World Environment 2014, 4(3): 121-142
DOI: 10.5923/j.env.20140403.04

Theorizing State Participation in International Environmental Agreements (IEAs)

Chenaz B. Seelarbokus

Departmentof Political Science and International Affairs, Kennesaw State University, Kennesaw, Georgia, USA

Abstract What factors can explain the observed variation in the level of state participation in IEAs? Relying on the two main theories of international cooperation, Realism and Liberalism, this study systematically analyzes the determinants of state participation in IEAs through multiple regression analysis. The analysis presents four different models for state participation in IEAs. The first two models, the Power-Interest Model and the Liberal-Interdependent Model, analyze the influence of realist and liberal variables on state participation in IEAs. The third model, the Developing-Logistics Model, specifically analyzes the influence of domestic conditions endemic to developing countries. Finally, the fourth model, the Integrated Model, presents an integrated analysis of participation based on the previous three models. Results of the study show that participation in IEAs is positively influenced by high levels of economic and human development, strong domestic institutions, state participation in international institutions, and civic engagement. Participation is negatively impacted by low levels of economic and human development, corruption, high dependence on foreign aid, high levels of under-nutrition, and high levels of military expenditures. From a theoretical perspective, the analysis shows that participation can be understood in terms of both Realist and Liberal variables, and therefore an integrated theoretical perspective may bring a better understanding of international environmental cooperation than a rarefied partitioning of the variables.

Keywords International environmental agreements, Participation, Environmental regimes, Ratification, Environmental treaties, International environmental cooperation

1. Introduction

Why do independent sovereign nations voluntarily agree to participate[1] in international environmental agreements (IEAs)? And why do some nations (e.g. France, Germany) participate in IEAs to a greater extent than others (e.g. Eritrea, Angola)? In view of the crucial role played by IEAs in enhancing international environmental cooperation (IEC), the theme of IEA participation and alliance building has long been a concern of environmental economists. Economic analyses have been conducted to estimate, inter alia, the likelihood that countries would sign and implement IEAs, the types of countries that are most likely to sign the treaties, the kinds of treaties that are most likely to be signed, the stability and optimal size of coalitions, the cost-effectiveness of IEAs, and the design of policy instruments and participation incentives such as side-payments, issue-linkage, and transfers [e.g. 1, 2-15].

Long shunned as a subject of investigation in regime theory, the topic of participation in IEAs is now gaining increasing prominence in the field of International Relations (IR) as well, especially from within the domain of "second image" theorizing [16, also 17, 18, 19, 20 p. 926, 21 p. 691, 22 p. 911]. There is a growing body of literature focusing on linking states' differential levels of participation in IEAs to their domestic political and socio-economic conditions. Determinants of state participation in IEAs relate to, inter alia, states' levels of democratic governance, trade openness, economic development, pollutant emissions, demographics, land area, civil society engagement, and partisan environmentalism [e.g. 23, 24-33].

However, there has not yet been any systematic and comprehensive attempt to situate the various determinants of state participation in IEAs from within the main theories of IR – especially, Realism and Liberalism, widely deemed to be the two main theories of IR. Which theoretical framework provides the best explanation for state participation in IEAs, Realism or Liberalism? This article seeks to fill this theoretical gap in the literature. Starting from the premise that domestic parameters are important in determining IEC [e.g. 22 p.911, 34 p.529, 35 p. 201, 36 p. 783, 37], I apply basic postulates of Realism and Liberalism to develop and test hypotheses for a state's propensity to participate in IEAs.

This paper proposes four main models for analyzing state

* Corresponding author:
cseelarb@kennesaw.edu (Chenaz B. Seelarbokus)
Published online at http://journal.sapub.org/env

[1] Participation is understood to include all the accepted processes for becoming a party member of an international environmental agreement - such as ratification, adherence, and accession (see United Nations Treaty Handbook, 2012).

participation in 110 IEAs spanning the time-period 1921-1998: the *Power-Interest Model*, the *Liberal-Interdependent Model*, the *Developing-Logistics Model*, and the *Integrated Model*. The Power-Interest model reflects arguments made by the Realist school of thought that states enter into treaties only if the latter enhance their power potential or reduce their threats and insecurities. The Liberal-Interdependent model relies on neoliberal institutionalist literature pertaining to interdependence and institutionalism and focuses on the influence of global economic trade flows, the role of civic engagement, and the domestic political and institutional structures of countries as variables influencing their international behavior. Apart from these two core models (*viz.* the Power-Interest model and the Liberal-Interdependent model), I further propose the Developing-Logisticsmodel and the Integrated model to take into account the special conditions of developing countries and the potential limitations of a Pure Realist or Pure Liberal approach to understanding IEC. The Developing-Logistics model is deemed necessary in view of the fact that developing countries face special endemic challenges such as high dependence on foreign aid and high levels of malnutrition, problems which typically do not besiege the developed world. Do the structural constraints endemic to developing countries prevent them from participating in IEAs? The Developing-Logistics model further deepens the framework of "second image" theorizing and analyzes variation of participation *among* developing countries.

Finally, this paper puts forth the proposition that Realism and Liberalism, in their pure forms, cannot provide a complete understanding of state participation in IEAs. I submit that since the core assumptions of Realism and Liberalism are based on a rarefied understanding of human nature, whereby Realism focuses exclusively on the dark side of human nature, while Liberalism opts for the lighter side, it is important to go beyond the dichotomization of theorizing to arrive at an integrated explanation for participation in IEAs. This is the purport of the third model, the Integrated model. The Integrated model provides for an integrated explanation of state participation in IEAs, testing for the independent effect of each of the crucial variables of the three models combined in one model, while holding constant the variables of the other competing models.

The rest of the paper is structured as follows. The next section discusses briefly the existing literature on the various potential determinants of state participation in IEAs. The following section then presents an application of the core tenets of Realism and Liberalism to arrive at testable hypotheses for state participation in IEAs. Thereafter, the paper presents the empirical analysis and findings. Finally, the paper discusses the results and makes recommendations for a theory of IEC.

2. Determinants of State Participation in IEAs

Existing literature points towards a possible categorization of the determinants of state participation in IEAs along the following core parameters: (i) the structure and stability of political structures; (ii) the level of development; (iii) the power of states and environmental vulnerability; (iv) civil society engagement; and (v) trade openness. These are detailed below.

2.1. Structure and Stability of Political Structures

Various studies have pointed to the fact that domestic political structures have an influence on the level of states' international commitments as well as on the substance of multilateral regimes. According to Congleton [1 p. 253], democracies and dictatorships differ in their preferences for environmental standards, whereby " [d] emocracies will be more inclined to sign and implement environmental treaties than dictatorships," with the latter requiring positive inducements (e.g. direct cash or in-kind transfers) to ratify the IEAs. Congleton [2 p. 421] predicts that IEAs will attract a higher number of ratifications as the number of democratic regimes increases worldwide. Neumayer [27 p. 156] also finds that there is "strong evidence" that "democracies exhibit stronger international environmental commitment than non-democracies," and that a vulgarization of democratic ideals around the globe will result in increased international environmental commitment. Similarly, based on their analysis of states' ratification delays of the United Nations Framework Convention on Climate Change (UNFCCC) (used as a proxy for a state's level of commitment to the UNFCCC provisions), Fredriksson and Gaston [26 pp. 347, 357, 361] find that nations with greater civil liberties ratify the treaty sooner than those with low civil liberties.

However, Midlarsky [38 p. 344] has questioned this "hypothesized positive relationship" [as in 39] between democracy and the environment. Based on his multivariate analysis of several environmental variables (e.g. carbon dioxide emissions, soil erosion by water and chemicals, protected land area, and freshwater availability, among others) on three different measures of democracy [viz. 40, 41, and 42], Midlarsky (p. 358) finds that "there is no uniform relationship between democracy and the environment."

Other researchers have focused on the structure of the governmental system as an explanatory variable for a state's level of environmental commitment. Dolsak's [24 p. 426] analysis on states' commitment levels to mitigating global climate change shows that parliamentary systems face lower "political costs of environment/energy tradeoffs" than presidential systems. Nagel [43 p. 18] further finds that a combination of centralization and decentralization can act as potential harbingers of more effective environmental policy-making rather than an exclusive focus on either centralization or decentralization. According to Gurr et. al. [44 p.21], [2] federal systems tend to provide more avenues

[2]Quoted from 45.Maoz, Z. and B. Russett, 1993, *Normative and Structural Causes of Democratic Peace, 1946-1986. American Political Science Review.*

for societal feedback and contribution, with regional governmental entities traditionally being "more responsive to local inputs than are centralized governments." In his analysis of the participation of nineteen democracies in fifteen IEAs, Recchia [29] finds that the "value orientations of the citizenry" and "executive dominance" provide the strongest explanations for the international environmental behavior of the countries analyzed. Moreover, Recchia (pp. 487, 488) finds that states with a higher pollution load do not necessarily ratify more IEAs, while states with "strong executive-centered ratification power" stand more chance of ratifying more IEAs, especially when "citizen's demands for international environmental protection are solid."

The political stability of a regime has also been deemed crucial for a state's ability to sustain international cooperation. According to Maoz and Russett [45 p. 908], the political stability of a state is associated with the "persistence of its regime in years"; the longer that a political regime exists "without fundamental change," the more likely that norms of political conduct will develop that will "form and influence the foreign policy codes of conduct of the regime." Changes in government may induce policy reversals which may renege on prior commitments to IEC [46 pp. 13-28]. Major political destabilization brought about by political corruption or civil wars is also significant in impairing the state of the environment or in constraining choices for effective implementation of environmental policies. The predominance of civil wars in Africa, for example, has been identified as a causal factor for the ineffective implementation of natural resources management policies [47 p.101, 48, 49]. Similarly, Morrell and Poznanski [50 p. 165] contend that widespread corruption in many developing countries prevents the latter from implementing effective strategies for environmental protection.

2.2. Level of Development

Environmental quality is often designated as a 'luxury' or 'superior' good. Developed countries are deemed to value environmental quality more than the developing countries, which are considered to have a "high degree of tolerance to environmental hazard" and a low willingness to pay for improved environmental quality [19, 51 p. 148, 52 p. 271, 53, 54 pp. 42-63, 55, 56, 57 pp. 27-28, 42]. The relationship between income levels and environmental quality has also been analyzed through what is generally known as the Environmental Kuznets Curve (EKC), based on Kuznets' research on income inequality across developing countries. Kuznets' hypothesis posits that as per capita income rises, income inequality initially rises, with a subsequent fall, yielding the 'inverted U-relationship' [57, 58 p. 321, for a critique, see 59 pp. 228-230]. Neumayer [27, 28 p. 823] has shown that per capita income has a positive relationship with a country's willingness to ratify or sign IEAs. Focusing on a world systems theoretical perspective, Roberts et. al. [32 p. 56] have demonstrated that "larger, wealthy, "core" countries tend to ratify more treaties than do very small and/or poor, "peripheral" countries."

It is widely acknowledged that the developed and developing nations face different aspirations where environmental protection is concerned [e.g. 60], an asymmetry often reflected in the North-South conflict in international environmental negotiations. At the root of this North-South divide lies the fact that the nature of environmental problems in developing countries is not the same as that in the developed countries [e.g. 59 p. 217]. Protecting the environment in the developing countries is viewed, most often than not, as a struggle between the environment and meeting immediate socio-economic needs for daily subsistence [61-64]. According to Tussie [65 p.1], the "Northern" or "green agenda" is characterized by issues such as climate change, biodiversity, and fisheries, and the "Southern" or "brown" agenda is dominated by access to safe drinking water, poverty alleviation, trade, market access, technology transfer or flows of development assistance. Similarly, the concept of sustainable development connotes different meanings for the developed and developing countries, with the former associating it with "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs," and the latter equating it to poverty alleviation and future economic development [65].

The environmental challenges faced by the developing world are compounded by the fact that the developing countries have low capacities for effective implementation of environmental policies [47 p. 89]. This lack of capacity in developing countries is related to a lack of adequate institutional and legal framework [66 p.85], a deficiency in the required expertise [47, 67], and to a general weakness of carrying out basic government functions such as drafting legislation, planning, and performance monitoring [68-72].

2.3. Power of States and Environmental Vulnerability

The traditional understanding of state power in terms of military prowess is revamped in the domain of IEC. Researchers often talk about a new form of power – viz. the "power to destroy" [73 pp. 15, 181, 74], where large developing countries become 'powerful' in the sense that they muster the power to potentially destroy the environment due to their future development paths. Developing states also become 'powerful' in the sense that they possess resources which the international community is intent on protecting, and thus they can prescribe the terms of access to these resources, the international protection strategies being envisaged, or the terms of their participation in IEAs [73 p. 181].

