyoto Protocol, developed countries have had since 1997 to reduce by 5.2% GHG emissions below 1990 for the five-year period beginning in 2008. By way of contrast, the scientific authority of the U.N. climate negotiations says that a 25-40% reduction is required by 2020 – a far more ambitious target which naturally should make compliance that much more difficult. The more recent science suggests that cuts of more than 45% will be required by 2020.

To see whether the compliance mechanism of the Kyoto Protocol is up to that difficult task, a brief examination of its key elements, including potential sanctions, is necessary. The Kyoto Compliance Committee is comprised of an enforcement branch (for determining noncompliance) and a facilitative branch (for promoting compliance and providing early warning of potential non-compliance). While the Compliance Committee has responsibility for ensuring compliance by developed country Parties with various reporting requirements, perhaps its most prominent duty is to determine whether a country's emissions, measured over the entirety of the compliance period (2008 – 2012 in the first commitment period), is within its assigned target. If the enforcement branch finds that a Party has not met its target, the offending Party would: (1) be assessed a 30% penalty on their shortfall to be added to their target for the next commitment period, (2) be required to develop a compliance action plan and (3) be suspended from emissions trading (thereby likely adding to their cost of compliance).

Despite these potential consequences, the current state of compliance is not encouraging. To understand the state of compliance, first subtract the 15 countries in the European Community that are aggregated for Kyoto Protocol compliance purposes (i.e., the “EC-15,” which is on target to meet its Kyoto Protocol mitigation obligations, although over half of the 15 are currently on track to miss their individual targets) and then the “Economies in Transition” (i.e., Eastern Europe), where compliance is due to their decreased industrial output compared to the 1990 baseline, and is not driven by their climate obligations. Of the remaining nine countries with binding Kyoto Protocol emission targets, based on the most current data reported by the United Nations Framework Convention on Climate Change (for 2007), only two are actually on track to comply by virtue of their own emission reductions, with five of the remaining seven missing their target by a range of 14 to 34%.²

Under the current compliance rules, a country is technically not out of compliance until the entire commitment period is complete. This is because they could until the last moment purchase offsets or credits that would cover their own emissions overage. Yet, at least one of these countries, Canada, has announced that it does not intend to comply with its target, and on its current emissions trajectory would need to purchase approximately \$14 billion worth of credits by the end of the commitment period (based upon a nominal price of \$15 per ton).

Moreover, only one of the countries described above is currently purchasing offsets at anywhere near to rate that would be necessary to attain compliance.³ It is still early in the initial commitment period and much could change. But it does not look promising for the current compliance system to succeed – even in the face of serious sanctions that are legally binding and intended to make non-compliance relatively expensive.

Despite the troubling performance to date, there is reason to believe compliance under the post 2012 climate regime can be significantly improved. This could be accomplished by either fundamentally restructuring the compliance mechanism along the lines of that used with great success in controlling ozone depleting substances under the Montreal Protocol⁴ or building upon the Kyoto mechanism (perhaps including elements from Montreal) to make it stronger and more flexible. Compliance experts have already considered a range of ideas to increase the effectiveness of the Kyoto Protocol's compliance mechanism.

One problem is that while a five year compliance period ensures maximum flexibility and the opportunity to lower mitigation costs, it also permits a Party to build up a huge “climate debt” that might be extremely difficult to pay off at the end. If a Party cannot achieve its mitigation commitments, it is difficult to comprehend how they will be able to make up their debt during with following commitment period, and also pay an addition 30% penalty. This may be addressed in several ways. First, it is possible to promote a more active role for the facilitative branch so that it engages with Parties that are “off course” earlier in the process and publicly “spotlights” them where necessary. (Under the Kyoto Protocol, the facilitative branch has taken no formal action relating to a Party's likely future noncompliance with targets and apparently has not engaged with any of the parties currently en route to Kyoto Protocol non-compliance.)

Second, it is possible to provide better “triggers” for the respective branches to permit earlier and more flexible action. This could be complemented with a requirement for a non-complying Party to submit a compliance plan when it appears likely they will not meet their target. Waiting until the end of the commitment period to take any action is simply too late.

Whether or not the Kyoto Protocol compliance mechanism is retained in the post-2012 scheme, compliance must be prioritized and improved if commitments are to be translated into genuine GHG reductions on the scale required to avert the most harmful impacts of climate change. During the Copenhagen negotiations it is imperative that the Parties commit to

a robust compliance mechanism as a component of the ultimate legally binding agreement. Given the profound environmental impact the quality of the compliance mechanism will have, climate negotiators should give considerable thought in the next several months to how to best encourage countries to set aggressive GHG reduction goals while providing a mix of compliance assistance, incentives, and ultimately enforcement, to ensure these commitments are met.

Endnotes

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² UNFCCC Fact Sheet on 1990 to 2007 emission trends, http://unfccc.int/files/press/fact_sheets/application/pdf/ghg_fact_sheet_2009.pdf

³ UNFCCC Annual compilation and accounting report for Annex B Parties under the Kyoto Protocol, (October 21, 2009), <http://unfccc.int/resource/docs/2009/cmp5/eng/15a01.pdf>

⁴ See “Improving MEA Compliance” by Sarma, Zaelke, and Andersen, in this Special Report for a detailed description of the integrated compliance approach utilized by the Montreal Protocol.

Improving MEA Compliance – The Montreal Protocol Model

K. Madhava Sarma, Durwood Zaelke, and Stephen O. Andersen

I. Background

The three requirements for all multilateral environmental agreements (MEAs) are to 1) implement the treaty’s obligations through national laws, regulations, and policies; 2) ensure compliance with the implementing laws, regulations and policies; and 3) provide timely information to the international body assigned to receive such information in order to substantiate its compliance with its obligations under the treaty.¹

This paper examines general causes of MEA noncompliance, focusing on noncompliance by developing countries. The paper goes on to describe how the Montreal Protocol’s problem-solving approach to implementation and compliance distinguishes the treaty and makes it so successful. This contrasts with the approach to MEA compliance that views compliance as something separate from the overall treaty regime and that assumes developing country Parties have sufficient legal and administrative systems to implement and ensure compliance with their treaty obligations.

