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### Environmentalism: Material or Post-Material Need?

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### Abstract

Environmentalism in Latin America has become of increasing concern throughout the world from the poor conditions in urban areas that affect the health of the population to the vast destruction of precious areas such as the Amazon. This paper seeks to discover what causes Latin American governments to take environmental actions. Are factors such as economic stability, environmental knowledge and education, or poor health conditions important in influencing the government to join environmental intergovernmental organizations?

## ENVIRONMENTALISM: MATERIAL OR POST-MATERIAL NEED?

Amanda Weier

### Abstract

*Environmentalism in Latin America has become of increasing concern throughout the world from the poor conditions in urban areas that affect the health of the population to the vast destruction of precious areas such as the Amazon. This paper seeks to discover what causes Latin American governments to take environmental actions. Are factors such as economic stability, environmental knowledge and education, or poor health conditions important in influencing the government to join environmental intergovernmental organizations?*

## Introduction

During a study abroad experience in Costa Rica in 2006, I viewed two environmentally charged films: “El Caribe” and “An Inconvenient Truth.” “El Caribe” addresses how resources such as oil can bring short-term wealth but lead to unlimited long-term problems. This film is based on an actual historical account of local Costa Ricans protected their land from outside oil companies seeking to drill in their territory. The other film, “An Inconvenient Truth,” explains the growing problem of global warming and the potential consequences the world may face if we continue to overuse our resources and choose not pursue sustainable development. I found it striking that I repeatedly encountered concerns for the environment in this developing country. It made me curious about the actual environmental action taken by other Latin American governments.

Throughout Latin America, governments vary in terms of their environmental involvement. According to Maslow’s Hierarchy of Basic Needs, the environment is considered a post-material need that serves little more than aesthetic purposes. Therefore, Maslow’s theory would lead us to believe that concern for the environment should be more prevalent in developed countries that can focus beyond the material realm. These countries can presumably afford to focus on post-material needs, such as the environment, as opposed to developing countries, specifically in Latin America, that focus more on establishing their economies. However, with the growing concern that poor environmental conditions affect physiological needs, one wonders if the environment has become a material need and now a priority in developing Latin American countries. Evidence based on environmental intergovernmental organizations will reveal how much the environment is prioritized compared to the economy.

## Reasons for Environmental Action

To begin this investigation, it is important to discuss the theoretical background that has traditionally been associated with evaluating the importance of the environment. The Hierarchy of Basic Needs, a theory advanced by Abraham Maslow, investigates the motives of human beings. Maslow categorizes human needs in the following order of importance: physiological needs, safety, belongingness and love, esteem, self-actualization, and aesthetic needs (Maslow 35-51). Maslow discusses the components of each category and the necessity to fulfill the most basic need before advancing to the next. He explains what an individual would desire if none of the needs were satisfied. “If all the needs are unsatisfied, and the organism is then dominated by the physiological needs, all other needs may become simply nonexistent or be pushed into the background” (Maslow 37). Similarly, the final need in Maslow’s theory, the aesthetic need, can only be accomplished and desired if all the other needs are fulfilled. Maslow explains that “...in *some* individuals there is a truly basic aesthetic need. They get sick (in special ways) from ugliness, and are cured by beautiful surroundings” (Maslow 51). These beautiful surroundings are often found in the environment.

Referring to the environment as a post-materialist need is not limited to considering it aesthetically pleasing but, for this study’s purpose, it also includes prioritizing environmental issues that may have future consequences, such as global warming. If this definition is applied to societies as a whole, the Hierarchy of Needs theory leads one to believe that developing countries will focus primarily on the economy because it provides stability and, therefore, fulfills physiological needs. “As with most developing areas, concern about employment, infrastructure, services, and political repression takes precedence over environmental activism” (Price 42). The

environment will only be considered a post-material need and therefore, concern will only emerge from those countries that have already fulfilled the preliminary needs.

The notion of the environment as a solely post-materialist need is challenged when the physiological necessities it provides, such as food and water, are considered. All over the world, the environment's importance is becoming increasingly more obvious due to negative consequences, such as global warming and contamination, that occur when the environment is neglected or damaged. Ronald Inglehart places concern for the environment in two categories: "objective" and "subjective" which are synonyms of materialist and post-materialist, respectively (57 Inglehart). Therefore, countries that have an objective concern would be directly affected by air or water pollution. In contrast, subjective concerns emerge from "countries that have relatively Post-materialistic publics" (57 Inglehart). Interestingly, Inglehart found in his study "Objective Problems and Subjective Values in 43 Societies" that the "subjective factor seems to have at least as much influence on relative support levels as does the objective level of pollution" (57 Inglehart). This observation suggests that countries that consider the environment a material need are just as likely to support environmental issues as those that view it as a post-material need.