Furthermore, the concept of state power has to be appreciated also in light of the vulnerability of the state to transboundary environmental and ecological disturbances. According to Mitchell [75 p. 449], countries with high ecological vulnerability and low adjustment costs tend to

87(3). 1993:pp.624-38., in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 896-924.

participate in more IEAs than those that have low vulnerability and high costs. This echoes Sprinz and Vaahtoraranta's [76] earlier hypothesis undergirding their "interest-based approach," which posits that countries which are ecologically vulnerable and have low abatement costs tend to participate more in IEAs than those with low ecological vulnerability and high abatement costs. Similarly, Helm [6 p. 134] considers that non-signatories of the Helsinki Protocol tend to be countries which "are either substantial net emission exporters or have a low ecological vulnerability." This ties in with Recchia's [29 p. 483] finding that polluted democracies do not necessarily ratify more treaties.

Vulnerability has also been linked to the size of a state's population. Population growth is associated with increased environmental degradation triggered by the greater pressures on land and other resources, and an erosion of the environmental carrying capacity [77 p. 198]. Moreover, low population density implies less vulnerability since there are less people affected by environmental problems [51 p. 148]. However, the exact role of population growth in engendering environmental degradation has often been contested, with some [e.g. 77 pp. 198-200] arguing that population growth can result in increased productivity. This is often known as the Boserup hypothesis, which argues that with scarcity of land relative to labor, there ensues an intensification of agriculture and increased productivity per unit area [78 quoted from Markandya, 2001 p. 198]. Moreover, attempts at linking population growth with environmental degradation or with environmental conflict have been viewed as attempts of the industrialized North to problematize the issue of population growth in order to shun their responsibility towards the South [79].

2.4. Civil Society Engagement

Previous research has documented the important role that nongovernmental organizations (NGOs) can play in raising environmental awareness among the public, in agenda-setting at either national or international levels, in offering scientific consultation, in providing independent monitoring and problem-solving, and in the various stages of regime formation [18, 80-100]. It is almost traditional now to witness NGOs participate in international negotiations and in various stages of the treaty formation process, and an increasing number of IEAs now include provisions for granting observer status to NGOs,[3] thus allowing the NGOs to submit documents, address various sessions of the conferences, and attend sessions as non-voting participants [87].

In their analysis of states' participation in IEAs, Roberts et. al. [32 p. 28] use the total number of NGOs as a proxy for the strength of a state's civil society and for the level of environmental pressure brought to bear on the state. Their results show that the total number of NGOs (among other factors such as the narrowness of national export base and the voice and accountability of citizens) in a state has a significant influence on the state's ratification of IEAs (Roberts et. al. p. 39). They thus conclude that "institutional and grassroots democratization" are important for commitment to IEAs (p. 45). Gulbrandsen and Andresen [97 p. 57] also find that NGOs can play important roles in supporting and calling for ratification of treaties. Similarly, Raustiala [89 p. 731] assigns the role of 'facilitators of ratification' to NGOs.

It is important to note, however, that non-state actors are not a homogeneous group. As pointed out by Gulbrandsen and Andresen [97 p. 56, also 101 p. 134], nonstate actors include various business and industry associations, consumer groups, religious organizations, and research institutes, inter alia. Business NGOs and transnational corporations (TNCs) regularly engage in intensive domestic and foreign lobbying of policy-makers to ensure that their preferences are embodied in IEAs [102, 103]. The lobbying efforts of business groups (e.g. The Global Climate Coalition (GCC); the Alliance for Responsible CFC Policy) have been influential in shifting US environmental policies towards a pro-business stance on such issues as the ozone layer depletion, the UNFCCC and the Convention on Biological Diversity (CBD) [see 19, 104 pp.163-173, 105, 106].

2.5. Trade Openness

The trade-environment nexus has often been viewed in conflicting terms, with calls for "balancing" trade and environment [e.g. 107], for resolving the trade-environment "divide" or "conflict" [108, 109], or for addressing the "collision" between IEAs and trade agreements [e.g. 110]. Trade provisions under the General Agreement on Tariffs and Trade (GATT), especially those aimed at ensuring non-discrimination, have often been deemed to run counter to environmental goals – for example, the International Court of Justice (ICJ) rulings in the *Tuna-Dolphin Case* and the *Shrimp-Turtle Case* [57 p.1, 107, 109]. Some IEA provisions (e.g. the Convention on International Trade in Endangered Species (CITES), the Montreal Protocol on Substances that Deplete the Ozone Layer (MP)) have been deemed "inconsistent with GATT norms" [e.g. 107 p. 503, 108 p. 720], prompting calls either for making GATT more environmentally sensitive [108 pp. 717, 720, 726] or for the establishment of a new "framework in which environmental concerns are given billing comparable to those of trade" [111 p. 728].

Trade measures within IEAs normally take the form of trade restrictions with non-parties, the use of trade permits, or allowances for emissions trading. International emissions trading is deemed to allow abatement measures to be implemented with greater efficiency and with greater costs savings [6 p. 164], and to facilitate early participation by developing countries [112]. According to Tussie [65 p. 7], concern with access to markets prompted export-oriented

[3]Examples of such IEAs include the following:
(i) The Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979)- Article VII(8,9); (ii) The Climate Change Convention - Article 7(6); and (iii) The Convention on Biological Diversity - Article 23(5).

countries to accept the trade provisions embodied in the MP. Barrett and Stavins [113 p. 367] have also noted that trade restrictions within the MP "dampened trade leakage effects, while increasing the incentives for participation for commercial reasons." Others have established that trade restrictions not only helped to increase participation in the MP, but were also influential in reducing free-riding, enhancing compliance, and eventually reducing the use of CFCs worldwide [28 p. 817, 107 p. 504, 114 p. 433, 115 p. 538]. Use of trade restrictions within IEAs has also been related to possibilities for reduced environmental degradation and lower pollution emissions [116 p. 13, 117 p.6].

Others have argued that trade openness is "good for the environment" [e.g. 118 p. 878] and that it can foster IEC. In his analysis of the effect of trade openness on IEC, Neumayer [28 p. 830] finds that there is "some evidence that general trade openness promote [s] multilateral environmental cooperation." However, though trade liberalization can provide benefits to the environment, this relationship does not happen "automatically" [107 p. 501]. According to Brack [107], appropriate policies will need to be implemented to make trade regimes more conducive to environmental protection.

2.6. Development of Hypotheses

1. Model I: The Power-Interest Model

Realist theory subscribes to the Hobbesian understanding of human nature, implying that human nature is evil, with a "lust to dominate" and driven by power motivations and security concerns [119 p.5, 120]. Further, with its state-centric focus on sovereignty, national security and power maximization, Realism considers that nation-states, viewed as unitary actors, are always struggling for power in an anarchic international system [e.g. 121 p. 28, 122]. World order is maintained through a perpetual quest for power balancing [123 p. 38]. In this framework, therefore, states are concerned with 'relative gains.' Applying the Realist thesis to the field of participation in IEAs, I argue that states participate in IEAs only if the latter serve their national interests or enhance their power potential. In this model, national self-interests are to be understood as endeavors aimed at reducing environmental vulnerability and preventing negative economic impacts on the countries.

Traditionally, the following has been considered as basic sources of power: geographic size and position, natural resources, population, raw materials, military power, and industrial capacity [121, 124 p. 106]. A country which is strong militarily can be assumed to be able to impose its wishes on its neighbors and, in cases where the international community is involved, on the international community as well. Military power ensures that the state will be better able to safeguard its national security and its national self-interests. Thus, a country with great military power will be able to ward off international pressure for international environmental protection. It will participate only in those IEAs which do not pose any threat to its national security and self-interests and will shun those which do not benefit it. Also, it will not be too much concerned with international environmental standard-setting as it can easily dictate its needs to relevant countries through bilateral agreements. Hence, all things being equal, it is likely that substantial military power, or the desire to become more powerful militarily, will be positively related to a low level of participation in IEAs. This argument leads to my first hypothesis:

H1a: The greater the military power of a country, the lower its level of participation in IEAs.

However, the power of a state is not the exclusive domain of the military arena. It is generally acknowledged that high economic development enhances the power potential of a state. Apart from the fact that an economic hegemon can easily impose its wishes on the international community, developed countries also have to contend with domestic demands. As discussed earlier, developed countries generally tend to have a more environmentally aware population and greater local environmental activism. Starting from the general premise that the catering to domestic public opinion is a strategy to maintain power and political stability, I expect that developed countries will be engaging more strongly in environmental protection in order to appease domestic public pressure. This higher level of domestic environmental regulation, however, may negatively impact the competitiveness of the developed countries in the international market. As noted by several analysts, in view of the possibility of other countries 'free-riding' as well as producing pollution havens for industrial production [2 p. 412, 125], there is a possibility that the developed countries may suffer loss of their competitive advantage if environmental standards are not implemented globally. Relying on the general observation that developed countries are concerned with domestic environmental pressure and with the need to maintain economic and industrial power by deterring free-riding, I argue that developed countries will participate extensively in IEAs. This argument leads to my second hypothesis:

H1b: *The higher the level of economic and industrial development of a country, thehigher its level of participation in IEAs.*

Closely linked to the notion of national security is the concept of environmental vulnerability. A state with a high degree of environmental vulnerability will face increased risk to its national security and hence will make increased efforts to engage in enhancing environmental protection. When threats to national security emanate from outside the territories of the state, the latter will make efforts to secure adherence to international norms and standards and to assurance mechanisms which provide security to its citizens. As noted earlier, environmentalists commonly consider high population density as aggravating a state's environmental vulnerability in view of the pressure exerted on the

environment by the sheer number of people. Thus, states with high population density will feel the need to implement environmental measures to reduce their vulnerability, and in the process, will favor internationalization of environmental norms in order not to be at a competitive disadvantage globally.

Geographic contiguity, which in routine conflict studies tends to be correlated, together with military capability, with conflict-prone behavior and war-proneness [45 p. 902, 126 as cited in Suganami, 1996 p. 437, 127 p. 878], takes on added importance in international environmental negotiations. Geographic contiguity, by virtue of its ability to render a state vulnerable and thus less powerful, becomes a crucial variable potentially influencing states' participation in IEAs. A state which has a greater number of contiguous neighbors is more vulnerable to cross-border transport of environmental pollution than a state with a smaller number of such neighbors. Thus, to reduce its environmental vulnerability, the state will be more open to international standards. Based on these arguments, I formulate the next two hypotheses as follows:

H1c: A state with a high population density will participate in more IEAs than one with a low population density.

H1d: A state with a higher number of contiguous neighbors will participate in more IEAs than a state with a smaller number of contiguous neighbors.

Since Realist thought is preponderantly premised on the concept of national security, it can be stated that environmental protection, especially international environmental protection, will always take second place to national security. When there are issues related to domestic political destabilization, environmental protection will in fact become 'low politics'[4] and take the back seat. I therefore propose that countries with political instability will participate less in IEAs than those with political stability.

H1e: A politically stable country will participate in more IEAs than one with political instability.

It is also acknowledged that the scarcity of environmental resources has the potential of destabilizing internal security by giving rise to "internal decay and collapse" [131, 132]. In order to avoid these threats to national security, states with access to limited resources will therefore try to regulate the environment both nationally and internationally in order to prevent internal destabilization. On the other hand, states with extensive natural resource bases, and with greater extent of raw materials, do not have to factor struggles over access to these resources within their short-term political decision-making [for the contending 'resource curse hypothesis" see, for example, 133, 134]. They will be able to exploit these resources unhampered and will not welcome extensive environmental regulations which may limit the use of these resources and thereby result in decreased economic, industrial and technological power. Hence, these states will not favor extensive participation in IEAs. This argument leads to the following hypothesis:

H1f: The larger the natural resource base of a country, the lower its level of participation in IEAs.

Overall, the following equation captures the posited relationship between the dependent variable, participation (P) and the independent variables for Model I (Power-Interest):

$P = \alpha + ß_1$ (industrial development) + $ß_2$(economic development) + $ß_3$(political stability) + $ß_4$ (natural resources) + $ß_5$(population density) + $ß_6$(contiguity) + $ß_7$(military power) + ξ

2. Model II: The Liberal-Independent Model

Liberalism's underlying premise is grounded in the notion of the freedom of the individual, minimal government, market forces, and the role of institutions in fostering cooperation through alterations of the payoff structure and enhancement of transparency [127 p. 871, 135 pp.10-11, 136 p. 44, 137 p. 34, 138 p. 805, 139 p.28, 140]. In the Liberal school of thought, states are considered to be maximizing their 'absolute gains,' as opposed to the 'relative gains' which dominate the Realist ideology. The Liberal world is a "complex web of interdependence," where non-state actors also have a major role to play in the politics of the world [130 pp. 719-720]. Moreover, military concerns do not always monopolize decision-making processes; there is room for other 'low politics' deliberations as well.