II. Causes of MEA Noncompliance

1. Compliance Theories

There are two leading schools of thought on why states fail to meet their obligations under MEAs:

- *Rationalist* scholars argue that “States comply, or fail to comply ... after making a rational calculation of their interests. Put simply, States comply with MEAs when they feel it is in their best interest to do so.”² Rationalists respond by focusing on “deterrence and enforcement [i.e. sanctions] as a means to prevent and punish noncompliance by changing the actor’s calculation of benefits and costs ...”³
- *Normative* scholars argue that compliance is a function of the State’s capacity and commitment.⁴ They identify three primary sources of noncompliance: 1) the treaty requirements are too ambiguous to apply; 2) the treaty requirements are considered unfair; and 3) the State lacks the capacity to implement the treaty requirements.⁵

A synthesis of the rational and normative models presents a more realistic picture of compliance. The proper balance of the two models is a regime designed with clear and fair treaty requirements that promotes compliance through assistance and capacity building, “while maintaining the bedrock foundation of deterrence to alter the calculations of those less inclined to voluntarily comply.”⁶ As noted by the eminent jurist H.L.A. Hart, “what reason demands is voluntary co-operation in a coercive system.”⁷

2. Empirical Study of Compliance

The International Regimes Database (IRD) study examines individual aspects of international environmental regimes to determine sources of compliance and noncompliance.⁸ The study found that, “[t]hose who create and administer international regimes exhibit an overwhelming preference for procedures featuring management in contrast to enforcement” procedures for compliance.⁹ The data showed that the “management” approach [reflecting the normative outlook] “dominates efforts to elicit compliance

in approximately 90 percent of the cases.”¹⁰ The management approach is defined as “encompassing a variety of behavioral compliance mechanisms” and essentially views “disagreements about compliance as problems to be solved rather than as willful violations.”¹¹

The IRD study found that, “[t]he choice of the management approach is associated with the attainment of [environmental treaty] goals in 86.1 percent of the records . . . Perhaps more impressive is the fact that the coders judged the regimes to have a large causal influence in 72.8 percent of the cases featuring the adoption of a management approach and the fulfillment of goals.”¹²

In addition, the study found that capacity building alone, which was considered one element of the management approach, “yields an encouraging story with regard to the effectiveness of environmental regimes. . . [as] goal attainment occurred in 89.2 percent of the cases featuring capacity building” with a causal impact in 83.6 percent of the cases.¹³

The IRD study concludes that, “it is not so much coercion by a superior power but good management and institutionalized incentive mechanisms that lead to satisfactory levels of compliance” in international environmental regulations.¹⁴ “Overall, the data from the IRD suggest that regimes can make a difference, even when they lack the coercive capacity we often assume is needed to produce effective governance,” and instead focus on the management approach to compliance.¹⁵

3. Special Circumstances of Compliance in Developing Countries

In developing countries, noncompliance is often due to a lack of capacity and/or commitment.¹⁶ Developing countries often become parties to MEAs even though they lack the capacity to comply, concerned with environmental quality and hoping to qualify for capacity building assistance to help them meet their obligations. The lack of capacity of developing countries may stem from inadequate resources (e.g., financial and technical) or less tangible internal factors, such as fragmented internal decision-making processes, conflicting mandates, a lack of co-operation among governmental agencies, low enforcement capacity, and financing difficulties.¹⁷ As a result, compliance mechanisms that focus on altering a developing country’s intent through enforcement and penalties are often ineffective. When noncompliance is due to inadvertence or lack of ability to comply, capacity building measures (e.g., funding, education, and technology transfer) will generally have greater impact.

4. Advantages and Limitations of Compliance Mechanisms

MEAs are increasingly adopting formal compliance mechanisms, also referred to as noncompliance procedures. These mechanisms “make the detection of, and response to, noncompliance more likely, credible, and potent.”¹⁸ On the other hand, a noncompliance response system that aggressively chastises Parties for their lack of compliance may encourage perceptions that the regime is unfair (and hence illegitimate) and inadvertently encourage the Party to abandon its obligations altogether, especially a developing country that is unable to return to compliance without capacity assistance.¹⁹ An aggressive

approach to noncompliance may also have the effect of deterring non-Parties from becoming Parties, especially economically powerful countries, who can simply ignore the threats and the treaty. Compliance assistance (financial or otherwise), along with the threat of its withdrawal, is often a more effective method of responding to noncompliance when dealing with developing countries that lack the capacity or commitment to comply.²⁰

III. Lessons from the Success of the Montreal Protocol

1. Summary

The Montreal Protocol (MP) has achieved compliance sufficient to phase out, well ahead of schedule, 97 percent of the production and consumption of the 96 chemicals targeted by the Treaty, in more than 240 industry sectors and it is well on its way to full compliance by all Parties. The noncompliance so far by developing countries has been trivial in quantity and rectified soon after it was noticed through efforts of the countries coupled with assistance from the financial mechanism of the Protocol. The MP has done this through a combination of strategies directed at solving the underlying environmental problems through good practices and specific technologies. The strategies include:

- A robust financial mechanism, with democratic decision-making and periodical replenishment as required, to pay the full agreed incremental costs of developing country Parties for compliance with the control measures of the Protocol;
- Gradual mandated phase-outs over time;
- A ten-year (or more) grace period for all 146 developing country Parties; Capacity building through National Ozone Units (NOUs) in each developing country;
- Regional networks of NOUs for knowledge-sharing;
- An implementation committee; and
- A compliance mechanism that follows a “get well” approach, backed up with trade measures for willful noncompliance, which are rarely used.

These and other factors have produced an ozone treaty that all 196 Parties consider fair and that has been energetically implemented by a robust network of MP supporters throughout the world.

2. Financial Mechanism

The MP's Multilateral Fund (MLF), is critical to the MP's success.²¹ The developed countries agree to fund the MLF periodically to the full extent of the incremental costs necessary to achieve the agreed developing country goals necessary for compliance. This continual replenishment process provides developing countries with the ability to plan country programs and implementation projects knowing that the necessary funding will be provided.²² The MLF is administered through an Executive Committee comprised of seven developed countries and seven developing countries, with the chairmanship and vice-chairmanship rotating between the two groups. A majority from both the developed and developing country groups is required in order to reach a decision. This democratic decision-making procedure ensures that decisions are considered fair by most Parties.

