The environment is the essential underpinning of all human societies and their economic activities. Societies are dependent on their environment to provide clean air to breathe, safe water to drink and healthy food to eat. Economies, meanwhile, rely on natural and human resources to produce marketable goods and services. However, humans are collectively exploiting the Earth’s resources to an extent that its systems cannot neutralize the adverse effects on the environment. The cumulative effect of human activities on the global environment have only become apparent in the last few decades. These threats to the Earth have led scientists and policymakers to work together in a sustainable and collaborative manner to confront global challenges. The result has been an ever-increasing number of international environmental agreements. Even though they enjoy widespread popularity as a means for addressing global environmental challenges, there is little evidence that these international environmental agreements are successful in achieving the improvements sought. Much literature has been devoted to the analysis of why international environmental agreements, despite extensive support for their underlying purposes, are not more effective in achieving their goals.

In *Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies*, Oran R. Young observes that there are multiple times of international environmental agreements and that it is critical to understand the importance of “fit” since a single type will not be appropriate for all issues. He believes that regime design is often a more significant determinant of effectiveness than how easy or difficult the underlying environmental problem is to solve.

The counter-argument, that the effectiveness, or lack thereof, of a given international environmental agreement is derived largely from the scope of the problem itself, is made by Frank Grundig in *Patterns of International Cooperation and the Explanatory Power of Relative Gains: An Analysis of Cooperation on Global Climate Change, Ozone Depletion, and International Trade*. Neorealist approaches are mostly dismissed in the field of international cooperation and, particularly with regard to international environmental cooperation, neorealism is dismissed either for a lack of explanatory power or the suggestion that environmental issues do not fall within the empirical domain of neorealist theory. Cooperation is more likely if potential gains are not big enough to be security relevant, thus mitigating relative gains concern, or if the good provided is non-public or otherwise permits defectors to be excluded from consumption, because defectors then have to worry that other states will continue to cooperate in a subgroup, thereby realizing relative gains over the defectors. The relative gains argument also helps to explain variations in the degree of cooperation between different cases of public goods provision.

Similarly, in *Environmental Security?*, Nina Graeger examines the linking of the environment to politics. While this linkage can be a positive by creating the political awareness and sense of
urgency required to resolve environmental problems and increase global security, others warn that linking the environment to security is undesirable because it restricts the available approaches for resolving environmental problems. The United Nations Convention on the Law of the Sea (UNCLOS) is one example of an agreement that deals with not only environmental issues, but those of state security. Ms. Graeger argues that one of the principal challenges with international environmental agreements is that they are almost always negotiated by nations, while the environmental impacts themselves can be felt at multiple levels, from the individual to the international.

A different take on the levels of analysis approach to the examination of international environmental agreement effectiveness is provided by Hugh Ward in *International Linkages and Environmental Sustainability: The Effectiveness of the Regime Network*. He argues that the effects of the system of environmental regimes is more critical than the individual regime, which tends to focus on a single issue. He goes further to suggest that a nation's general ties to the international system enhance its adherence to its environmental commitments.

Other research has looked at the structure, or means of enforcement, of international environmental agreements in analyzing why they have not been more effective. In *Efficient International Agreements for Reducing Emissions of CO₂*, Michael Hoel observes that most international environmental agreements take the form of uniform percentage reductions, but that there are more efficient methods including international taxes and tradeable quotas. The later-adopted Kyoto Protocol to the United Nations Framework Convention on Climate Change utilized three such market-based mechanisms: International Emissions Trading, the Clean Development Mechanism and Joint Implementation. Kal Raustiala in *Form and Substance in International Agreements*, meanwhile provides a framework for analyzing international agreements. Agreements can be seen as the combination of their legality, substance and structure. While scholars, statesmen and activists alike have often assumed that contracts are the best choice for cooperation while pledges are a weak substitute, Mr. Raustiala believes that pledges can have surprising power drawn from the avoidance of legal entanglement.