Within the Liberal school of thought, the 'Democratic Peace Theory' posits that liberal democratic states cooperate more easily with other liberal democracies than with non-democracies [20, 141, 142, 143 p. 1152]. This means that a liberal democratic state will tend to be more inclined to international cooperation than a non-democratic one, provided there is an international preference for democracy, as is the case presently. Applying this premise for international cooperation to the field of IEC, I propose that democratic countries will tend to participate more in IEAs than non-democratic ones [which is a general statement also made by 2, 27, 144].

H2a: Countries which have a democratic political system tend to participate more in IEAs than those which have non-democratic political structures.

Moreover, strong and effective domestic governmental institutions can be considered as a prime element in ensuring meaningful commitment to international environmental protection. Without the necessary institutional framework, participation in IEAs can pose structural and logistic challenges. To capture this line of thought, I propose the second hypothesis for this model:

H2b: Countries with strong governmental institutions tend to participate in more IEAs than those with weak institutions

A state's level of participation in international

[4] Researchers have traditionally made the distinction between the "low politics" of the environment as compared to the "high politics" of military and security issues [128pp. 3-22; 129 pp. 67-81; 130 pp. 718-731].

environmental institutions may render that state more amenable to accepting international standards and obligations embodied within treaty texts. This is by virtue of the state's higher exposure to international norms, principles, and standards as compared to another state which shies away from the international institutions. Thus, countries which are more densely involved in international environmental institutions can be assumed to be more likely to participate in IEAs in view of their greater acculturation to international environmental norms and standards. I thus propose the following hypothesis:

H2c: Countries which participate in international environmental institutions tend to participate in a greater number of IEAs than countries which do not participate in such institutions.

Analysts have shown that liberal economies tend to be typified by high levels of privatization and a good quality of life [e.g. 52]. Moreover, liberal economies can also be characterized by economic freedom and high volumes of trade. If we consider that liberal states tend to participate in more IEAs than non-liberal ones, the following hypotheses can be postulated:

H2d: Countries with a higher quality of life will participate in a greater number of IEAs than those with a lower quality of life.

H2e: Countries with a liberal economy will participate in more IEAs than those with lesser economic freedom.

H2f: Countries with high volumes of trade will participate in more IEAs than those with low volumes of trade.

Under the liberal framework, citizens are deemed to be free to participate in national policy-making and in organizing based on their interests. Agenda 21[5] includes several sections dealing with the strengthening of civil society in order to facilitate citizens' participation in policy formulation for sustainable development [145 p.109]. Thus, for sound environmental policies, it can be deemed that citizens who are environmentally aware will organize better to strengthen civil society as well as to promote environmental protection than those who suffer from low levels of literacy and are unaware of the issues. I thus argue that local civic environmentalism will foster greater participation in IEAs.

H2g: Countries with a greater extent of civic environmentalism will participate in a greater number of IEAs than one with low civil society engagement.

To establish the relationship between P and the variables governing Model II (Liberal-Interdependent model), the following equation is used:

$P = \alpha + ß_1$ (democracy) + $ß_2$(quality of life) + $ß_3$(liberal economy) + $ß_4$(strong governmental institutions) + $ß_5$(trade volume) + $ß_6$(participation in international environmental institutions) + $ß_7$ (local environmental activism) + ξ

3. Model III: The Developing-Logistics Model

For successful formulation and implementation of environmental policies, a state needs to benefit from, inter alia, political stability and a well-functioning government system [47, 146], low levels of corruption [50], a strong civil society, an environmentally aware population, and a good economy [53, 54]. These influences tend to be more decisive for developing countries as they seem to be more prone to problems associated with corruption, high levels of debt, unstable governing structures, and poor quality of life, *inter alia* [e.g. 147, 148, 149].

High poverty levels within the developing world cannot be dissociated from the latter's high debt burdens and high dependency on foreign aid. Debt servicing allocates much needed resources away from programs to improve citizens' quality of life, with the result that there is no social and environmental improvement. Poverty thus establishes a vicious circle, where poverty, combined with other stressors such as population growth, perpetuates a deterioration of environmental and social living conditions. The scourge of poverty is also often compounded by internal problems associated with political corruption and drug trafficking.

Assuming that commitment to domestic environmental protection also leads to international environmental commitment, I argue that developing countries' participation in IEAs is constrained by factors such as malnutrition, high rates of infant mortality, poor sanitation, corruption, and foreign aid dependency, *inter alia.* These social challenges are deemed to erode the capacity of the developing countries to commit to measures for international environmental protection. I thus formulate the following hypotheses to test the influence of these parameters on the participation of developing countries in IEAs:

H3a: A developing country with a greater extent of foreign aid dependency will participate in fewer IEAs than one with a smaller dependence of such foreign aid.

H3b: A developing country with a greater control on corruption will tend to participate in more IEAs than one with a lower level of such control.

H3c: A developing country with a higher level of undernutrition will participate in fewer IEAs than a developing country with a lower level of undernutrition.

H3d: A developing country with a higher level of infant mortality will participate in fewer IEAs than a developing country with a lower level of infant mortality.

H3e: A developing country with a higher level of sanitation will participate in a greater number of IEAs than a developing country with a lower level of sanitation.

Developing countries are typically not empowered to produce military equipment. They rely mostly on arms imports from other countries to build their military arsenal. It is quite a paradox that while many developing countries

[5] Agenda 21 is the outcome document of the 1992 Earth Summit. Full report available at http://sustainabledevelopment.un.org/index.php?page=view&nr=23&type=400

cannot allocate much scarce resources for the improvement of their citizens' quality of life, they nevertheless spend enormous amounts of economic resources on empowering their military divisions. This state of affairs can sometimes be related to problems of civil war, or to insecurities elicited by neighboring hostile countries. It can thus be assumed that developing countries which are investing heavily in strengthening their military divisions through massive arms imports will be less likely to be concerned with international environmental protection. This leads to the following hypothesis:

H3f: Countries which are engaged in higher levels of arms imports will tend to participate less in IEAs than countries which do not import high amounts of arms.

On the more positive side, it may be expected that developing countries which exhibit greater economic development or which are more open to trade may likely be amenable to participating in more IEAs than those which do not exhibit such tendencies.

H3g: Developing countries which exhibit greater economic development or which are more open to trade will participate in more IEAs than those which have lower economic development or trade transactions.

Finally, it can be hypothesized that developing countries which benefit from greater levels of democracy and greater levels of local environmental activism will participate more in IEAs in view of the positive role that democracy plays in empowering the population and in opening up national debates on environmental protection.

H3h: Developing countries which are more democratic will participate in more IEAs than those which are less democratic.

H3i: Developing countries with a higher level of civic environmentalism will participate in more IEAs than their counterparts with a lower level of such civic activism.

To establish the relationship between P and characteristics governing Model III (Developing-Logistics Model), the following equation is proposed:

$P = \alpha + ß_1(\text{corruption}) + ß_2(\text{foreign aid dependence}) + ß_3(\text{undernutrition}) + ß_4(\text{infant mortality}) + ß_5(\text{access to proper sanitation}) + ß_6(\text{democracy}) + ß_7(\text{arms imports}) + ß_8(\text{volume of trade}) + ß_9(\text{civic engagement}) + ß_{10}(\text{economic development}) + \xi$

4. Model IV: The Integrated Model

The Integrated Model posits that both Realist and Liberal considerations may likely play a role in influencing state participation in IEAs. While a state may participate in more IEAs if it faces a greater level of environmental vulnerability, that state may also be less likely to participate in IEAs if it has weak governmental institutions, if it has low density of interaction in international environmental institutions, or if it is simply logistically constrained by endemic factors such as poverty and corruption. Similarly, even if a state is powerful militarily, it may still be open to participation in IEAs in view of pressures placed on its decision-making mechanisms by civic environmentalism or a democratic political system which opens up avenues for citizens' contest of the decisions of political figures. It is also possible for a state with a high participation in international environmental institutions or with high levels of economic freedom and high volumes of trade to resist participation in IEAs because of concerns with the negative impacts of those on its industries which are heavily reliant on natural resource exploitation.

Which of the above scenarios plays out in real policy-making? It is likely that environmental vulnerability may play an important part in a nation's decision to participate in an IEA, irrespective of its level of economic or political development. Thus, variables such as contiguity and population may matter in the overall decision-making process. Further, concerns with maintaining power cannot be overruled in political calculations. This means that we need to include military expenditures and the extent of natural resource base of a state to control for this concern with power enhancement and sustenance. Apart from these Realist variables, it is likely that the political system is also open to Liberal considerations in national policy-making. The nature of the political regime certainly matters as it acts as the basic source of all national and international policies. The permeability of the state to the influence of international environmental institutions will also likely influence the propensity of the state to participate in IEAs. Finally, the influence of inherent domestic constraints such as poverty and corruption need to be considered in tandem with the other variables.

The Integrated Model thus includes variables deemed to be important from both the Realist and Liberal framework, and the following equation is proposed for Model IV.

$P = \alpha + ß_1(\text{corruption}) + ß_2(\text{foreign aid dependence}) + ß_3(\text{contiguity}) + ß_4(\text{volume of trade}) + ß_5(\text{military power}) + ß_6(\text{democracy}) + ß_7(\text{participation in international environmental institutions}) + ß_8(\text{mineral resources}) + ß_9(\text{civic engagement}) + ß_{10}(\text{quality of life}) + ß_{11}(\text{HDI}) + \xi$

2.7. Regression Analysis

Tables 1-3 below show the operationalization of the variables for the four models.[6] Preliminary analyses of Pearson's correlations coefficients do not show any strong correlations among the independent variables.[7]

Table 1. Independent variables for Model I

POWER-INTEREST MODEL			
Independent Variables	Description	Source	Measure of
Gdpcap1	GDP per capita, 1999 (PPP $US)	Human Development Report (HDR), 2001,[8] Table 1	Economic development
Indgth	Average annual percentage industrial growth, 1990-2000	World Development Indicators (WDI), 2002 Table 4.1	Industrial development
Milcoup	Political stability[9]	Countries of the world and their leaders yearbook, 1993; the World Factbook, 1999	Political stability[10]
Forest	Forest area, as a percentage of total land area, 2000	World Development Indicators (WDI), 2002 Table 3.4	Extent of natural resources[11]
Mineral	Mineral Production Value in US$(m), 2001	World Rankings, 2001, Table 12.3[12]	Extent of raw materials
Popdens	Population density, people/km^2, 2000	WDI, 2002 Tables 1.1 and 1.6	Internal Environmental vulnerability[13]
IContiguity	Total number of contiguous neighbors	World Factbook, 1999; Wikipedia online encyclopedia[14]	External Environmental vulnerability
Milexp	Military expenditures, % of central government expenditures, 1999	WDI, 2002 Table 5.7	Power

[6]The variables for Model IV are extracted from Models I-III. Based on two-way scatter plots between the dependent and independent variables, the best transformation (natural log transformation) for the non-linear variables (population density, mineral value production, number of Agenda 21 initiatives, ODA/capita, and population suffering from undernutrition) was obtained based on the chi-square value of the transformation. These transformations were further checked for linearity by their partial plots.

[7]For Model I, the highest correlation is between GDP per capita (gdpcap1) and mineral production value in its natural log form (mineral_t), being of a value of 0.387. For Model II, the highest correlation of 0.686 is between local Agenda 21 initiatives in its natural log form (agenda21_t) and governmental effectiveness (goveff). The highest correlation in Model III is of 0.652 between infant mortality (mort) and the population's access to sanitation facilities (sanitation). For Model IV, mineral production value, in its natural log form, shows a correlation of 0.6291 with HDI, the highest for the model. The Variance Inflation Factor (VIF) for the different regressors of Model I-IV all range below 5, showing that collinearity is not affecting the regression coefficients.

[8] Accessible online from http://hdr.undp.org/

[9] Countries which have experienced military coups from 1945 onwards or which are presently engaged in civil wars are coded as 1; the remaining countries are coded as 0.

[10]A direct measure of political stability is not readily available. To operationalize 'political stability,' I have coded the countries dichotomously: countries which have experienced a military coup from 1945 onwards or which are presently engaged in civil wars have been coded as 1; those which have been free from such a political turmoil have been coded as 0.