Only countries classified under the MP as developing and having per-capita consumption below the limits specified by the Protocol are eligible for funding under the MLF. When the “countries with economies in transition,” including the Russian Federation and countries of the former USSR were unable to comply with their obligations in the 90's due to their political and economic instability, the Global Environment Facility (GEF), an independent organization that provides funding for countries that lack the financial or technological resources necessary to implement projects to tackle global environmental problems, came to their rescue. Through efforts of implementation assistance, the GEF has helped phase out 28% of total global ozone-depleting substance (ODS) consumption in these countries.²³

The MLF and the GEF assist Parties in developing Country Programs, which are tailored to individual countries and priorities by setting short and long-

term goals based on a country-specific assessment of regulatory, institutional, technological and financial capacity.

3. Clear and Fair Requirements

The MP establishes clear and fair requirements. Each Party knows precisely what is expected of itself and other Parties. This contributes to perceptions of fairness and legitimacy, thereby encouraging compliance. In addition, each specific Party's commitments reflect the principle of common but differentiated responsibility. The developed parties were required to meet ODS phase-out deadlines 10 years earlier than developing countries. The grace period for developing countries provided time for the developed countries to implement and perfect cost-effective, and often profit-producing, technologies and substitutes that were then transferred to the developing countries through the MLF. It also promoted perceptions in the developing world that the MP was fair, thus encouraging participation. Finally, the experience and lessons learned during 10 years of research and implementation in developed countries were transferred to developing countries, decreasing the latter's difficulty in complying with deadlines and increasing the overall effectiveness of the MP.

4. Capacity Strengthening

Each developing country designates a country focal point or National Ozone Unit (NOU) comprised of a permanent staff specializing in ozone issues. The MLF finances an ozone unit in every developing country at relatively modest costs while remaining consistent with local needs.²⁴ The ozone unit provides stability and continuity on ozone issues and contributes to the development and implementation of that individual country's program. Over time, the human and institutional capital of the country improves, as expertise is established and experiences and information are shared with other ozone units.

NOUs are connected with each other through nine regional networks and bi-annual meetings of the networks. The nine regional networks of ozone units spread information on best practices, exchange knowledge, experience and mutual assistance, and contribute to a competitive spirit that accelerates the achievement of goals. The networks also provide valuable feedback to the MLF on which country projects were successful and which were not.²⁵ The networks establish a constant stream of cooperation and technology transfer and also exert a professional “peer pressure” on ozone officers to ensure aggressive implementation and enthusiastic participation.²⁶

In addition, training programs are carried out to increase awareness, share information, and educate country policy makers, industry executives, and technicians to promote technology transfers.²⁷ As a further incentive to encourage developing countries to comply with the Protocol, all Parties commit to transferring “the best available environmentally safe substitutes and related technologies to developing countries at fair and most favorable conditions.”²⁸

K. Madhava Sarma, the former Executive Secretary of UNEP's Montreal Protocol Secretariat, has noted that in the initial years, many parties had trouble reporting all the details required, but performance improved after receiving technical support from the MLF or the GEF. In designing the Montreal Protocol and in evolving its compliance mechanism, the Parties recognized that noncompliance may be mostly due to lack of capacity or political will.

5. Implementation Committee

An Implementation Committee (IC) reviews the implementation of the Protocol by the Parties and makes recommendations to the Meeting of the Parties (MOP) regarding Parties that are not in compliance. The IC and MOP evaluate each case of noncompliance individually and develop specific solutions tailored to the individual country.²⁹ While the process can impose sanctions, to date, no developing country has been deprived of assistance or had its rights and privileges suspended as a result of noncompliance.

Instead, countries in noncompliance continue to receive international assistance as long as they create a plan of action and work towards returning to compliance.

6. Scientific and Technical Assessments

The Parties to the Montreal Protocol benefit from annual, up-to-date technical assessments from its Technology and Economic Assessment Panel (TEAP) and its Technical Options Committees (TOCs) for the six sectors of ODS use. The Scientific Assessment Panel assesses the state of the ozone layer and the levels of ODSs in the atmosphere, and the Environmental Effects Assessment Panel assesses the environmental impacts of ozone depletion. The Panels together provide, based on their assessments, policy options once every four years to strengthen the Protocol and the Parties follow up with the necessary adjustments and amendments to the Protocol.

Each TOC has co-chairs from both developing and developed countries and 20–35 members from all parts of the world.

The representation of industry on the TOCs and the TEAP is a distinguishing feature that provides access to cutting-edge data often not yet published in scientific or technical journals, since industry rarely publishes on emerging technologies it has developed for commercial purposes.³⁰ There has never been a significant misleading or misstated finding on technology, largely because industry representatives generally serve alongside representatives from competitors and knowledgeable environmental authorities and academics, which create a check against undue influence.³¹ As a result, reports from the TOCs and the TEAP often provide the Parties with the first public disclosure of the latest developments in new environmentally-friendly technologies in an unbiased way.³² In addition, a code of conduct incorporated in the TEAP terms of reference seeks to avoid conflicts of interest and resolve any that occur.³³ Each member serves in his or her individual capacity and pledges not to represent his or her company, government or employer. All members of the TEAP and TOCs declare their sources of funding for participation and any financial interest they may have in companies connected with ODSs or alternatives. The travel costs of members from developing countries or countries with economies in transition (CEITs) are met by the Ozone Secretariat.

The reports of the TEAP or TOCs are presented to the Parties as they are written, without any editing by policy makers. Parties are free to disagree with the reports, but cannot amend them. The Panel can present information that is relevant for policymaking, but does not issue specific policy recommendations.

7. The Noncompliance Mechanism

Any Party may address, in writing, the Ozone Secretariat (OS) regarding any Party's compliance, including their own. The OS will contact the Party in question for its clarifications and place the issue before the IC. The Secretariat also places a periodical report analyzing the data received from the Parties before the IC. This report identifies the deviations by any Party from its commitments to the Protocol.

The Party involved in a matter under consideration by the IC may be invited to attend the meeting, but will not be allowed to take part in the adoption of recommendations to the Meeting of the Parties (MOP). Only the MOP can determine the compliance or noncompliance status of a Party.