Although populations with materialist and the post-materialist views of the environment seem to have an equal amount of support, their specific concerns tend to vary. Post-material countries are concerned with global warming and habitat conservation because they tend to have all their materialistic needs met and can see the value of the environment in futuristic terms. While populations with materialist views tend to reside in urban areas with poor environmental conditions. "The steady deterioration of urban areas has garnered the attention of millions of Latin Americans, 70 percent of whom live in cities where air pollution, water quality, and solid wastes negatively affect their lives" (Price 45). Considering this, it is not surprising that the destruction of tropical forests, a typical post-material concern, may seem distant and irrelevant to materialistic populations that face immediate health consequences.

In order to better evaluate the health crisis in many Latin American countries it is crucial to understand the actual environmental situation occurring. One of the main sources for a variety of disease is water contamination. According to the Pan American Health Organization, "less than 10% of the municipalities in Latin America treat sewage adequately before emptying it into natural watercourses. Ninety percent of the water is dumped into the rivers without any treatment, and these rivers function as water sources for cities downstream" (Black 1024). Lack of proper sewage treatment can lead to diseases such as cholera, yellow fever, dengue, and malaria. Most of these diseases are preventable and treatable, yet they are claiming lives because of the lack proper environmental treatment. In fact, contaminated groundwater in Rio was a leading factor in an infant mortality rate of 200 deaths per 1,000 live births (Faber 6).

Just as poor water quality results in serious health conditions, poor air quality leads to complications as well. Respiratory diseases are common among populations with poor air quality. A World Health Organization study determined that three primary respiratory disease-cardiopulmonary disease in adults, cancers of the trachea, bronchus and lung and acute respiratory infections in children- cause 800,000 premature deaths (1354 Cohen). Even though this environmental issue has such costly consequences, little to no action is being taken. "Only seven countries- Brazil, Chile, Colombia, Ecuador, Peru, Mexico, and Venezuela- have air quality standards. Although the standards are similar to those in the United States, enforcement is often haphazard" (Black 1027). Even small steps taken to improve current conditions seem to be mere facades, as real enforcement is not occurring.

Population growth is another health concern. Latin American populations are growing at an alarming rate which makes it difficult for their governments to help the economy develop let alone provide a sustainable means of development. According to World Health Organization expert Philip Meeks,

““There is no question that governments can’t keep up with the population growth. With their growth anywhere between two and three percent a year, their economies have to grow more than advanced industrial economies... they have to grow between five and six percent to be able to provide any meaningful improvement”” (1026 Black).

Not only does overpopulation cause strain on the environment by causing urban pollution problems, but it also directly negatively affects the economy, pushing environmental needs further into the periphery.

Environmental health is not limited to urban pollution, but it also affects rural populations through harmful pesticides. Many Latin American farmers do not receive guidance from the government or those that sell agricultural chemicals so a health hazard emerges when these chemicals are not handled properly.

“It is estimated that there were more than 70,000 cases of pesticide poisoning of Central American farm workers during the 1970s. As a result, Nicaraguan and Guatemalan migrant workers have some of the highest tissue contents of DDT and other carcinogenetic chemicals in the world” (9 Farber).

Serious long term consequences occur when these chemicals are used without the appropriate protective steps. Experts from the WHO attest to individuals mixing chemicals in their hands and applying them without protective clothing (1027 Black).

Health, however, is not the only way in which the environment serves as a materialist need. The rise of eco-dependency causes countries that thrive on a single agricultural commodity or eco-tourism to factor in the environment when considering economic growth.

““Eco-dependency’ refers to the socioeconomic relations bound up with predominantly export-oriented, natural resource-dependent productive sectors. In this sense, it is related strongly to the field of political ecology, whereby environmental and natural resource changes are understood in terms of decision-making and socioeconomic criteria” (Barton 4).

Countries studied in this work that rely on eco-tourism include Brazil, Mexico, and Costa Rica. In these countries, the economy and the environment are strongly intertwined and as a result, the environment is crucial to their stability. Although eco-dependency is beyond the scope of this study, it is still important to note as a way the environment, often considered a postmaterial need, impacts the economy, a material need.

Another possible variable that can affect environmental governmental action in a particular country is education. Education can cause populations to better understand what causes the health conditions that they face. Additionally, many studies have found that education leads to democratic values. “An overwhelming consensus exists in the democratization literature that links higher education with support for general democratic values” (755 Duch and Taylor). These democratic values can put pressure on the government to represent the populations and address problems such as environmental health.