[11]There is no single measure for the full natural resource base of a state. To operationalize this variable, I have considered a measure for renewable resource (forests) and a measure for a non-renewable resource (mineral production) as proxies for the natural resources of the state.

[12]Kurian, 2001.*The Illustrated Book of World Rankings.*Armonk, N.Y.: Sharpe Reference.

[13]To capture the variable 'environmental vulnerability,' I have used the proxies of population density and contiguity to measure, respectively, internal and external vulnerability.

[14] The total number of contiguous neighbors for each country was totaled, based on information provided on each country as provided by the Wikipedia Online Encyclopedia and the CIA World Factbook, 1999.

Table 2. Independent variables for Model II

LIBERAL-INTERDEPENDENT MODEL			
Independent Variables	Description	Source	Measure of
Polity	Democracy measure (high values correspond to high levels of democratic institutions); Average of 1993-2002 Polity.[15]	Environmental Sustainability Index (ESI)[16] 2005;	Democratic governance[17]
HDI	Human Development Index, 1999	HDR, 2001	Quality of life[18]
Ecofree	Economic Freedom Index, 2001 (lower values correspond to greater economic freedom)	World Rankings, 2001, Table 8.12	Liberal economy[19]
Goveff	Strong governmental institutions, 2002	World Bank[20]; also available from ESI 2005	Strength of governmental institutions[21]
Tgoods	Trade in goods, % of GDP, 2000	WDI 2002, Table 6.1	Volume of trade
Eionum	Number of memberships in environmental intergovernmental organizations (out of 100), 2003-2004	ESI 2005	International acculturation to environmental norms and standards[22]
Agenda21	Number of Local Agenda 21 initiatives per million population, 2001	ESI, 2005	Civil society engagement in environmental governance[23]

Table 3. Independent variables for Model III

DEVELOPING-LOGISTICS MODEL			
Variable Code	Description	Source	Measure of
Graft	Corruption measure (high scores correspond to effective control of corruption), 2002	ESI 2005	Corruption[24]
Undernutrition	Prevalence of undernourishment, % of population, 1996-1998	WDI 2002, Table 2.18	Quality of life
Sanitation	Access to sanitation facilities, % of population, 2000	WDI 2002, Table 1.3	Quality of life
Imortality	Under five mortality rate per 1000 live births, 1999	HDI 2001, Table 8	Quality of life
Odacap	ODA received per capita , US$, 1999	HDR, 2001 Table 15	Foreign aid dependency
Arms	Arms trade, Imports as % of total imports, 1999	WDI, 2002 Table 5.7	Arms imports
Gdpcap1	GDP per capita, 1999	HDI 2001, Table 1	Economic development
Tgoods	Trade in goods, % of GDP, 2000	WDI, 2002, Table 6.1	Volume of trade
Polity	See Table 2		
Agenda21	See Table 2		

[15] Also available at http://www.cidcm.umd.edu/inscr/polity/#exec

[16] Accessible online at http://www.ciesin.columbia.edu/indicators/ESI/ ; full dataset available at http://www.yale.edu/esi/

[17]The level of democracy is given by the Polity score obtained from the 2005 Environmental Sustainability Index (ESI) database, which is an average of the Polity scores for 1993-2002.

[18]HDI is a composite measure of the level of achievement of a country in three areas: longevity (measured by the life expectancy at birth), knowledge (measured by a combination of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio), and the standard of living (GDP per capita, PPP $US).More details on the calculation of the HDI are provided at http://www.undp.org/.

[19]To operationalize 'liberal economy,' the proxy of 'economic freedom' is used, based on the argument that all liberal economies can be characterized by a certain degree of economic freedom. An index of economic freedom is available from the dataset provided in the 2002 World Rankings database.

[20] Data available from http://www.worldbank.org/wbi/governance/govdata2002/index.html

[21]To measure the strength of governmental institutions, World Bank's measure of governmental effectiveness is used. This measure assesses the "quality of public service provision, the quality of bureaucracy, the competence of civil servants, the independence of civil service from political pressures, and the credibility of the government's commitment to policies" (ESI, 2005).

[22]As a measure of the level of state participation in international environmental institutions, the participation of states in environmental intergovernmental organizations (IGOs) is used.

[23]Civic environmentalism is generated by the local involvement of civic groups in environmental governance issues. UNCED's Agenda 21 promotes the development of local development initiatives within communities worldwide to promote environmental sustainability. As a proxy for civic engagement, the total number of such local Agenda 21 initiatives in a particular country is used.

[24]Corruption is operationalized through a measure obtained from the 2005 ESI database, which provides an indication of the level of control on corruption within states. This measure (GRAFT) is based on surveys of households, firms and public officials.

The results of the regression analyses are presented in Tables 4-7 below.[25]

MODEL I: Power-Interest

Table 4. Regression results for Model I

Model I	Unstandardized coefficients		Standardized coefficients		
	B	Error	Beta	t	Significance
Constant	12.874	5.362		2.40	0.018
Gdpcap1	0.0015	0.0002	0.600	6.74	0.000***
Indgth	0.018	0.196	0.004	0.09	0.926
Forest	-0.046	0.050	-0.049	-0.93	0.355
Mineral_t[26]	1.862	0.419	0.270	4.44	0.000***
Contiguity	0.881	0.418	0.119	2.11	0.038**
Popdens_t[27]	1.380	0.925	0.102	1.49	0.139
Milexp	-0.439	0.130	-0.200	-3.38	0.001***
Milcoup	-2.910	2.150	-0.078	-1.35	0.179

N	**108**
R^2	0.7469
F-statistic$_{(8,99)}$	41.58***

*** significant at less than 0.005 level
** significant at less than 0.05 level

From the F-statistic (41.58, statistically significant at $p < 0.005$ level), it can be deduced that Model I has statistically significant predictive capability. The signs of the estimated coefficients for economic and industrial development, and environmental vulnerability (population density and contiguity) depict a positive association between the predictors and the criterion, thus being in line with the theoretical expectations. For natural resources, the proxy of forest area shows a negative relationship with participation, while the proxy of mineral resource production value associates positively with the independent variable. Political instability and military expenditures show a negative relationship with participation.

Variables for economic development (Gdpcap1), extent of raw materials (Mineral_t), contiguity, and military expenditures (Milexp) show statistical significance at the 0.5% level. Industrial growth, forest areas, population density and political instability are not statistically significant. Based on these results, it can be argued that countries which have a greater number of contiguous neighbors, which produce more mineral resources for commercial exploitation, and which have high economic development tend to participate in more IEAs than countries which have a smaller number of contiguous neighbors, are less involved in mineral resource production, or which have lower levels of economic development. The results also show that countries which spend a higher percentage of their national budget on military expenditures tend to participate in IEAs to a lesser extent than countries which spend a smaller percentage of their national budget on such military expenditures.

If we compare the beta weights for the independent variables, economic development seems to have the greatest influence on participation, followed by the mineral production value, expenditures on military, and the contiguity score.

[25] A preliminary analysis was done for all the models and the plots of residuals versus fitted values were analyzed to detect any patterns in the plots. Though there was no definite pattern in the plots, which hints at lack of heteroscedasticity, the regressions were rerun with robust standard errors to control for any non-visual heteroscedasticity that may be present in the data. Moreover, to test the normality assumptions underlying the multiple linear regression analyses, I made use of the Jarque-Bera (JB) test, which provides a test for any non-normality in the residuals. The hypotheses for the JB test are as follows:

H_o: *The residuals are normally distributed*

H_a: *The residuals are not normally distributed*

For all models, the JB test fails to reject the null hypothesis of the distribution being normal at a significance level of 0.05. In other words, the JB test shows that no statistically significant claim can be made that the distribution is not normal.

[26] Mineral_t stands for the natural log transformation of the variable mineral *i.e.* Mineral_t = ln(mineral).

[27] Similarly, popdens_t =ln(popdens).

MODEL II: Liberal-Interdependent

Table 5. Regression results for Model II

Model II	Unstandardized coefficients		Standardized coefficients		
	B	Robust standard error	Beta	t	Significance
Constant	-23.174	15.643		-1.48	0.144
HDI	22.954	13.130	0.185	1.75	0.086*
Eionum	1.326	0.220	0.412	6.02	0.000***
Ecofree	12.163	4.401	0.248	2.76	0.008**
Goveff	9.127	2.847	0.455	3.21	0.002***
Tgoods	-0.084	0.026	-0.163	-3.23	0.002***
Polity	0.247	0.212	0.075	1.16	0.250
Agenda21_t[28]	1.680	0.920	0.170	1.83	0.073*

N	**64**
R^2	0.824
F-statistic$_{(7,56)}$	45.11***

*** significant at the 0.005 level
** significant at the 0.05 level
* significant at the 0.1 level

From the F-statistic (45.11, statistically significant at $p< 0.005$ level), it can be deduced that we have good model fit. The signs of all the regression coefficients meet theoretical expectations, except for the variable measuring volumes of trade (tgoods) and economic freedom (ecofree), which depict negative associations with participation. Higher values of 'ecofree' signify lower levels of economic freedom. Hence, the results show that lower degrees of economic freedom (i.e. higher values of 'ecofree') tend to be positively associated with higher levels of participation in IEAs, which is in antithesis to the posited relationship.

Variables which are statistically significant at the 0.5% level are participation in environmental IGOs (eionum), volumes of trade (tgoods), and governmental effectiveness (goveff). Economic freedom is statistically significant at the 5% level, while HDI and local Agenda 21 initiatives (in its natural logarithmic form) are statistically significant at the 10% level. The variable 'polity' does not show any statistical significance with participation in IEAs.

The results show that countries which have higher levels of human development, have higher density of interaction in international environmental institutions, have stronger governmental institutions, and higher levels of civic environmentalism tend to participate in IEAs to a greater extent than countries which have lower degrees of each of the mentioned parameters. The results also show that countries which are involved in higher volumes of trading and which have a higher level of economic freedom tend to participate less in IEAs than countries with lower trade openness and lower levels of economic freedom.

With all other independent variables held constant, an increase in governmental effectiveness by one score will cause a state to participate in 9 additional IEAs, and an increase of one unit in the HDI score will result in the state participating in 22 more IEAs. Similarly, when other variables are held constant, an increase of one unit in membership in environmental IGOs will result in an increase in participation by 1 IEA. On the other hand, a decrease in economic freedom by one score will result in an increase in participation by 12 IEAs, while an increase in the amount of trade by 1% of GDP will result in a decrease in participation by 0.08 IEAs, with all other variables held constant. If the number of local Agenda 21 initiatives increases by 1%, this will result in an increase in participation by 0.02 IEAs.[29]

If we compare the beta weights of the independent variables, we can state that governmental effectiveness and membership in environmental IGOs seem to exert the greatest influence on participation. With all other variables held constant, an increase of one standard deviation in governmental effectiveness will result in an increase of 0.45 standard deviation in participation, while an increase of one standard deviation in membership in environmental IGOs will result in an increase of 0.41 standard deviation in participation. Similarly, with all other variables are held constant, an increase of one standard deviation in the amount of trade (when calculated as a percentage of GDP) will result in a decrease of 0.16 standard deviation in participation; an increase of one standard deviation in HDI will result in an increase of 0.18 standard deviation in participation; and an increase of 1 standard deviation in 'ecofree' will result in an increase of 0.25 standard deviation in participation.

[28] Agenda21_t = ln (Agenda21).

[29] Because of the natural log transformation, a change of 1% in X is associated with a change of $0.01b_1$ in Y. This is because $Y + \delta Y = b_0 + b_1\ln(1.01X)$, which makes $\delta Y = b_1\ln(1.01)$ i.e. $\delta Y = 0.01b_1$.

MODEL III: Developing-Logistics

Table 6. Regression results for Model III

Model III	Unstandardized coefficients		Standardized coefficients		
	B	Robust Standard Error	Beta	t	Significance
Constant	67.764	8.547		7.93	0.000
Graft	6.221	2.305	0.293	2.70	0.010**
Sanitation	0.037	0.048	0.077	0.77	0.447
Undernutrition_t[30]	-5.955	1.690	-0.414	-3.52	0.001***
Imortality	-0.029	0.019	-0.160	-1.56	0.127
Odacap_t[31]	-3.791	0.922	-0.449	-4.11	0.000***
Polity	0.231	0.211	0.113	1.09	0.280
Arms	-0.722	0.307	-0.270	-2.36	0.023**
Tgoods	-0.061	0.040	-0.143	-1.51	0.138
Agenda21_t	0.651	1.009	0.088	0.64	0.523
Gdpcap1	-0.0007	0.0007	-0.161	-0.97	0.339

N	**52**
R^2	0.649
F-statistic$_{(10, 41)}$	15.44***

*** Significant at the 0.005 level
** Significant at the 0.05 level

The F-statistic (value of 15.44) is statistically significant at the 0.5% level, thereby demonstrating good model fit. Except for the variables ‘tgoods’ (volumes of trade) and ‘gdpcap1’ (level of economic development), the signs of the regression coefficients all tally with theoretical expectations.