The following measures may be taken by the MOP when a Party is found to be out of compliance:³⁴

- A. Appropriate assistance, including assistance for the collection and reporting of data, technical assistance, technology transfer and financial assistance, information transfer and training.
- B. Issuing cautions.
- C. Suspension, in accordance with the applicable rules of international law concerning the suspension of the operation of a treaty, of specific rights and privileges under the Protocol, whether or not subject to time limits, including

those concerned with industrial rationalization, production, consumption, trade, transfer of technology, financial mechanism and institutional arrangements.

8. The Noncompliance Mechanism in Practice

In implementing the Montreal Protocol, the Parties have taken a graduated response to noncompliance. In 1994, the countries with economies in transition (Russian Federation and countries of the former USSR) notified the Secretariat of their noncompliance directly, which is the only case of noncompliance not reported by the OS. The lack of self-reporting, especially for developing countries, is partly "because their noncompliance is often viewed as a result of technical, administrative or economic problems which are tied up with promised technical and financial assistance from the MLF."³⁵

The IC requested Russia and the former USSR countries to submit a plan of action and develop benchmarks in order to return to compliance and to continue receiving international assistance. They were also cautioned, in accordance with response B (above), that if they failed to return to compliance in a timely manner, the Parties would consider measures, consistent with response C (above), including ensuring that the supply of the ODS is ceased. The MOPs requested those that did not comply in a timely manner to submit their plan of action and benchmarks to return to compliance.

It should be noted that almost all the Parties that have not submitted plans of action in the first instance have submitted their plan in the next year. Some developing Parties were considered to be in "potential" or "presumed" noncompliance for lack of data or information and were cautioned in the same terms as A (above). Generally, all of these Parties complied with the directions of the MOPs and the excess of their consumption over their quotas was small. To date, punitive measures have not been applied to a developing country, since Parties have always succeeded in returning to compliance.

9. Conclusion

Developed countries with established rule of law may favor enforcement approaches to noncompliance and their regulated industries may respond to a penalty-based approach. Developing countries and their regulated industries are less responsive due lack of capacity.

The success of the Montreal Protocol in achieving a 97% reduction in the consumption and production of the 96 chemicals it controls can be attributed to the comprehensive approach that combines potential penalties with assistance to developing countries in every stage of implementation, including assistance in identifying and overcoming instances of noncompliance. The Montreal Protocol's comprehensive compliance mechanisms achieve high levels of compliance in countries that otherwise would not have been able to develop the capacity to comply.

In sum, a successful MEA compliance mechanism must be supported by every aspect of the treaty in order to reach a high level of compliance, especially for developing countries that lack the capacity, technology and funding to comply with MEAs. Key elements supporting the success of the Montreal Protocol, including the MLF, grace periods for developing countries, and National Ozone Units, could be transferred to other MEAs in order to gain greater levels of acceptance and compliance by developing countries.

Endnotes

¹ DAVID HUNTER, JAMES SALZMANN, AND DURWOOD ZAELEKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 3RD 404, 409-10, 417-19 (2007); PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 2ND, 182-98 (2003).

² *Id.* at 390; see also George W. Downs, *Enforcement and the Evolution of Cooperation*, 19 MICH. J. INT'L L. 319 (1998).

³ Durwood Zaelke, Donald Kaniaru, and Eva Kruzikova, *Compliance Theories*, in MAKING LAW WORK: ENVIRONMENTAL COMPLIANCE AND SUSTAINABLE DEVELOPMENT Vol. 1 53, 54 (Durwood Zaelke, Donald Kaniaru, and Eva Kruzikova, eds., 2005) [hereinafter MAKING LAW WORK].

⁴ HUNTER, *et al.*, *supra* note 1, at 393, citing TOM R. TYLER, WHY PEOPLE OBEY THE LAW 73 (2006); See, also, Abram Chayes & Antonia Handler Chayes, *On Compliance*, 47(2)

INT'L ORG. 175 (1993); CHAYES & CHAYES, *THE NEW SOVEREIGNTY: COMPLIANCE WITH INTERNATIONAL REGULATORY AGREEMENTS* (1995).

⁵ HUNTER, *et al.*, *supra* note 1, at 401, *citing* HELMUT BREITMEIER, ORAN YOUNG, AND MICHAEL ZURN, *ANALYZING INTERNATIONAL ENVIRONMENTAL REGIMES: FROM CASE STUDY TO DATABASE* 71 (2006),

⁶ Zaelke, *Compliance Theories*, *supra* note 3, at 62.

⁷ H. L. A. HART, *THE CONCEPT OF LAW* 2ND 198 (1994).

⁸ BREITMEIER, *et al.*, *supra* note 5. The IRD contains information for more than 50 states and the European Union. The IRD includes 23 regimes: Antarctic, Baltic Sea, Barents Sea Fisheries, Biodiversity, CITES, Climate Change, Danube River Protection, Desertification, Great Lakes Management, Hazardous Waste, Inter-American Tropical Tuna Convention, Conservation of Atlantic Tunas, International Regulation of Whaling, London Convention, ECE Long-Range Transboundary Air Pollution, North Sea, Oil Pollution, Protection of the Rhine Against Pollution, Ramsar (Wetlands), Protection of the Black Sea, South Pacific Fisheries Forum Agency, Stratospheric Ozone, and Tropical Timber Trade. The IRD is based on a common data protocol that identifies and defines a large set of variables relevant to all members of the universe of international regimes. Transformed into an extensive questionnaire, the IRD data protocol served as the instrument that expert coders used in providing data regarding many features or aspects of individual regimes (the database contains data on 172 regime elements). The result is the ability to "test" propositions regarding the formation and performance of regimes using relatively large numbers of records dealing with specific variables (the database treats every regime element coded by a case-study expert as a separate "record").

⁹ *Id.* at 182, 236; *see also* the European Union's robust managerial approach to accession states.

¹⁰ *Id.* at 236.

¹¹ *Id.* at 152, 236.

¹² *Id.* at 186.

¹³ *Id.* at 158.

¹⁴ *Id.* at 64.

¹⁵ *Id.* at 186.

¹⁶ DAVID HUNTER, JAMES SALZMAN, AND DURWOOD ZAEKKE, *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY* 468 (1998) ("International environmental law depends for its effectiveness on proper implementation and enforcement at the national level. For example, the Basel Convention requires the creation of a national body to administer requests for prior notification of waste shipments, and CITES requires

parties to maintain an administrative authority to issue import and export permits and to monitor the populations of regulated wildlife. For these and other environmental treaties, then, the most important prerequisite of compliance is the existence at the national level of the legislative, administrative and executive infrastructures, or capacity, necessary for implementation and enforcement. Particularly in developing countries, these infrastructures may be inadequate to meet the new responsibilities").