Increasingly, scientists and policy practitioners are recognizing that many environmental problems have regional or global consequences and thus must be addressed through regional or global policies and institutions, leading to the emergence of many environmental protection regimes in the international arena. While international agreements are becoming increasingly common tools for addressing environmental problems, there is little knowledge about the effectiveness of these regimes, largely because of a scarcity of time series data on environmental quality, a complex mix of non-policy factors that affect environmental quality, and the fact that participation in nearly all international environmental agreements is voluntary, which means that policy effectiveness must be estimated from self-selected samples. By assessing the effects of the 1985 Helsinki Protocol for reducing sulfur dioxide emissions in Europe, it can be found that while nations ratifying the Helsinki Protocol have experienced significant emission reductions, the protocol itself has had no discernible effect on emissions.
The overarching objective of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal is the protection of human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as “hazardous wastes” based on their origin and/or composition and their characteristics, as well as two types of wastes defined as “other wastes” - household waste and incinerator ash. The provisions of the convention were centered around three principal aims: 1) the reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, regardless of the place of disposal; 2) the restriction of transboundary movements of hazardous wastes except in cases where it is perceived to be in accordance with the principles of environmentally sound management; and 3) creation of a regulatory system applying to cases where transboundary movements are permissible.

The Convention on Biological Diversity sought the conservation and sustainable use of biological diversity for the benefit of present and future generations with the intent that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind. The convention was concerned that biological diversity was being significantly reduced by human activities and expressed that, despite the general lack of information and knowledge regarding biological diversity, it is vital to anticipate, prevent and attack the causes of its significant reduction or loss. The convention further affirmed that the conservation and sustainable use of biological diversity is a common concern of humankind because of its critical importance for meeting the food, health and other needs of the growing world population. In addition to its intrinsic value, biological diversity was seen to have ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values and be important for evolution and for maintaining life sustaining systems of the biosphere. The objectives of the convention were the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was a voluntary, legally binding international agreement between governments aimed at ensuring...
that international trade in specimens of wild animals and plants would not threaten their survival. Since the trade in wild animals and plants crossed the borders between countries, the effort to regulate it required international cooperation to safeguard certain species from over-exploitation through international trade. Conscious of its ever-growing aesthetic, scientific, cultural, recreational and economic value, and the convention recognized that people and states ought to be the best protectors of their own wild fauna and flora, whose many beautiful and varied forms represented an irreplaceable part of the natural systems of the earth that ought to be protected for both the current and future generations. The convention was convinced that the situation was urgent and appropriate measures to address its goals should be taken.

**Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies.** Author(s): Oran R. Young Source: Proceedings of the National Academy of Sciences of the United States of America, Vol. 108, No. 50 (December 13, 2011), pp. 19853-19860

Multilateral environmental agreements are one form that international environmental regimes can take. There is significant debate within the scientific community about how effective these governance systems are and whether they are actually successful in solving the problems they were created to address. International environmental regimes offer a way forward in situations that do not lend themselves to the creation of a single integrated governance system. International environmental regimes can and do make a difference, even in areas beyond their regulatory scope, although often as one part in combination with a number of other factors. The design of the international environmental regime is more important to its success than how challenging the problem to be addressed is. It is critical to understand the importance of ‘fit’ and that one type of international environmental regime will not be appropriate for all problems. Maintaining feelings of fairness and legitimacy while finding incentives for smaller actors to participate is important to effectiveness, especially in cases where success requires active participation on the part of the members of the group over time.


International agreements are necessary to achieve significant reductions of emissions of CO₂ and other greenhouse gases. Traditionally, agreements are structured as “uniform percent reductions”. This agreement structure, though, has two major disadvantages. First, it is difficult to get countries to participate because the distribution of the costs of reducing emissions likely differ strongly from the distribution of the advantages from avoiding climate changes. Second, it is well-known from environmental economics that equal percentage reductions of emissions from different sources produces an inefficient outcome because the same environmental goals can be achieved at lower total costs through a different distribution of emission reductions. There are two alternative schemes with several common features – an international CO₂ tax and tradeable CO₂ quotas – that make it possible for all, or nearly all, countries to be better off with the agreement than without. In the case of an international CO₂ tax this requires appropriately chosen tax reimbursements, while with tradeable CO₂ quotas the initial distribution of quotas is necessary.