Undernutrition and foreign aid dependency are statistically significant at the 0.5% level. Control on corruption (variable graft) and arms imports are statistically significant at the 5% level. The variables sanitation, infant mortality, polity, volumes of trade, Agenda 21 initiatives and GDP/capita do not show any statistical significance with participation from developing countries.

From these results, we can state that developing countries which have better control on corruption, have lower dependence on foreign aid, have lower percentage of the population suffering from undernourishment, and which have lower volumes of arms imports tend to participate in IEAs to a greater extent than developing countries which exhibit the opposite trends in these domestic components. With all other variables held constant, an increase of one unit in the control on corruption in a developing country will result in that state participating in 6.2 additional IEAs, while an increase in arms imports by 1% of the total imports will result in a decrease of developing country participation by 0.7 IEAs. An increase in foreign aid dependency by 1% in a developing country will result in that country reducing its participation by 0.04 IEAs.[32]

If we compare the beta weights, foreign aid dependence seems to exert the greatest impact on participation from developing countries, followed by the percentage of population suffering from malnutrition, the control on corruption, and the extent of arms imports, in that order. With all other variables held constant, an increase of 1 standard deviation in foreign aid dependence (in its natural logarithmic form) will result in a decrease of 0.45 standard deviation in participation from developing countries. Similarly, with all other variables held constant, an increase of 1standard deviation in the level of undernutrition (in its natural logarithm) will result in a decrease of 0.41 standard deviation in participation from developing countries; an increase of 1 standard deviation in the control of corruption will result in an increase of 0.29 standard deviation in participation from developing countries; and an increase of 1 standard deviation in arms imports will result in a decrease of 0.27 standard deviation in participation from developing countries.

[30]Undernutrition_t = ln(undernutrition)
[31]Odacap_t = ln(odacap)
[32] Because of the ln transformation, a 1% increase in Odacap results in 0.01*(-3.79) = 0.038

Model IV – Integrated

Table 7. Regression Results for Model

Model IV	Unstandardized coefficients		Standardized coefficients		
	B	Robust Standard Error	Beta	t	Significance
Constant	8.687	9.355		0.93	0.357
Contiguity	0.966	0.420	0.181	2.30	0.025**
Milexp	-0.393	0.130	-0.300	-3.03	0.004***
Graft	6.385	2.207	0.334	2.89	0.005***
Polity	0.229	0.253	0.109	0.90	0.369
Eionum	0.997	0.278	0.309	3.59	0.001***
Mineral_t	0.477	0.669	0.095	0.71	0.479
Odacap_t	-1.599	1.064	-0.165	-1.50	0.139
Agenda21_t	0.342	1.078	0.041	0.32	0.753
Popdens_t	1.418	0.915	0.132	1.55	0.127
HDI	22.685	12.055	0.279	1.88	0.065*
Tgoods	-0.051	0.034	-0.137	-1.52	0.135

N	**67**
R^2	0.6650
F-statistic$_{(11, 55)}$	12.23***

*** Significant at the 0.005 level
** Significant at the 0.05 level
* Significant at the 0.1 level

The F-statistic of 12.23 is statistically significant at p <0.005 level, showing that Model IV as a whole has statistically significant predictive capability. All the regression coefficients demonstrate an association with participation which is in line with the theoretical expectations, expect for the variable 'tgoods' (volume of trade), which is showing a negative relationship with participation.

Military expenditures, control on corruption, and participation in international environmental IGOs are statistically significant at the 0.5% level. Contiguity is statistically significant at the 5% level, while HDI is statistically significant at the 10% level. The variables polity, mineral value production, foreign aid dependency, Agenda 21 initiatives, population density and trade volumes are not statistically significant.

These results show that states which invest more heavily in their military empowerment are less likely to participate in IEAs than those which do not devote as much resources to their military build-up. Moreover, states which have better control on corruption and which participate in environmental IGOs are more likely to participate in IEAs than states which suffer from high degrees of corruption or which shy away from international participation in environmental institutions. Further, a state which is surrounded by a great number of contiguous neighbors is more likely to participate in IEAs than one which is more isolated. Also, it seems that states which have a high quality of life, as denoted by their high HDI scores, tend to participate in IEAs to a greater extent than states with lower levels of human development.

With all other variables held constant, an increase of 1% in the military expenditures of a state will cause that state to be less likely to participate in 0.39 IEAs. On the other hand, with all other variables held constant, an increase of one unit in corruption control will likely increase participation by 6 IEAs. A state which participates in one additional environmental IGO is more likely to participate in one additional IEA, when all other variables are held constant. A state which has one contiguous neighbor more than another state will be more likely to participate in approximately one IEA more than the other state, keeping constant all other variables. Moreover, with all other variables held constant, a one unit increase in the HDI of a state will make that state more likely to participate in 22 additional IEAs.

Looking at the beta weights, corruption control seems to exert the greatest influence on participation in IEAs, and contiguity seems to exert the least influence. The influence of military expenditures is almost at par with that of participation in environmental IGOs. When all other variables are held constant, an increase of one standard deviation in the variable 'graft' will result in an increase of 0.33 standard deviation in participation. An increase of one standard deviation in the level of a state's participation in environmental IGOs will result in an increase of 0.31 standard deviation in participation; an increase of one standard deviation in military expenditures will result in a decrease of 0.30 standard deviation in participation; an increase of one standard deviation in HDI will result in an increase of 0.28 standard deviation in participation; and an increase of one standard deviation in contiguity will result in an increase of 0.18 standard deviation in participation, when all other variables are held constant.

3. Discussion of Findings

How to get more nation states to participate in IEAs? The Power-Interest model illustrates that power considerations do influence a state's decision to participate in IEAs. A desire to secure economic competitive advantage and to deter free-riding from other nations will make a state more conducive to participate in IEAs. Moreover, states which suffer from high external environmental vulnerability will be more likely to participate in IEAs than states with lower levels of such vulnerability. The positive association between contiguity and participation suggests that there is much scope for regional set-ups to address and strengthen global environmental problems. Countries in a particular region may be encouraged to form coalitions to bear pressure on unwilling states to participate in IEAs. Population density is not statistically significant. The exact environmental impacts of population growth are not clear-cut. As noted by Barnett [79 p. 279], "overall environmental impact is not merely a function of numbers, but also a function of the resources people use and the wastes they generate. So *lifestyle* is as important as the number of lives" [see also 149].

Enhancement of military power stands as an opposing force to participation in IEAs. The negative association of the variable 'milexp' (military expenditures) with participation establishes that a state is more likely to participate in an IEA if it is less invested in enhancing its military potential. It is well-known that the military, especially through use of its munitions, is often responsible for a high level of environmental pollution, either through its routine practice sessions, or in real deployment [150 p. 27, 151, 152 p. 160, 153 p. 114, 154, 155 p.4, 156, 157 p. 558, 158, 159 p. 8, 160 p. 28, 161 p. 989-992, 162, 163 p. 56, 164 p. 11, 165 p. 44]. Thus, military buildup at the expense of participation in IEAs is a cause of great concern.

The positive association of mineral production value with participation stands in contrast to the negative impact on participation depicted by the variable 'forest' (forest resources as % of land area). This shows that the influence of natural resource endowment on participation may be highly dependent on which *type* of resources is involved – i.e. whether we are considering renewable or non-renewable resources. Since mineral resources are non-renewable resources, thus necessitating prudent management strategies for their long-lasting benefits, it is likely that a certain element of caution and environmental prudence may be motivating decision-makers, thereby accounting for the positive association of the variable with participation (this positive association is also maintained in Model IV). Forest resources, on the other hand, are very heavily exploited in most parts of the world, and are amenable to renewal strategies. The negative association may reflect the notion that reforestation and other forestry management strategies may allow long-lasting use of such resources, as well as the unwillingness of states which are heavily reliant on their forestry industries to adhere to attempts to curb their forest products.

The Liberal-Interdependent model, true to its purported objective, attests to the fact that institutions, both domestic and international, have an impact on state participation in IEAs. At the international level, high levels of participation in environmental IGOs make a state more likely to participate in IEAs. This is probably due to the fact that the state undergoes a process of international acculturation to environmental norms and standards that possibly ensues from the high degree of interaction occasioned by membership in these organizations [see also 166, 167-169]. The operational mechanisms of the IGOs may exert a pressure on the state to commit to the legal norms and standards in IEAs. Further, participation in environmental IGOs may provide a learning experience for the states, where they get to be familiar with the nature of the global environmental problems and are sensitized to the need for international cooperation on the subject. It is also likely that members of the IGOs may act to exert a pressure on other members who have not yet ratified a particular treaty to do so.

On the domestic front, the strength of governmental institutions seems to exert a positive influence on participation in IEAs. For a state to finally be ready and able to participate in an IEA, lots of background work need to be conducted: first, within the context of international negotiations for the adoption of the draft treaty text; and second, for the processes of treaty ratification within the domestic political structure. Delegates to the international conferences need to be well-versed in the treaty processes as well as the subject matter, which often requires close collaboration among various branches of the government. Further, a deliberation on the pros and cons of a particular IEA normally falls within the purview of the domestic agencies bestowed with the mandate of dealing with the subject matter of the treaty. Bureaucrats who deal with the specific issues on a daily basis therefore have an important role to play in determining the stance of the country vis-à-vis the treaty. Thus, calculations of costs and benefits occur at various levels of the political machine, which renders participation in IEAs vulnerable to how well that machine functions. Hence, strong governmental institutions may become a crucial factor in explaining state participation in IEAs, as is indeed validated by the results for Model II.

Contrary to the hypothesized relationships (H_{2e} and H_{2f}), both economic freedom and high volumes of trade seem to exert a negative impact on participation. One possible explanation for this finding is that freedom of the economy and high volumes of trade often run counter to environmental policies. As discussed earlier, there are inherent tensions between the trade-environment interface, and trade provisions often run counter to international environmental goals. Thus, a state with high volumes of trade, and for that matter, a high level of economic freedom, will be less desirous of curbing its international trade policies to participate in IEAs.

The positive association between HDI and participation

shows that a nation state with a higher quality of life tends to participate in IEAs to a greater extent than another state with a lower quality of life. High values of HDI reflect both economic *and* human development. With improvements in the quality of life of their citizens, national leaders enjoy greater flexibility in allocating resources to international issues as there may be less pressure to meet basic domestic needs and priorities. Moreover, countries with high human development tend to have a well-educated population. Environmental awareness among the population may thus likely trigger processes for addressing issues on the global environmental protection agenda. This seems to be validated by the positive impact of local Agenda 21 initiatives on state participation in IEAs.

The significance of HDI has to be understood in light of the various endemic constraints highlighted in Model III. The Developing-Logistics model suggests that developing nations face certain socio-economic and political challenges which render them less amenable to participation in IEAs. Corruption, undernutrition, foreign aid dependency and arms imports all depict a negative relationship with the developing country participation in IEAs. Foreign aid dependency exerts the greatest negative impact on participation. Poor nations typically lack adequate resources to meet basic survival needs. In such a context, commitment to global environmental protection cannot become a national objective. The need to feed the population cannot be overridden by global environmental concerns, as evidenced by the negative impact of undernutrition on developing country participation in IEAs. Thus, endemic social challenges relating to survival issues and high levels of poverty seem to act as major constraining forces on any positive impact on participation that might be accrued from a certain level of economic progress and civic environmentalism. Further, while strong governmental institutions seem to catalyze participation in IEAs (from Model II), Model III shows that lack of control on corruption is detrimental to participation. Corruption entails mismanagement of public funds, public distrust in the political process, and lack of commitment to the improvement of the citizens' quality of life. Within such a framework, participation in IEAs may be seen merely as a cost.

In tandem with the finding regarding military expenditures in Model I, developing nations which invest heavily in arms imports tend to be less likely to participate in IEAs. Apart from the inherent incompatibility between military and environmental goals, as discussed already, another plausible explanation for the limiting impact of military build-up on participation is that, and especially so within the context of developing countries, scarcity of resources may dictate the relegation of environmental concerns as a non-priority. If scarce funds and other resources are earmarked for military arsenal build up, there is not much left over for global environmental protection.