¹⁷ Gilbert Bankobeza, *Compliance Regime of the Montreal Protocol*, in *THE MONTREAL PROTOCOL: CELEBRATING 20 YEARS OF ENVIRONMENTAL PROGRESS* 75, 78 (Donald Kaniaru, ed., 2007).

¹⁸ *See generally* Ronald B. Mitchell, *Compliance Theory: An Overview*, in *IMPROVING COMPLIANCE WITH INTERNATIONAL ENVIRONMENTAL LAW* 3-28 (1996).

¹⁹ K. Madhava Sarma, *Compliance with the Montreal Protocol*, in *MAKING LAW WORK: ENVIRONMENTAL COMPLIANCE AND SUSTAINABLE DEVELOPMENT* Vol. 1 287, 306 (Durwood Zaelke, Donald Kaniaru & Eva Kruzikova, eds., 2005).

²⁰ Bankobeza, *supra* note 17, at 87-88.

²¹ K. Madhava Sarma, Stephen O. Andersen & Kristen N. Taddonio, *Lessons from the Success of the Montreal Protocol*, in *THE MONTREAL PROTOCOL: CELEBRATING 20 YEARS OF ENVIRONMENTAL PROGRESS* 125 (Donald Kaniaru, ed., 2007).

²² During 1991-2004, the developed countries promised nearly US\$1.89 billion and paid nearly US\$1.63 billion to the MLE. The missing amount is almost wholly from former Russian republics that lack the capacity to pay and are themselves receiving implementation assistance funds, Sarma, *supra* note 19, at 306.

²³ STEPHEN O. ANDERSEN, K. MADHAVA SARMA & KRISTEN N. TADDONIO, *TECHNOLOGY TRANSFER FOR THE OZONE LAYER: LESSONS FOR CLIMATE CHANGE* 311 (2007).

²⁴ Sarma, *supra* note 22, at 146.

²⁵ *Id.* at 147.

²⁶ *Id.*

²⁷ ANDERSEN, *et al.*, *supra* note 23, at 315.

²⁸ Bankobeza, *supra* note 17, at 85.

²⁹ Sarma, *supra* note 19, at 292.

³⁰ *Id.*

³¹ ANDERSEN, *et al.*, *supra* note 23, at 300.

³² *Id.* at 301.

³³ *Id.*

³⁴ Annex V, *Report of the Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer*, Copenhagen, 23-25 November 1992.

³⁵ Bankobeza, *supra* note 17, at 97.

Cost Effective Management of National Climate Policy: Application of Environmental Compliance and Enforcement Indicators

Kenneth Markowitz and Dave Grossman¹

I. Introduction

To effectively implement national climate change policies and measures, environmental program managers must have appropriate tools to measure and manage their compliance and enforcement resources and activities. The environmental compliance and enforcement indicators methodology developed by the International Network for Environmental Compliance and Enforcement (INECE) assists program managers and decision makers throughout the world in realizing cost savings in the implementation of climate-related policies.

The INECE environmental compliance and enforcement (ECE) indicators are management tools for measuring and communicating the results achieved by environmental compliance and enforcement programs.² By setting quantitative baselines and tracking performance over time, decision-makers can improve the effectiveness and efficiency of those programs through improved utilization of resources and prioritized compliance response. Identifying, designing, and using performance indicators can help managers better evaluate and communicate how effectively environmental compliance and enforcement programs effectuate behavioral change and respond to priority environmental problems.

II. Using Performance Indicators to Assess Implementation of National Climate Policies and Measures

Environmental compliance and enforcement indicators, and the methodology that INECE developed for their implementation, can be applied to any policy program that includes compliance assurance and enforcement mechanisms. In the case of climate change, the ECE indicators could be applied at any

level of government, from international to local, and to the implementation of almost any aspect of climate policy. ECE indicators can improve implementation of existing climate change policies and measures including:

Reducing Soot Emissions at Ports: One of the primary short-term climate forcing agents is black carbon, which warms the planet by absorbing heat, raising ambient temperatures, and reducing the albedo of the surfaces it falls upon. Many countries currently have, or are developing, laws to control and limit emissions at ports (e.g., emissions from ships, trucks, trains, and other diesel-powered equipment). A number of ports in the United States and Europe could utilize ECE indicators to ensure compliance with the programs they have installed to control speed, to promote retrofitting, and to test emissions.³

Policing Carbon Market Fraud: As carbon markets proliferate and mature, so too will instances of non-compliance and market manipulation, whether in monitoring, reporting, or actual trading. The EU, which has pioneered the carbon markets with its EU Emissions Trading Scheme, has experience with violations of carbon market rules. Member States impose financial and penal sanctions of varying levels for a range of violations. ECE indicators could help officials in the EU, the US, and elsewhere measure and manage their compliance and enforcement efforts in this burgeoning area.

Tracking Adaptation Measures: Adaptation is a fundamental component of the Bali Roadmap and is essential in our collective response to climate change in both developing and developed countries. Adaptation projects are taking place under the aegis of various agencies and collaborative efforts, including UN agencies, the Global Environment Facility, multilateral financial institutions, and development agencies. ECE indicators can help

these institutions and developing country recipients of adaptation assistance better measure, manage, and track the effectiveness of their limited resources in promoting compliance with the climate adaptation policies.

Monitoring Energy Efficiency Programs: Energy efficiency is often the most cost-effective way to reduce greenhouse gas emissions in both developed and developing countries.⁴ ECE indicators can help evaluate the performance of energy efficiency programs, such as weatherization and retrofitting drives, including those of the US Department of Energy and the UK Department of Energy and Climate Change. Energy efficiency is also a crucial strategy that countries with rapidly expanding economies, like China and India, are using to reduce emissions while maintaining economic growth.

III. Recommendations

Any climate-related policy or program – whether at a supra-national, national, or sub-national level – that involves assessments of compliance, enforcement, and accountability could potentially benefit from the application of performance measurement and the INECE methodology.