“Environmental security” has had debatable analytical value because of conceptual and methodological shortcomings. Some claim that linking the environment to security has created the political awareness and sense of urgency required to resolve environmental problems and increase global security. Others warn that linking the environment to security is undesirable - because it restricts the available approaches for resolving environmental problems - while arguing that environmental security is more likely to be achieved if it is made part of the daily political debate. The environmental conflict perspective focuses on the circumstances under which environmental degradation or change may lead to violent conflict and is thus able to overcome some of the methodological problems of the security-environment linkage. A multilevel approach to environmental security, involving global, regional, national and subnational decision-making levels, as appropriate depending on the issue at hand, would provide a more dynamic framework for action than the state-centered approach that still dominates security thinking and policy.

Form and Substance in International Agreements, Author(s): Kal Raustiala Source: The American Journal of International Law, Vol. 99, No. 3 (Jul., 2005), pp. 581-614

There is considerable variation both in the form of international agreements (whether they are legally binding, their provisions for monitoring and addressing noncompliance) and in the substantive obligations they impose. Agreements can be classified based on a framework of legality, structure and substance. Legality refers to the choice of whether an accord is to be legally binding, between being a pledge and being a contract. Substance refers to the deviation from the status quo that an agreement demands, while structure refers to provisions for monitoring and punishing violators. Scholars, statesmen and activists alike have too often assumed that contracts are the best choice for cooperation while pledges are a weak substitute, but pledges can have surprising power drawn from the avoidance of legal entanglement. It is important to understand the trade-offs between form and substance to understand when law ought to be employed as opposed to when it should be avoided.

International Linkages and Environmental Sustainability: The Effectiveness of the Regime Network, Author(s): Hugh WardSource: Journal of Peace Research, Vol. 43, No. 2 (Mar., 2006), pp. 149-166

The effects of the system of environmental regimes is important to their overall success. Regimes are connected because they often share institutional architecture, deal with different aspects of the same problem, frame issues using similar legal and policy principles, and are subject to attempts to coordinate across issues by groups of nations, NGOs and international agencies. Thus, the network of regimes has social capital that can be applied to particular issues. Also, regimes can have both positive and negative side effects on environmental issues that they do not explicitly deal with. Thus, nations more central to the network of environmental regimes score higher on measures of sustainability because the social capital in the regime network can more easily be brought to bear on centrally placed nations to make them cooperate and because
they are more likely to be aware of negative regime side effects. A nation’s position in the
general international system further positively impacts its sustainability scores. This leads to the
suggestion that the environmental regime network is supported by social capital in more general
international networks.

*International Trade Rules and Environmental Cooperation under Asymmetric Information*

Author(s): Rodney D. Ludema and Ian Wooton

Trade and environmental policies are perceived to be interrelated and there is evidence that
without explicit environmental agreements, countries use trade policies to achieve environmental
goals. Cross-border externalities arise when the production of a good creates an externality (such
as environmental pollution) considered undesirable by residents of countries importing the good.
Both environmental damage and the costs of abatement are difficult to measure and prone to
misrepresentation. This obscures the appropriate means of controlling the pollution and
complicates the negotiation of transfers necessary to compensate countries bearing a
disproportionate burden. When countries have asymmetric information about the local costs
relative to the international benefits of direct environmental policy, they will rely too heavily on
trade policy to control cross-border externalities. The choice of unilateral externality policy by
the exporter prior to negotiations provides a signal about its local cost, thus modifying the
information used in negotiations. By controlling trade policies, specifically through exogenous
limits on the unilateral use of trade policy in the absence of environmental cooperation, the
information problem can be reduced and more efficient contracts can be made. The exporter’s
incentive to use an externality tax will increase and the performance of prospective
environmental agreements will be improved.