A variable which has not been discussed so far, but which is important in view of its statistical *non*-significance in Models II, III and IV is the variable 'polity.' It seems that the level of democracy within a state does not act as a direct determinant of that state's participation in IEAs. This is contrary to arguments made by researchers such as Neumayer [27] or Congleton [2], but more in line with Midlarsky's [38] observation that the association between democracy and participation may not be that straightforward. When considered in concert with the statistical non-significance of political stability in Model I, it is possible to argue that the exact characteristics or the level of domestic political instability do not seem to impact states' participation in IEAs.

While this may seem counter-intuitive at first sight, it is quite likely however that domestic political instability or the openness (or lack thereof) of political regimes may not exert a great impact on leaders' decisions to participate in IEAs or not. Domestic political exigencies and decisions on participation in IEAs may be compartmentalized in a rarefied fashion by the national leaders, who may associate participation in IEAs as a statement of their belonging to the 'international community,' and as an avenue for national prestige building and for deflecting, even if in a very small measure, international criticism on their domestic policies. From the data compiled for this analysis, Bosnia and Herzegovina and Croatia, both countries which can be considered to not benefit from a long history of political stability, have each become parties to 19 and 46 IEAs respectively since their formation in 1992. Moreover, Cuba is party to 34 IEAs, comparable to the participation of Israel, which is party to 33 IEAs. Whatever the exact motivations of the leaders, the finding that domestic political complexities associated with non-democratic tendencies or instabilities do not exert constraining forces on participation is welcome as it shows that there are prospects for enhanced international environmental cooperation, irrespective of the domestic political idiosyncrasies.

The Integrated Model shows that both power concerns and institutionalization matter when we consider state participation in IEAs. Contiguity still maintains its positive influence on state participation in IEAs, and military expenditures its negative impact. Moreover, participation in environmental IGOs is conducive to participation in IEAs, as is a high level of human development. In sum, the four models show that the determinants of state participation in IEAs can be conceptualized as being dichotomously influenced by a set of 'enablers' and a competing set of 'limitors.' Typical enablers relate to high levels of economic and human development, high involvement in environmental IGOs, strong governmental institutions, strong civic engagement, and sensitization to environmental vulnerability. Limitors are in the form of high military expenditures, high levels of economic freedom and high volumes of trade transactions, high levels of corruption, mismanagement of natural resources, and poverty.

What do the above results imply for international environmental protection? How can policies be geared towards enhancing participation in IEAs? And what are the implications of these findings for theorizing state

participation in IEAs? In a first instance, if we start with the impact of domestic and international institutions, policies meant to address government inefficiencies, its corruptive practices if known, and laxity in reform can play a positive role in strengthening a state's willingness to participate in IEAs. Promoting state participation in environmental IGOs may also likely result in greater participation in IEAs. As discussed earlier, such participation may make the state more open to accepting new international norms and standards, as codified in IEAs, and to agree to implement them.

On the human development front, policies geared towards enhancing citizens' quality of life may empower the population as well as allow political leaders the freedom to address concerns *other* than survival and development imperatives. A focus on human development will diminish the impact of limitors such as poverty and corruption, and will enhance enablers such as civic environmentalism. These issues are especially important for developing nations which are often mired deep in social challenges associated with poor sanitation, low levels of nutrition or high rates of infant mortality. As long as international environmental policies are developed in isolation from measures meant to address *human* development, it is likely that participation in IEAs will not only be less than optimal, but may also not be meaningful. The finding that trade openness and economic freedom tend to act as disincentives for high participation in IEAs shows perhaps that the principle of sustainable development is still not a cornerstone of international trading. Trade and the environment still sit on opposite ends of human development, and treaty negotiators and drafters, as well as the main players on the international scene, need to find avenues for bringing trade provisions more in line with environmental sustainability.

From a theoretical perspective, the results show that international environmental protection needs to be addressed from a holistic perspective, whereby all aspects of human development are taken into account. Both the Realist and Liberal framework provide only a partial explanation for state participation in IEAs. Resorting to a Pure Realist or a Pure Liberal understanding of state participation in IEAs does not provide an adequate explanation of state participation in IEAs: of necessity, there is evidence that we need to consider both the Realist and Liberal determinants of state participation in IEAs. A Pure Realist or a Pure Liberal understanding will necessarily result in policy prescriptions that fail to meet the needs and requirements of nation states, and will thus result in a sub-optimal outcome for global environmental protection. Each approach and method of analysis provides only a snapshot of the whole picture of IEC, without any one single approach providing a wholesome understanding of all the processes and underpinnings of IEC. As stated by Ruggie [170 p. 882], "no approach [of IR] can sustain claims to monopoly on truth."

For global environmental sustainability, therefore, our views and assumptions of IR need to be reconsidered, re-evaluated and reframed to include a more realistic incorporation of all the dimensions of human interaction. In essence, IEC will benefit from an understanding of IR which includes considerations of power motivations tempered by the contributions of international and domestic governmental institutions, an ethical code of public governance, and a focus on enhancing the domestic capabilities of nation states. An integrative theory of IEC therefore holds promise for future global environmental protection.

REFERENCES

[1] Congleton, R., 2001, *Governing the Global Environmental Commons: The Political Economy of International Environmental Treaties and Institutions*, in *International Environmental Economics: A Survey of Issues*, G.G. Schulze and H.W. Ursprung, Editors. Oxford University Press: Oxford.

[2] Congleton, R.D., 1992. *Political Regimes and Pollution Control.* Review of Economics and Statistics, 74(August): p. 412-421.

[3] Murdoch, J.C., T. Sandler, and K. Sargent, 1997. *Voluntary Cutbacks and Pretreaty Behavior: The Helsinki Protocol and Sulfur Emissions.* Public Finance Review, 25(2): p. 139-62.

[4] Carraro, C., 1999a, *The Structure of International Environmental Agreements*, in *International Environmental Agreements on Climate Change*, C. Carraro, Editor. Kluwer Academic Publishers: Dordrecht, The Netherlands. p. 9-25.

[5] Downs, G.W., 1998. *Enforcement and the Evolution of Cooperation.* Michigan Journal of International Law, 19(2): p. 319-344.

[6] Helm, C., 2000, *Economic Theories of International Environmental Cooperation*. Northampton, MA: Edward Elgar.

[7] Schmidt, C., 2000, *Designing International Environmental Agreements: Incentive Compatible Strategies for Cost-effective Cooperation*. New Horizons in Environmental Economics, ed. W.E. Oates, and Henk Folmer. Northampton, MA: Edward Elgar.

[8] Karp, L. and L. Simon, 2013. *Participation games and international environmental agreements: A non-parametric model*. Journal of Environmental Economics and Management, 65(2): p. 326-344.

[9] Hoel, M. and K. Schneider, 1997. *Incentives to Participate in an International Environmental Agreement.* Environmental & Resource Economics, 9: p. 153-170.

[10] Battaglini, M. and B. Harstad, 2012. *Participation and Duration of Environmental Agreements.* . National Bureau of Economic Research, No. w18585.

[11] Carraro, C., J. Eyckmans, and M. Finus, 2006. *Optimal Transfers and Participation Decisions in International Environmental Agreements.* Review of International Organizations, 1: p. 379-396.

[12] Breton, M., L. Sbragia, and G. Zaccour, 2008, *Dynamic Models for International Environmental Agreements* The Fondazione Eni Enrico Mattei Note di Lavoro Series Index:http://www.feem.it/Feem/Pub/Publications/WPapers/d

efault.htm Montreal.

[13] Bosetti, V., et al., 2013. *Incentives and stability of international climate coalitions: An integrated assessment.* Energy Policy, 55(0): p. 44-56.

[14] Cherry, T.L. and D.M. McEvoy, 2013. *Enforcing compliance with environmental agreements in the absence of strong institutions: An experimental analysis.* Environmental and Resource Economics, 54(1): p. 63-77.

[15] Breton, M. and S. Garrab, 2014. *Evolutionary farsightedness in international environmental agreements.* International Transactions in Operational Research, 21: p. 21-39.

[16] Waltz, K.N., 1959, *Man, the State, and War: A Theoretical Analysis*. New York: Columbia University Press.

[17] Solingen, E., 1994. *The Domestic Sources of Regional Regimes: The Evolution of Nuclear Ambiguity in the Middle East.* International Studies Quarterly, 38(2 (June)): p. 305-337.

[18] Putnam, R.D., 1988. *Diplomacy and Domestic Politics: The Logic of Two-Level Games.* International Organization, 42(Summer 1988): p. 427-60.

[19] DeSombre, E.R., 2000, *Domestic Sources of International Environmental Policy: Industry, Environmentalists, and US Power*. Cambridge, Massachusetts: The MIT Press.

[20] Owen, J.M., 1994, *How Liberalism Produces Democratic Peace*, in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 925-960.

[21] Wendt, A.E. and D. Friedheim, 1995. *Hierarchy under Anarchy: Informal Empire and the East German State.* International Organization, 49(4 (Autumn)): p. 689-721.

[22] Gourevitch, P., 1978. *The Second Image Reversed: The International Sources of Domestic Politics.* International Organization, 32(4 (Autumn)): p. 881-912.

[23] Dietz, T. and L. Kalof, 1992. *Environmentalism Among Nation-States.* Social Indicators Research, 26: p. 353-366.

[24] Dolsak, N., 2001. *Mitigating Global Climate Change: Why Are Some Countries More Committed than Others?* Policy Studies Journal, 29(3): p. 414-436.

[25] Frank, D.J., 1999. *The Social Bases of Environmental Treaty Ratification, 1900-1990.* Sociological Inquiry, 69(4): p. 523-550.

[26] Fredriksson, P.G. and N. Gaston, 2000. *Ratification of the 1992 Climate Change Convention: What Determines Legislative Delay?* Public Choice, 104: p. 345-368.

[27] Neumayer, E., 2002. *Do Democracies Exhibit Stronger International Environmental Commitment? A Cross-Country Analysis.* Journal of Peace Research, 30(2): p. 139-164.

[28] Neumayer, E., 2002. *Does Trade Openness Promote Multilateral Environmental Cooperation?* World Economy, 25(6): p. 815-835.

[29] Recchia, S.P., 2002. *International Environmental Treaty Engagement in 19 Democracies.* Policy Studies Journal, 30(4): p. 470-494.

[30] Bernhagen, P., 2008. *Business and International Environmental Agreements: Domestic Sources of Participation and Compliance by Advanced Industrialized Democracies.* Global Environmental Politics, 8(1): p. 78-110.

[31] Bernauer, T., T. Böhmelt, and V. Koubi, 2012. *Is There a Democracy–Civil Society Paradox in Global Environmental Governance?* Global Environmental Politics, 13(1): p. 88-107.

[32] Roberts, T.J., B.C. Parks, and A.A. Vasquez, 2004. *Who Ratifies Environmental Treaties and Why? Institutionalism, Structuralism and Participation by 192 Nations in 22 Treaties.* Global Environmental Politics, 4(3): p. 22-64.

[33] Schulze, K., 2014. *Do parties matter for international environmental cooperation? An analysis of environmental treaty participation by advanced industrialised democracies.* Environmental Politics, 23(1).

[34] Barnett, M., 1990. *High Politics is Low Politics: The Domestic and Systemic Sources of Israeli Security Policy, 1967-1977.* World Politics, 42(4 (July)): p. 529-562.

[35] Lamborn, A.C., 1997. *Theory and the Politics in World Politics.* International Studies Quarterly, 41(2 (June)): p. 187-214.

[36] James, P. and J.S. Rioux, 1998. *International Crises and Linkage Politics: The Experiences of the United States, 1953-1994.* Political Research Quarterly, 51(3 (September)): p. 781-812.

[37] Faure, M. and J. Lefevere, 1999, *Compliance with International Environmental Agreements*, in *The Global Environment: Institutions, Law, and Policy*, N.J. Vig and R.S. Axelrod, Editors. CQ Press: Washington, D.C.

[38] Midlarsky, M.I., 1998. *Democracy and the Environment: An Empirical Assessment.* Journal of Peace Research, 35(3): p. 341-361.

[39] Payne, R.A., 1995. *Freedom and the Environment.* Journal of Democracy, 6(3): p. 41-55.

[40] Gastil, R.D., 1988, *Freedomin the World: Political Rights and Civil Liberties 1987-1988.*, Freedom House: New York.

[41] Bollen, K.A., 1993. *Liberal Democracy: Validity and Method Factors in Cross-National Measures* American Journal of Political Science 37(4): p. 1207-1230.

[42] Jaggers, K. and T.R. Gurr, 1995. *Tracking Democracy's Third Wave with the Polity III Data* Journal of Peace Research 32(4): p. 469-482.

[43] Nagel, S.S., 2002, *Environmental Policy and Developing Nations*. North Carolina: McFarland & Company, Inc., Publishers.