A number of steps are needed to move forward to implement a capacity building effort to improve the effectiveness of compliance activities in the climate context:

1. *Determine priorities* – Identifying the programmatic areas for developing capacity building materials and identifying geographic areas of emphasis.
2. *Build consensus* – Outreach efforts should include delivering presentations on the validity of the methodology and its applicability to climate policy, working at the request of interested governments to help design a scoping strategy, evaluating the types of data currently being collected for other purposes, and coordinating with donor agencies, international organizations, and non-governmental organizations to leverage experience and to avoid duplication of projects.

3. *Identify potential partners/funders for pilot projects* – Based on the efforts above, partnerships and pilot programs should be implemented to exhibit the usefulness of ECE indicators within national governments and international organizations.
4. *Develop capacity-building materials and training resources* – Capacity building programs, which would likely be based on other programs developed for general environmental compliance capacity, are needed to promote diffusion of ECE indicators, including how to feed results from indicator analysis into future UNFCCC reporting processes.

Application of the INECE ECE indicators methodology in the climate change context can result in improved program monitoring and enhanced accountability at all levels of government, cost-savings by effective prioritization of resources and staff, and ultimately lower greenhouse gas emissions and enhanced adaptation.

Endnotes

¹ Kenneth J. Markowitz is the lead consultant to the INECE Secretariat, President of Earthpace LLC, and the Senior Climate Change Consultant for Akin Gump Strauss Hauer and Feld. Dave Grossman is a Consultant to the INECE Secretariat and President of Green Light Group.

² See INECE, *Performance Measurement Guidance for Compliance and Enforcement Practitioners*, 2nd Edition, April 2008. <http://inece.org/indicators/guidance.pdf>

³ San Pedro Bay Ports Clean Air Action Plan: Second Quarter 2008, Clean Air Action Plan Implementation, Milestone Status Report; San Pedro Bay Ports Clean Air Action Plan: Fact Sheet; San Pedro Bay Ports Clean Air Action Plan: Frequently Asked Questions. <http://www.cleanairactionplan.org/>

⁴ UNEP Sustainable Buildings & Construction Initiative, “The Kyoto Protocol, the Clean Development Mechanism, and the Building and Construction Sector,” 2008. <http://www.unep.fr/shared/publications/pdf/DTIx1071xPA-BuildingsandCDM.pdf>

Building Capacity for Climate Compliance: The Principles of Compliance and Enforcement of Climate Requirements

INECE Secretariat

International climate negotiators must create a global climate change agreement that will result in measurable reductions of greenhouse gases, while policymakers must develop the legal enforcement mechanisms necessary to implement these greenhouse gas agreements. These tools will require standardized monitoring, verification, and reporting methods to ensure the accuracy of information about carbon reductions at the global, national, and facility level. Legal mechanisms will be required to establish a level playing field among all actors. Without enforcement, laws designed to address the global climate change problems will ultimately be unsuccessful.

The International Network for Environmental Compliance and Enforcement (INECE) recognizes that climate laws can only achieve their goals if countries establish good environmental governance schemes. Even where laws are established, if some countries are unable or unwilling to effectively enforce their environmental legislation, the economic playing field will be tilted, creating perverse incentives for pollution havens and competitive disadvantages internationally for enterprises operating in compliance with their national laws. Many countries have recognized their own limitations, and are requesting assistance to build their capacity for environmental governance.

The development of a focused enforcement and compliance program begins with the awareness and understanding of the problem (e.g., global climate change) and what governance tools are best suited to address different aspects of the problem, with consideration of issues of practicality and enforceability. The full range of management approaches should be considered, including binding laws, regulations, and requirements. Countries need to plan and implement a well-funded program to ensure compliance with the rules and enforce against those who choose not to comply. The final phase is the evaluation of the results, the determination of whether or not the goals have been achieved, and ultimately the decision of what changes, if any, should be made.

The *Principles of Environmental Compliance and Enforcement* training course¹ developed by the United States Environmental Protection Agency (USEPA) and INECE helps create a framework for designing effective compliance strategies and enforcement programs, regardless of the specific situation in the attendee's country. The course introduces participants to the building blocks for developing their own compliance and enforcement programs by providing a framework, not a model program. The goal of this course is to provide participants with the big picture so they can develop tailor-made solutions for the range of environmental challenges they face.

The course is designed around a climate case study in a fictitious country to prompt thinking about the range of potential responses needed. Several possible management approaches (e.g. technological, performance-based, economic, and voluntary) are provided to the working groups as part of a comprehensive strategy. These options may include mandatory limits on carbon production, cap and trade systems, carbon taxes, increased public awareness, incentives to convert to clean energy, mandatory carbon sequestration, etc. The case study involves writing an enforceable requirement for their selected management approach. This is a crucial exercise since clear, enforceable requirements are essential to the promotion, compliance monitoring, and enforcement of the requirements. In order to ensure the highest level of compliance, the work groups are then asked to develop a promotion strategy for the requirements they recommended and determine the best way to monitor compliance. Following this activity, the participants list possible violations and discuss appropriate responses to a range of violations for the written requirement. In the final phase, the work groups are asked to reflect upon whether the program they designed was or was not successful and how to use environmental compliance and enforcement indicators to improve their approach.²

It is important to note that this is not a course on international climate negotiations, technological solutions, or regulatory design. Instead, participants will learn enforcement principles applicable to any environmental challenge. Application of the learning objectives from the course will improve compliance programs in any environmental control program. Through this course and cooperation with other environmental leaders and partners, INECE can use its experience in environmental compliance and enforcement to share successes and failures and accelerate the program development in countries worldwide. This will help ensure effective enforcement of domestic environmental laws, build capacity for assuring compliance with climate policies, and ultimately help achieve high levels of environmental protection.

Endnotes

¹ Principles of Environmental Compliance and Enforcement Handbook, April, 2009, International Network for Environmental Compliance and Enforcement (INECE), <http://inece.org/principles/>.

² Performance Measurement Guidance for Compliance and Enforcement Practitioners - Second Edition, April, 2008, International Network for Environmental Compliance and Enforcement, <http://www.inece.org/indicators/guidance.pdf>.

China's Climate Compliance System and its Implementation

Xiaopu Sun¹

China's comprehensive policies on renewable energy, energy efficiency, and climate mitigation – including China's announcement on November 26 to reduce the intensity of carbon dioxide emissions per unit of gross domestic product (GDP) by 40 to 45 percent² – are ambitious and foresightful. However, all countries working to measure and manage greenhouse gas emissions face a difficult task in fully implementing and assuring compliance with commitments, and China is no exception.