*Kyoto Protocol, United Nations Framework Convention on Climate Change.*

http://unfccc.int/kyoto_protocol/items/2830.php

The Kyoto Protocol commits its Parties to internationally binding emission reduction targets.
Under the protocol, countries must meet their targets primarily through national measures.
However, the protocol also offers the Parties an additional means to meet their targets by way of
three market-based mechanisms: International Emissions Trading, the Clean Development
Mechanism and Joint Implementation. The mechanisms help to stimulate green investment and
help Parties meet their emission targets in a cost-effective way. Recognizing that developed
countries are principally responsible for the current high levels of GHG emissions in the
atmosphere as a result of more than 150 years of industrial activity, the protocol places a heavier
burden on developed nations under the principle of "common but differentiated responsibilities."
Under the protocol, countries' actual emissions have to be monitored and precise records have to
be kept of the trades carried out. The protocol is also designed to assist countries in adapting to
the adverse effects of climate change. It facilitates the development and deployment of
technologies that can help increase resilience to the impacts of climate change. The Adaptation
Fund was established to finance adaptation projects and programs in developing countries.
Neorealism approaches are mostly dismissed in the field of international cooperation and, particularly with regard to international environmental cooperation, neorealism is dismissed either for a lack of explanatory power or the suggestion that environmental issues do not fall within the empirical domain of neorealist theory. Cooperation is more likely if potential gains are not big enough to be security relevant, thus mitigating relative gains concern, or if the good provided is non-public or otherwise permits defectors to be excluded from consumption, because defectors then have to worry that other states will continue to cooperate in a subgroup, thereby realizing relative gains over the defectors. The relative gains argument also helps to explain variations in the degree of cooperation between different cases of public goods provision. There is a lower level of cooperation on global climate change than on either international trade or ozone depletion, for example, signifying that global warming falls within the empirical domain of neorealism and power-based explanations for the lack of cooperation on it cannot be ignored.

Developing countries are making increasingly significant contributions to global environmental problems, so their cooperation in solving these problems is essential. However, compared to industrialized countries, developing countries have fewer resources to implement multilateral environmental agreements (MEAs), and they are often unwilling to compromise national development goals for the sake of global environmental protection. China can play a major role in solving global environmental problems because of its size and surging economic development. The factors that affect the willingness and ability of China and other developing countries to participate in MEAs are, therefore, of great significance. The Multilateral Fund created by amendments to the Montreal Protocol played a key role in motivating the Chinese government to ratify and comply with the Protocol. Two other factors have affected China's actions in meeting the Protocol's requirements: the nation's desire to appear as a responsible and cooperative actor in solving global environmental problems and the interest of China's principal implementing agency in expanding its responsibilities and authorities. Three factors have had significant roles in enhancing the national government's ability to implement the Protocol: expanded administrative capacity, participation of local government units with capability to enforce regulations and the employment of market-based environmental policy instruments.
The Montreal Protocol on Substances that Deplete the Ozone Layer was intended to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. To do so, it sought to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth’s fragile ozone layer. It aimed to promote international cooperation in the research, development and transfer of alternative technologies relating to the control and reduction of emissions of substances that deplete the ozone layer. The protocol includes a unique adjustment provision that enables the Parties to the Protocol to respond quickly to new scientific information and agree to accelerate the reductions required on chemicals already covered by the Protocol. These adjustments are then automatically applicable to all countries that ratified the Protocol.


The United Nations Convention on the Law of the Sea (UNCLOS) aimed at settling all issues relating to the law of the sea. The problems of water space are closely interrelated and require a legal order to facilitate international communication, promote peaceful usage, allow for equitable and efficient utilization of their resources, conserve their living resources and permit the study, protection and preservation of the marine environment. Achievement of the goals of the convention would contribute to a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular, the special interests and needs of developing countries, whether coastal or land-locked. The convention also aimed to contribute to the strengthening of peace, security, cooperation and friendly relations among all nations in conformity with the principles of justice and equal rights and promoting the economic and social advancement of all peoples of the world.