[44] Gurr, T.R., K. Jaggers, and W. Moore, 1989, *Polity II Handbook*. Boulder: University of Colorado Press. Quoted from Maoz and Russett, 1993 p. 905.

[45] Maoz, Z. and B. Russett, 1993, *Normative and Structural Causes of Democratic Peace, 1946-1986. American Political Science Review. 87(3). 1993:pp.624-38.*, in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 896-924.

[46] Caldwell, L.K., 1988, *Beyond Environmental Diplomacy: The Changing Institutional Structure of International*

Cooperation, in *International Environmental Diplomacy*, J.E. Carroll, Editor. Cambridge University Press: New York. p. 13-28.

[47] Brinkerhoff, D.W. and J.D. Cage, 2002, *Natural Resources Management Policy in Africa: Implementation Challenges for Public Managers*, in *Environmental Policy and Developing Nations*, S.S. Nagel, Editor. McFarland & Company, Inc., Publishers: North Carolina.

[48] Mallya, F. and K. Talbott, 1990, *Constraints and Opportunities for Building Local Participation in the Uganda Environmental Action Plan*, World Resources Institute, Center for International Development and Environment: Washington, DC.

[49] O'Keefe, P., J. Kirby, and I. Cherrett, 1991. *Mozambican Environmental Problems: Myths and Realities.* Public Administration and Development, 11: p. 307-324. Quoted from Brinkerhoff and Cage, 2002 p. 103.

[50] Morrell, D. and J. Poznanski, 1985, *Rhetoric and Reality: Environmental Politics and Environmental Administration in Developing Countries*, in *Divesting Nature's Capital: The Political Economy of Environmental Abuse in the Third World*, J.H. Leonard, Editor. Holmes and Meier: 137-179. Quoted from Brinkerhoff and Gage, 2002, p. 86. New York.

[51] Rauscher, M., 2001, *International Trade in Hazardous Waste*, in *International Environmental Economics: A Survey of the Issues*, G.G. Schulze and H.W. Ursprung, Editors. Oxford University Press. Chapter 7, pp. 148-165.: New York.

[52] Asthana, V. and A.C. Shukla, 2002, *Politics of Environmental Protection: A Fiscal Analysis.*, in *Environmental Policy and Developing Nations*, S.S. Nagel, Editor. McFarland & Company, Inc., Publishers: North Carolina.

[53] von Prittwitz, V., 1990, *The Catastrophe Paradox: Elements of a Theory of Environmental Policy*. Opladen, Germany: Leske and Budrich.

[54] Evans, P., 2000, *Sustainability, Degradation, and Livelihood in Third World Cities: Possibilities for State-society Synergy*, in *The Global Environment In the Twenty-First Century: Prospects for International Cooperation*, P.S. Chasek, Editor. p. 42-63.

[55] Hurrell, A. and B. Kingsbury, eds. 1992, *The International Politics of the Environment*. Clarendon Press: Oxford.

[56] Young, O.R., 1982, *Regime Dynamics: The Rise and Fall of International Regimes. International Organization. 36(2). pp 277-97.*, in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 732-751.

[57] Schulze, G.G. and H.W. Ursprung, 2001, *International Trade, Investment, and the Environment: Theoretical Issues*, in *International Environmental Economics: A Survey of the Issues*, G.G. Schulze and H.W. Ursprung, Editors. Oxford University Press, Inc. Chapter 2, pp. 15-44.: New York.

[58] Perrings, C., 2001, *Resilience and Sustainability*, in *Frontiers of Environmental Economics*, H. Folmer, et al., Editors. Edward Elgar. Chapter13, pp. 319-341.: Cheltenham, UK.

[59] Jha, R. and J. Whalley, 2001, *The Environmental Regime in Developing Countries*, in *Behavioral and Distributional Effects of Environmental Policy*, C. Carraro and G.E. Metcalf, Editors. The University of Chicago Press. Chapter 7, pp. 217-249.: Chicago.

[60] Wells, R.N., Jr., 1996, *Law, Values, and the Environment: A Reader and Selective Bibliography*, Scarecrow Press, Inc.: Lanham, Maryland.

[61] Atkinson, A., 1991. *Environment and Development: Concepts and Practices in Transition.* Public Administration and Development, II: p. 401-413. Quoted from Brinkerhoff and Gage, 2002.

[62] Ledec, G., 1985, *The Political Economy of Tropical Deforestation*, in *Divesting Nature's Capital: The Political Economy of Environmental Abuse in the Third World*, J.H. Leonard, Editor. Holmes and Meier: New York. p. 179-226.

[63] Miller, M., 1991, *Debt and the Environment: Converging Crises*. New York: United Nations Publications. Quoted from Brinkerhoff and Gage, 2002.

[64] Barbier, E.B., 2001, *Comment on Jha and Whalley's paper*, in *Behavioral and Distributional Effects of Environmental Policy*, C. Carraro and G.E. Metcalf, Editors. The University of Chicago Press. pp. 242-249.: Chicago.

[65] Tussie, D., ed. 2000, *The Environment and International Trade Negotiations: Developing Country Stakes*. St. Martin's Press, Inc.: New York.

[66] Ervin, D.E., 2001, *Trade, Agriculture, and Environment*, in *International Environmental Economics: A Survey of the Issues*, G.G. Schulze and H.W. Ursprung, Editors. Oxford University Press: New York. p. 84-113.

[67] Horberry, J. and M. Le Merchant, 1991. *The Role of Institutional Strengthening in International Environmental Consulting.* Public Administration and Development: p. 381-99.

[68] Stryker, J.D. and e. al., 1989, *Linkages Between Policy Reform and Natural Resources Management in Sub-Saharan Africa*, Tufts University, Fletcher School of Law and Diplomacy and Associates for International Resources and Development: Medford, MA.

[69] Talbot, L.M. *Institutional Framework for the Development and Implementation of National Environmental Action Plans*. in *Workshop organized by the Government of Ireland, the Environmental Institute, University College, Dublin, and the World Bank*. 1990, December 12-14. Dublin, Ireland.Quoted from Brinkerhoff and Cage, 2002, p. 93: World Bank, National Environmental Action Plans in Africa.

[70] Weber, F.R., 1991, *The NRM Framework: What It Is, What It Does, and How It Works with an Example from the Field*, World Resources Institute. Quoted from Brinkerhoff and Cage, 2002, p. 93: Washington, DC.

[71] Zimmermann, R.C., 1991, *Analysis of Institutional Structure and Reform: Impacts of Natural Resources Management*, US Department of Agriculture. Preliminary Report. Quoted from Brinkerhoff and Cage, 2002, p. 93: Washington, DC.

[72] Fouere, E., 1988, *Emerging Trends in International Environmental Agreements*, in *Environmental Diplomacy*, J.E. Carroll, Editor. Cambridge University Press: New York. p. 29-44.

[73] DeSombre, E.R., 2002, *The Global Environment and World Politics*. New York: Continuum.

[74] Downie, D.L., 1999, *The Power to Destroy: Understanding Stratospheric Ozone Politics as a Common-Pool Resource Problem*, in *Anarchy and the Environment: The International Relations of Common Pool Resources*, J.S. Barkin and G.E. Shambaugh, Editors. State University of New York Press: Albany, NY. p. 97-121.

[75] Mitchell, R.B., 2003. *International Environmental Agreements: A Survey of Their Features, Formation, and Effects.* Annual Review of Environment and Resources, 28: p. 429-61.

[76] Sprinz, D. and T. Vaahtoranta, 1994. *The interest-based explanation of international environmental policy.* International Organization, 48(1): p. 77-105.

[77] Markandya, A., 2001, *Poverty, Environment and Development*, in *Frontiers of Environmental Economics*, H. Folmer, et al., Editors. Edward Elgar: Northampton, MA. p. 192-213.

[78] Boserup, E., 1965, *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure* Chicago: Aldine.

[79] Barnett, J., 2000. *Destabilizing the Environment-Conflict Thesis.* Review of International Studies, 26(2): p. 271-288.

[80] Porter, G. and J.W. Brown, 1991, *Global Environmental Politics*. First ed. Dilemmas in World Politics, ed. G.A. Lopez. Boulder, Colorado: Westview Press, Inc.

[81] Bramble, B.J. and G. Porter, 1992, *Non-Governmental Organizations and the Making of US International Environmental Policy*, in *The International Politics of the Environment*, A. Hurrell and B. Kingsbury, Editors. Clarendon Press: Oxford. p. 313-353.

[82] Stairs, K. and P. Taylor, 1992, *Non-Governmental Organizations and the Legal Protection of the Oceans: A Case Study*, in *The International Politics of the Environment*, A. Hurrell and B. Kingsbury, Editors. Clarendon Press: Oxford. p. 110-141.

[83] McMahon, V., 1993, *Environmental Nongovernmental Organizations at Intergovernmental Negotiations*, in *Papers on International Environmental Negotiation.*, L.E. Susskind, Siskind E. and Breslin J.W., Editor. Harvard Law School: Volume III. Program on Negotiation. Massachusetts. p. 1-21.

[84] Handl, G., 1991, *Environmental Security and Global Change: The Challenges to International Law*, in *Environmental Protection and International Law*, W. Lang, Neuhold H., and Zemanek K., Editor. Graham & Trotman: Boston.

[85] Wapner, P., 2000, *The Transnational Politics of Environmental NGOs: Governmental, Economic, and Social Activism*, P.S. Chasek, Editor. UN University Press: New York. p. 87-108.

[86] Rittberger, V., 2000, *(I)NGOs and Global Governance: Introduction*, in *The Global Environment In the Twenty-First Century: Prospects for International Cooperation*, P.S. Chasek, Editor. UN University Press: New York. p. 83-86.

[87] Lindborg, N., 1992, *Nongovernmental Organizations: Their Past, Present, and Future Role in International Environmental Negotiations*, in *International Environmental Treaty Making*, L.E. Susskind, Siskind E. and Breslin J.W., Editor. Harvard Law School: Cambridge, Massachusetts.

[88] Feld, W.J., R.S. Jordan, and L. Hurwitz, eds. 1994, *International Organizations: A Comparative Approach*. Praeger: Connecticut.

[89] Raustiala, K., 1997. *States, NGOs, and International Environmental Institutions.* International Studies Quarterly, 41(4): p. 719-740.

[90] Princen, T. and M. Finger, 1994, *Environmental NGOs in World Politics*. New York: Routledge.

[91] Betsill, M.M. and E. Corell, 2008, *NGO Diplomacy : The Influence of Nongovernmental Organizations in International Environmental Negotiations*. MIT Press.

[92] Grubb, M., et al., 1993, *The Earth Summit Agreements: A Guide and Assessment*. Washington, D.C.: The Brookings Institution.

[93] Peterson, M.J.,1992. *Whalers, Cetologists, Environmentalists, and the International Management of Whaling.* International Organization, 46(1): p. 147-186.

[94] Aaron, M.M. and R.E. Dunlap, 2003. *Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy.* Social Problems, 50(3): p. 348-373.

[95] Regens, J.L., 1989. *Acid Rain Policymaking and Environmental Federalism: Recent Developments, Future Prospects.* Publius, 19(3): p. 75-91.

[96] Benedick, R.E., 1991, *Ozone Diplomacy: New Directions in Safeguarding the Planet*. Cambridge, Mass.: Harvard University Press.

[97] Gulbrandsen, L., H. and A. Steinar, 2004. *NGO Influence in the Implementation of the Kyoto Protocol: Compliance, Flexibility Mechanisms, and Sinks.* Global Environmental Politics, 4(4): p. 54-75.

[98] Balistrieri, C.A., 1996, *CITES: The ESA and International Trade*, in *Law, Values and The Environment: A Reader and Selective Bibliography*, R.N. Wells, Jr., Editor. Scarecrow Press, Inc.: Lanham, Maryland.

[99] Arend, T.E., 1990, *Ivory, Elephants, or Both: Negotiating the Transfer of the African Elephant to an Appendix II Within CITES*, in *International Environmental Treaty-Making. Program on Negotiation*, L.E. Susskind, Editor. Harvard Law School: *et. al.* Cambridge, MA.

[100] Mullin, R.P., 2002. *What Can Be Learned from DuPont and the Freon Ban: A Case Study.* Journal of Business Ethics, 40(3): p. 207-218.

[101] Rosenberg, R.L., 1994. *Trade and the Environment: Economic Development Versus Sustainable Development.* Journal of Interamerican Studies and World Affairs, 36(3): p. 129-156.

[102] Rowlands, I.H., 2001, *Transnational Corporations and Global Environmental Politics*, in *Non-State Actors in World Politics*, D.a.W.W. Josselin, Editor.?: ? p. 133-149.