As a developing country with a large population, climate change has been a big challenge for China, especially regarding impacts to forests, agriculture, water sources and sustainable economic development. In the White Paper on Climate Change, titled “*China's Policies and Actions to Address Climate Change*,” the Chinese government lists the following guiding principles for combating climate change:

“fully implement Scientific Development Perspective, persist the national policy of resource conservation and environmental protection, aim at controlling greenhouse gas emissions and improving sustainable development capacity, center at economical development, accelerate the adjustment of economical development structure, focus on energy conservation, optimize energy structure, strengthen ecological protection, rely on science and technology development, promote international cooperation, and improve the capacity to address climate change and contribute to the global efforts on combating climate change.”³

These guiding principles have been repeated and illustrated in the *National Plan to Respond to Climate Change* which was issued by the National Development and Reform Commission in June 2007.

The Chinese government has implemented a number of policies and plans to change the industrial sector, with targets to promote the sustainable development of the service industry,⁴ expand high-tech industries,⁵ and phase out old and outdated technologies.⁶ In addition, energy conservation has long been a major focus of the Chinese government. The *Eleventh Five Year Plan for National Economy and Social Development* set a target to reduce energy consumption per gross domestic product (GDP) twenty percent by 2010 in comparison to 2005 levels. Corresponding laws and regulations have been promulgated or amended, including the *Energy Conservation Law*, which was amended in 2007 and became effective as of April 1, 2008. The State Council issued the *Notice on Strictly Implementing the Air Conditioner Temperature Control Standards for Public Buildings* in June 2007.

Since 2007, the government has issued mandatory national standards of energy consumption limits on twenty two high energy consumption products.⁷ To guarantee the effective implementation of these energy conservation laws and regulations, the State Council established a Leadership Team on Energy Conservation and Emission Reduction, issued the *Integrated Workplan on Energy Conservation and Emission Reduction* in June 2007, and set up the Responsibility System for Energy Conservation and Emission Reduction Targets. The State Council also issued a series of rules on data collection, measurement, supervision, and verification of energy conservation and

emission reductions in November 2007, which describe the responsibility for and supervision of targets for reducing energy consumption and pollutants in major industries at the provincial level.⁸ Through these efforts, national energy consumption on a GDP basis has been reduced by 1.79% and 3.66% in 2006 and 2007 respectively.⁹

Facing the pressure of its growing energy requirements, Chinese government has been actively promoting the development and deployment of renewable energy. In 2005, the government issued the *Renewable Energy Law* to support and motivate the development of renewable energies, leading to rapid growth in renewable energy over the past few years. For example, between 2006 and 2007, installed hydropower capacity grew 12% and wind power grew by an astounding 148%,¹⁰ while nuclear power installation has increased by 30.5% since 2006¹¹ and solar power has grown at the fastest rate in the world for years. The Chinese government announced plans to attempt to continue these rates of growth. According to the *Mid-Long Term Development Plan for Renewable Energies* and *Mid-Long Term Development Plan for Nuclear Power*, China will keep promoting development of hydropower, wind power, biofuel, solar power, and nuclear power.¹²

The government is also acting on a number of other climate-related fronts. Laws including *Clean Production Promotion Law* (2002), *Environmental Control and Prevention Law on Pollution of Solid Waste* (2004), *Recycling Economy Promotion Law* (2008), and the *Administrative Rules on Municipal Waste* (2007), were issued or amended to promote recycling economy in China, which reduces greenhouse gas emissions at source and production phases. Greenhouse gas emissions from rural areas also have been mitigated through improvement of cookstoves, deployment of small scale renewables, and through forest protection and replanting.

The Chinese government has taken a number of domestic actions to improve energy efficiency, promote renewable energy, and reduce GHG emissions, achieving significant outcomes, especially in the areas of energy conservation and renewable power development. However, the effective compliance and enforcement of its current climate change mitigation system requires contributions from a number of other sources, including the cooperation of national authorities and local governments; capable personnel; an effective monitoring, reporting, and verification system; and sufficient financial support.

Although there are national plans on energy conservation and emission reduction, implementation of those plans relies highly on the compliance and enforcement work done by the local governmental agencies, including the local environmental protection bureaus. Compliance with national plans, laws and regulations is questionable while considering the possible conflicts with local economical interests and local protectionism. In addition, the conflicts among different national authorities can create barriers to the implementation of the national legal system. Defining roles and responsibilities for local officials has been quite effective in putting pressure on them to take environmental targets seriously. Unfortunately, the capacity of local governmental agencies, both with regard to the skill sets of their personnel and existence of sufficient funding, remains a concern. Without

active participation of local enforcement agencies, the goals of these national plans will be hard to realize. Therefore, training local staff and providing sufficient funding are both important for the success of the current system.

Another key requirement for a functioning environmental system is a fair, open and effective system of measurement, reporting and verification supporting compliance and enforcement efforts. Credible data is critical to the fulfillment of emission reduction and energy conservation targets, both domestically and internationally. Recognizing this, the Chinese government has issued a series of rules on data collection, measurement, supervision, evaluation, and verification. The effectiveness of this system, however, remains to be seen. Whatever the case, it will be necessary for the Chinese to learn from and adapt the best practices of other countries into the unique context of Chinese environmental regulation and sustainable development.

Endnotes

¹ Xiaopu Sun is a staff attorney at the INECE Secretariat. The author would like to thank Durwood Zaelke, Dan Guttman, Kenneth Markowitz, and Meredith Reeves for reviewing and commenting on this paper.

² Xinhua, China announces targets on carbon emission cuts, November 26, 2009, at http://news.xinhuanet.com/english/2009-11/26/content_12544181.htm; Wall Street Journal, China, U.S. Square Off on Climate Proposals, November 27, 2009, at <http://>

online.wsj.com/article/SB125924462719965247.html.

³ State Council Press Office, *China's policies and Actions to Address Climate Change*, October 2008, Beijing, China.

⁴ State Council, *Several Opinions on Promoting the Development of Service Industry*, March 19, 2007, Beijing, China.

⁵ National Development and Reform Commission, *The Eleventh Five Year Plan (2006-2010) for Development of High-Tech Industries*, April 2007, Beijing, China.