The international community has long recognized that land degradation/desertification is a major economic, social and environmental problem of concern to many countries in all regions of the world. The United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) was a new, integrated approach to the intensifying problem of land degradation in arid, semi-arid and dry sub-humid areas, emphasizing action to promote sustainable development at the community level. The Convention encouraged all countries to disseminate information and promote education and awareness about the need for urgent measures to be taken, with particular priority given to affected African countries. Developed countries, as well as international, multilateral, private-sector and non-governmental organizations (NGOs) were invited to provide funding, support and other resources to the affected African countries for capacity-building and to prepare new and improve existing programs. To assist with implementation, the affected African
countries were recommended to designate coordinating bodies and provide information on the actions they had taken or were proposing to take.


The United Nations Framework Convention on Climate Change (UNFCCC) aimed, despite scientific uncertainties, to protect the climate system for present and future generations. The convention’s specific objective was to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, protect food production, and enable economic development to proceed in a sustainable manner. It called on developed countries to lead since they generate the most greenhouse gas emissions and called on them to provide financial support for action on climate change in developing countries. It required countries to report on their actions to address climate change. It recognized that economic progress is vital to developing countries, accepted that their share of greenhouse gas emissions would grow in the coming years to meet their societal needs and so sought to help them limit emissions in ways that would not hinder their economic progress. The convention acknowledged the vulnerability of all countries to the effects of climate change and called for special efforts to help with adaptation, especially in developing countries that lacked the resources to do so on their own.


Many of the world’s most pressing environmental problems are international in scope and addressing them requires cooperation among nations. Most evidence, though, suggests that International Environmental Agreements (IEAs) are ineffective, merely ratifying business-as-usual outcomes. Much of that empirical analysis, however, is limited by two obstacles: (1) inadequate data from before the IEAs were enacted and, thus, an inability to make before-and-after comparisons and (2) difficulty estimating what would have happened absent the agreements. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal is one case where there is data available from prior to the agreement, enabling the evaluation of the treaty’s effects using annual bilateral waste shipments among countries before and after one of the trading partners ratifies the agreement. Despite the strengths of this approach, there is almost no evidence that the Basel Convention has resulted in less waste being shipped among countries.

**Interpreting Trends in Global Environmental Governance, Author(s): Matthew PatersonSource: International Affairs (Royal Institute of International Affairs 1944-), Vol. 75, No. 4 (Oct., 1999), pp. 793-802**
Environmental problems are often conceived of as international challenges and are analyzed as collective action problems. Generally, environmental issues are understood as multiple problems that can be addressed individually rather than as a single, interrelated crisis. In this view, then, there is no significant difference between the dynamics of environmental problems and those of other global challenges such as economic coordination or promotion of human rights where interdependence between states generates pressures for cooperation among them. This view depends on the acceptance of the centrality of states in international politics and a normative assumption that they are able to respond to global environmental challenges supported on the premise that the presumed anarchy does not expressly pose an obstacle to cooperation. The acceptance of international regimes as the preferred approach to emerging global environmental change then implicitly assumes that no substantial adjustment to the basic structure of international politics is necessary.


Transboundary environmental management regimes for managing parks and natural resources contribute to sustainable development and peacebuilding as many ecological features cross or form political borders. These regimes are shaped by both conflict and cooperation, which are often seen as opposing ends of a spectrum. Using the protected areas in the Virunga Massif on the border of the Democratic Republic of Congo and Uganda as an example, four major themes were identified as central to building perceptions of mutual benefit and avoiding creation of new conflicts: communication was central, the economic rules of the game were configured to institutionalize mutuality across both countries, consistent rules and harmonized standards supported faith in collective action and ownership of the process was important to perceptions of equity and mutual interest. It is important to recognize that conflict and cooperation exist simultaneously in varying levels of intensity over time. It would be a mistake to believe that environmental politics is completely isolated from security decisions as it is often the same people who are involved in making international agreements of both types, causing work on one type to influence work on the other and blurring the overall distinction between them.