[103] Porter, G. and J.W. Brown, 1996, *Global Environmental Politics*. Second ed. Dilemmas in World Politics, ed. G.A. Lopez. Boulder, Colorado: Westview Press, Inc.

[104] Falkner, R., 2001, *Business Conflict and U.S. International Environmental Policy: Ozone, Climate, and Biodiversity.*, in *The Environment, International Relations, and U.S. Foreign*

Policy, P.G. Harris, Editor. Georgetown University Press: Washington, D.C. p. 157-177.

[105] Arts, B., 2001, *The Impact of Environmental NGOs on International Conventions*, in *Non-State Actors in International Relations*, B. Arts, Math Noorman, and Bob Reinalda, Editor. Ashgate: Burlington, USA. p. 195-210.

[106] Ayres, R.U., 2001, *Industrial Ecology: Wealth, Depreciation and Waste*, in *Frontiers of Environmental Economics*, H. Folmer, et al., Editors. Edward Elgar. Chapter 9, pp. 214-249.: Cheltenham, UK.

[107] Brack, D., 1995. *Balancing Trade and the Environment.* International Affairs (Royal Institute of International Affairs 1944-), 71(3): p. 497-514.

[108] Schoenbaum, T.J., 1992. *Free International Trade and Protection of the Environment: Irreconcilable Conflict?* The American Journal of International Law, 86(4): p. 700-727.

[109] Esty, D.C., 2001. *Bridging the Trade-Environment Divide.* The Journal of Economic Perspectives, 15(3): p. 113-130.

[110] Safrin, S., 2002. *Treaties in Collision? The Biosafety Protocol and the World Trade Organization Agreements.* The American Journal of International Law, 96(3): p. 606-628.

[111] Weiss, E.B., 1992. *Environment and Trade as Partners in Sustainable Development: A Commentary.* The American Journal of International Law, 86(4): p. 728-735.

[112] Bohm, P., 2002. *Improving Cost-Effectiveness and Facilitating Participation of Developing Countries in International Emissions Trading.* International Environmental Agreements: Politics, Law & Economics, 3: p. 261-275.

[113] Barrett, S. and R. Stavins, 2003. *Increasing participation and compliance in international climate change agreements.* International Environmental Agreements: Politics, Law & Economics, 3(4): p. 349-376.

[114] Schultz, J., 1995. *The GATT/WTO Committee on Trade and the Environment--Toward Environmental Reform.* The American Journal of International Law, 89(2): p. 423-439.

[115] Barrett, S., 1999. *A Theory of Full International Cooperation.* Journal of Theoretical Politics, 11(4): p. 519-41. Quoted from Barrett (2000, page 137; Chapter 6 of Helm, 2000).

[116] Saez, R., 2000, *The Case of a Renewable Natural Resource: Timber Extraction and Trade*, in *The Environment and International Trade Negotiations: Developing Country Stakes*, D. Tussie, Editor. St. Martin's Press, Inc: New York. p. 13-31.

[117] Folmer, H., et al., eds. 2001, *Frontiers of Environmental Economics*. Edward Elgar: Cheltenham, UK.

[118] Antweiler, W., B.R. Copeland, and M.S. Taylor, 2001. *Is Free Trade Good for the Environment?* The American Economic Review, 91(4): p. 877-908.

[119] Kegley, C.W., Jr., 1995, *Controversies in International Relations Theory: Realism and the Neoliberal Challenge*. New York: St. Martin's Press.

[120] Smith, M.J., 1986, *Realist Thought from Weber to Kissinger*. Baton Rouge, LA: Louisiana State University Press. Quoted from Rengger, 2000, p. 41.

[121] Morgenthau, H.J., 1948, *Politics Among Nations: The Struggle for Power and the Struggle for Peace*. New York: Alfred A. Knopf.

[122] Carr, E.H., 1946, *The Twenty Years' Crisis 1919-1939*. Second ed. London: Macmillan.

[123] Rengger, N.J., 2000, *International Relations, Political Theory and the Problem of Order: Beyond International Relations Theory?* New York: Routledge.

[124] Mingst, K., 2001, *Essentials of International Relations*. New York: W.W. Norton & Company.

[125] Sage, C., 1996, *The Scope for North-South Cooperation*, in *Environmental Policy in an International Context: Prospects for Environmental Change*, A. Blowers and P. Glasbergen, Editors. John Wiley & Son Inc.: New York.

[126] Vasquez, J., 1993, *The War Puzzle*. Cambridge: Cambridge University Press.

[127] Doyle, M.W., 1983, *Kant, Liberal Legacies, and Foreign Affairs. Philosophy and Public Affairs. 12. 1983:pp. 205-34.*, in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 870-895.

[128] Schmidt, B.C., 2002, *On the History and Historiography of International Relations*, in *Handbook of International Relations*, W. Carlsnaes, T. Risse, and B.A. Simmons, Editors. SAGE Publications Inc.: Thousand Oaks, CA. p. 3-22.

[129] List, M. and V. Rittberger, 1998, *The Role of Intergovernmental Organizations in the Formation and Evolution of International Environmental Regimes*, in *The Politics of International Environmental Management*, A. Underdal, Editor. Kluwer Academic Publishers: Dordrecht, The Netherlands. p. 67-81.

[130] Keohane, R.O. and J.S. Nye, 1997, *Realism and Complex Interdependence*, in *International Relations: Critical Concepts in Political Science*, A. Linklater, Editor. Routledge: New York. p. 718-731.

[131] Homer-Dixon, T., 1991. *On The Threshold: Environmental Changes as Causes of Acute Conflict.* International Security, 16(1).

[132] Kaplan, R., 1994, *The Coming Anarchy*, in *Atlantic Monthly (February)*.

[133] Giordano, M.F., M.A. Giordano, and T.W. Aaron, 2005. *International Resource Conflict and Mitigation.* Journal of Peace Research, 42(1): p. 47-65.

[134] Lujala, P., N.P. Gleditsch, and E. Gilmore, 2005. *A Diamond Curse? Civil War and a Lootable Resource.* The Journal of Conflict Resolution, 49(4): p. 538-562.

[135] Keohane, R.O. and J.S. Nye, 1989, *Power and Interdependence*. New York: Harper Collins.

[136] Fukuyama, F., 1992, *The End of History and the Last Man*. London: Hamish Hamilton.

[137] Rosenau, J.N. and M. Durfee, 2000, *Thinking Theory Thoroughly: Coherent Approaches to an Incoherent World*. Second ed. Boulder, CO: Westview Press.

[138] Grieco, J.M., 1988, *Anarchy and the Limits of Cooperation*, in *International Relations: Critical Concepts in Political*

Science, A. Linklater, Editor. Routledge: New York. p. 805-829.

[139] Kolk, A., 1996, *Forests in International Environmental Politics: International Organisations, NGOs and the Brazilian Amazon*. Utrecht, The Netherlands: International Books.

[140] Burchill, S., 2001, *Liberalism*, in *Theories of International Relations*, S. Burchill, et al., Editors. Palgrave Macmillan: New York. p. 55-83.

[141] Chander, P. and H. Tulkens, 1997. *The Core of an Economy with Multilateral Environmental Externalities.* International Journal of Game Theory, 26: p. 379-401. Quoted from Hoel, 2001, chapter 7 of Folmer et. al. page 187.

[142] Russett, B., et al., 1993, *Grasping the Democratic Peace: Principles for a Post-Cold War World*. Princeton, NJ: Princeton University Press.

[143] Doyle, M.W., 1986. *Liberalism and World Politics.* The American Political Science Review, 80(4 (December)): p. 1151-1169.

[144] Sand, P.H., 1992, *Lessons Learned in Global Governance*, in *Environmental Protection and International Law*, W. Lang, Neuhold H., and Zemanek K., Editor. Graham & Trotman: Boston.

[145] OECD, 2001, *OECD Environmental Indicators: Towards Sustainable Development*, OECD: Paris.

[146] Cowhey, P.F., 1993. *Domestic Institutions and the Credibility of International Commitments: Japan and the United States.* International Organization, 47(2): p. 299-326.

[147] Greene, J.J., 1971. *Policy on the Environment.* The University of Toronto Law Journal, 21(2): p. 241-246.

[148] Nadkarni, M.V., 2000. *Poverty, Environment, Development: A Many-Patterned Nexus.* Economic and Political Weekly, 35(14): p. 1184-1190.

[149] Satterthwaite, D., 2003. *The Links between Poverty and the Environment in Urban Areas of Africa, Asia, and Latin America.* Annals of the American Academy of Political and Social Science, 590(November): p. 73-92.

[150] Clark, B., A.K. Jorgenson, and J. Kentor, 2010. *Militarization and Energy Consumption.* International Journal of Sociology, 40(2): p. 23-43.

[151] Jarrett, R., 2003. *The Environment: Collateral Victim and Tool of War*. BioScience, 53(9): p. 880-882.

[152] Baer, H., 2010, *The Impact of the War Machine on Globla Warming and Health. A Political-Ecological Perspective*, in *The War Machine and Global Health. A Critical Medical Anthropological Examination of the Human Costs of Armed Conflict and the International Violence Industry*, M. Singer and G.D. Hodge, Editors. AltaMira Press: Plymouth, UK.

[153] Anderson, A.B., et al., 2009. *Vehicle impacts on vegetation cover at camp Atterbury, Indiana, USA: part 3. Predicting cumulative impact of a military training event.* Proceedings of the Indiana Academy of Science, 118(2): p. 114-119.

[154] Huisken, R.H., 1975. *The Consumption of Raw Materials for Military Purposes.* AMBIO - A Journal of the Human Environment, 4(5/6): p. 229.

[155] Holdstock, D. and F. Barnaby, eds. 2003, *The British Nuclear Weapons Programme 1952-2002.* Frank Cass and Company Limited: London, UK.

[156] Fuller, M., E, C. Schaefer, E, and R. Steffan, J. , 2009. *Evaluation of a peat moss plus soybean oil (PMSO) technology for reducing explosive residue transport to groundwater at military training ranges under field conditions.* Chemosphere, 77(8): p. 1076-1083.

[157] Lyon, J.L., 1999. *Nuclear Weapons Testing and Research Efforts to Evaluate Health Effects on Exposed Populations in the United States.* Epidemiology, 10(5): p. 557-560.

[158] Bauer, S., et al., 2005. *Radiation Exposure Due to Local Fallout from Soviet Atmospheric Nuclear Weapons Testing in Kazakhstan: Solid Cancer Mortality in the Semipalatinsk Historical Cohort, 1960-1999.* Radiation Research, 164(4): p. 409-419.

[159] UNEP, 2009, *Protecting the Environment During Armed Conflict: An Inventory and Analysis of International Law*, UNEP: Nairobi.

[160] Takshe, A.A., I. Van der Molen, and J.C. Lovett, 2012. *Examining the Lack of Legal Remedies for Environmental Damage in the 2006 Lebanon-Israel War.* Environmental Policy & Governance, 22(1): p. 27-41.

[161] Francis, R., 2011. *The Impacts of Modern Warfare on Freshwater Ecosystems.* Environmental Management, 48(5): p. 985-999.

[162] Clarkin, P.F., 2010, *The Echoes of War. Effects of Early Malnutrition on Adult Health*, in *The War Machine and Global Health. A Critical Medical Anthropological Examination of the Human Costs of Armed Conflict and the International Violence Industry*, M. Singer and G.D. Hodge, Editors. AltaMira Press: Plymouth, UK.

[163] UNEP, 2003, *Desk Study on the Environment in Iraq*, UNEP: Nairobi, Kenya.

[164] UNEP, 2005, *Assessment of Environmental "Hot Spots" in Iraq*, UNEP: Nairobi, Kenya.

[165] Blackwelder, B., 1991. *Environmental Impacts of War.* International Journal of Humanities & Peace, 8(3): p. 44-44.

[166] Keohane, R.O., 1986. *Reciprocity in International Relations.* International Organization, 40(1): p. 1-27.

[167] Caporaso, J.A., 1992. *International Relations Theory and Multilateralism: The Search for Foundations.* International Organization, 46(3): p. 599-632.

[168] Young, O.R., 1999, *Governance in World Affairs*. Ithaca, New York: Cornell University Press.

[169] Dorussen, H. and H. Ward, 2008. *Intergovernmental Organizations and the Kantian Peace: A Network Perspective.* The Journal of Conflict Resolution, 52(2): p. 189-212.

[170] Ruggie, J.G., 1998. *What Makes The World Hang Together? Neo-Utilitarianism and the Social Constructivist Challenge.* International Organization, 52(4 (Autumn)): p. 855-885.