⁶ State Council, *Integrated Workplan for Energy Conservation and Emission Reduction*, June 2007, Beijing, China.

⁷ State Council Press Office, *supra* note 1.

⁸ The rules include the *Implementation Plan for Target Data Collection System of Energy Consumption Per GDP*, the *Implementation Plan for Supervision and Measurement System of Energy Consumption Per GDP*, the *Implementation Plan for the Evaluation and Verification System of Energy Consumption Per GDP*, the *Data Collection Methods on Emission Reduction of Major Pollutants*, the *Supervision and Measurement Methods on Emission Reduction of Major Pollutants*, and the *Evaluation and Verification Methods on Emission Reduction of Major Pollutants*.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² National Development and Reform Commission, *the Mid-Long Term Development Plan for Renewable Energies*, August 2007, Beijing, China; National Development and Reform Commission, *the Mid-Long Term Development Plan for Nuclear Power*, October 2007, Beijing, China.

Global Legal Action Versus Climate Change: The Case of the Philippines

Tony Oposa and Bebet Gozun¹

I. Introduction

Any realistic solution to global climate change must include three fundamental elements: 1) a global change in lifestyles; 2) political will to make necessary emissions cuts and; 3) the appropriate use of technology. Earlier this year, in an effort to help spark the necessary political will, the Global Legal Action on Climate Change (GLACC) convened a meeting of top Filipino scientists, policy-makers, ground-level advocates and lawyers, all with a reputation for taking on audacious, almost impossible, legal actions. The purpose of the meeting was to outline the immediate policy decisions that the Philippines must make in order to face its extreme vulnerability to climate change.

The meeting participants were divided into two groups. In the first group, the scientists and policy advocates were responsible for articulating, in layman's language, the necessary policy initiatives. The second group, made up of lawyers, were responsible for converting the initiatives into legal action. Fortunately, almost all of the identified policy initiatives were already in the existing law. It was noted that while the Philippines has no specific climate change law,² almost all of the needed policy initiatives were already in other existing environmental laws which have co-benefits with climate change.³ Law, after all, is nothing more than policy distilled in legal form and language. With the policy and legal elements established, all that was needed was implementation, and, where necessary, the enforcement of the law through legal action.

In one afternoon, the meeting participants drafted more than twenty legal forms on various topics. The petition letters, addressed to government officials, inquired about the status of compliance with the laws on topics such as: solid waste management, delineation of forests, rainwater collection, and the establishment of marine protected areas. The team of lawyers met again in the tropical Bantayan Island in the Central Philippines in May 2009 to finalize the petitions.⁴ In a coordinated effort, all the legal petitions were filed simultaneously throughout the Philippines on June 5, 2009, which is the United Nations World Environment Day.

II. Next Steps

Numerous local and national government agencies replied to the June 5 petitions, and the GLACC team is now in the process of collating and calibrating appropriate responses for each. The planned responses will range from a political "pat on the back" for good work done, to providing capacity building and other support where there is a spark of political will on the

part of government officials. However, where government agencies and/or officials have done nothing to comply with the law or have not bothered to reply to the letters, the team is now preparing a series of legal actions. The following are the planned steps for further action:

1. Carrots

- Commend government officials who are doing a good job, learn from them and showcase their experiences to other willing government leaders.
- Convene meetings with public officials who are willing to improve their compliance and assist them through capacity building to comply with the basic and catalytic provisions of the laws.

2. Sticks

- Publish the names of the noncompliant agencies, with the pictures of the heads of these agencies, on the Internet (Facebook, Twitter, and national and international news agencies).
- Begin proceedings for legal and meta-legal actions against concerned public officials who have neglected to do their work or who have not replied to the petitions.

3. Legal Empowerment

- In cooperation with the Office of the Ombudsman, conduct capacity building exercises and on-the-job training of the youth, especially law students and young lawyers interested in the field.
- Using the novel, but simple, environmental compliance audit techniques, conduct grass-root level environmental compliance assessments of local and national government agencies.

Endnotes

¹ Tony Oposa is an environmental attorney in the Philippines and a member of INECE's Executive Planning Committee. Bebet Gozun is the Senior Adviser of the Asian Environmental Compliance and Enforcement Network (AECEN).

² At the time of the meeting, the Philippines had two laws relevant to climate change, but not directly related – the Renewable Energy Law and the Biofuels Law. Since the meeting, Republic Act. No. 9729 (October 2009) which created the Philippine Climate Change Commission was passed.

³ These environmental laws include the Clean Air Act, Ecological Solid Waste Management Act, Clean Water Act, Toxic and Hazardous Waste Management Act, Forestry Code, Fishery Code, among others.

⁴ See Katherine Adraneda, *Gov't accused of destroying environment*, The Phil. Star, June 6, 2009; see also Alcuin Papa, *Citizens can sue local gov't execs for environment*, Phil. Daily Inquirer, June 6, 2009.

About INECE

The International Network for Environmental Compliance and Enforcement (INECE) is the only global network of environmental compliance and enforcement practitioners dedicated to promoting effective compliance with and enforcement of domestic environmental laws and international environmental agreements through:

- developing networks for enforcement cooperation;
- strengthening capacity across the regulatory cycle to implement and enforce environmental requirements; and
- raising awareness of compliance and enforcement.



Environmental compliance and enforcement play a fundamental role in building the foundation for the rule of law, good governance, and sustainable development.

INECE's current priority projects on building networks for enforcement cooperation include the Carbon Market Compliance Network and the Seaport Environmental Security Network. INECE is supporting the development of regional enforcement networks, specifically in the Middle East and the Maghreb regions.

INECE's work on capacity building includes the development of the International Network for Environmental Compliance Training Professionals; the publication of its *Principles of Environmental Compliance and Enforcement Handbook*; and the delivery of training courses around the world.

INECE publications such as the ground-breaking *Making Law Work: Environmental Compliance & Sustainable Development*; the INECE website; and INECE international conferences and workshops are part of a comprehensive strategy to raise awareness of environmental compliance and enforcement.

To collaborate with INECE on its work on climate compliance and other initiatives, please contact **Durwood Zaelke** (zaelke@inece.org) or **Ken Markowitz** (kjm@earthpace.com) to learn more about current projects and opportunities.

<http://inece.org/>

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