A study conducted by Duch and Taylor argues that education has a higher influence on post-material values than the economy. The former Soviet Union proved to be a particular region of the world that highly supported their prediction. After the fall of the Soviet Union, there was a high level of post material values despite the poor condition of the economy. “In many of the

former communist regimes, post-materialist items are ranked highly in large part because education levels in these countries are surprisingly high” (773 Duch and Taylor). Since these countries were exposed to universal education and healthcare they were able to recognize the value of these institutions once they were removed from their everyday lives. The education that they received while under a communist regime lead to advanced thinking that caused the population to analyze their needs post-materially even though all of their material needs are not met.

In recent years, there has been environmental activism in Latin America. Many studies reveal information on the nongovernmental organizations in particular countries. These groups have grown from about four dozen in 1979 to more than five hundred by 1993 (42 Price). Many countries are caught in a between two decisions; on one hand they recognize their need for economic development, but on the other, the industrial route that traditionally provides the fastest way to develop is usually very straining on the environment. Industrial development leads to poor air and water quality, which in turn causes the health problems described previously. So instead of focusing on the environment and disregarding development, these groups try to promote both with “an alternative strategy of development” (44 Price).

Many of these NGOs also promote environmental education. They realize that once the greater population is aware and understands the environmental condition it will be more willing to contribute to solving the problem. They also attempt to cater to different levels of the population. “Some groups teach environmental units directly to grade-school children; others work in rural communities, where they explain pesticide hazards, organic farming, and intensive herding practices” (50 Price). Most NGOs primarily focus on education because they recognize their limited jurisdiction and know that they will have the most influence when the people put pressure on the government or change their daily activities.

These nongovernmental organizations are relevant to the study of intergovernmental organization because not only do they appeal to the affected populations but they also are more likely to cooperate with their governments than oppose it. “Most of these groups work with the federal system by encouraging stricter enforcement of existing laws, by creating new environmental policies, or by forming partnerships with governmental agencies” (49 Price). This is because most Latin American environmental NGOs are youthful, urban-based, middle class, and precariously financed. They usually have limited power in comparison to established NGOs in the Global North such as The Nature Conservancy that has the means to purchase large plots of land. That is not to say that these groups are insignificant. On the contrary, the sheer increase in the amount of groups suggests the strong demand placed on governments to take environmental action.

An interesting phenomenon has occurred as these NGOs start to evolve into “quasi-NGOs that are publicly sponsored affiliates of governmental ministries” (53 Price). These are necessary because with this new title, former NGOs are now able to accept public funds offered through international organizations. “In 1992 the World Bank lent \$50 million for an environmental project that required collaboration between the Mexican environmental agency and Mexican NGOs (54 Price). Since 1992, funding for environmental projects has increased with establishment of The Global Environment Facility (GEF).

The Global Environment Facility’s primary focus is to distribute environmental aid to member countries. The GEF represents many of the post-material values associated with international organizations. “The GEF is intended to benefit four areas of global environmental concern: biological diversity, climate change, international waters, and ozone layer depletion”

(317 Holton). The GEF generates revenue from its donor countries which are used to fund projects throughout the world that mirror the intentions of the GEF. These funds are large sums of money that would be difficult for environmental groups to come by any other way. In 2006, 32 donor countries pledged \$3.13 billion to fund operations between 2006 and 2010. Before the projects begin they must be considered by the 32 members that make up the GEF Council that approve all GEF full-size projects. Finally, The World Bank, the UN Environment Program, and the UN Development Program will manage all the GEF projects. Since the GEF is structured much like the UN, all member countries have an opportunity to be represented as they are all members of the GEF Assembly.

Although present research does a thorough job providing studies regarding environmental issues within specific countries through individual analysis and, occasionally, comparing three or four countries, there appears to be a lack of studies investigating Latin America as a whole. I hope to provide insight as to what factors influence governments to become members of environmental intergovernmental organizations. With this new understanding, one can assess the most effective way to deal with environmental problems in Latin America whether they are of material or post-material nature.

## **Hypotheses**

Based on the literature and theories surrounding environmentalism, I expect that post-material values will lead to higher participation in organizations, i.e. countries with higher GDPs will be members of more environmental intergovernmental organizations. In contrast, countries with higher populations affected by environmentally induced health conditions will be members of fewer intergovernmental organizations because they will focus more on material needs. The literature also leads me to expect that increased literacy rates and environmental knowledge available to the public will lead to more memberships in environmental intergovernmental organizations. Studies have indicated that high levels of education lead to democratization and these democracies will presumably accurately represent their populations and concerns.

Additionally, I expect that more international funding will be provided to countries belonging to more environmental intergovernmental organizations. These countries will be more likely to have an established relationship with the lending countries and probably have more reliable institutions to implement the type of projects requested.

## **Research Design**

While trying to compare different levels of environmental activism in Latin America, the amount of governmental organizations dedicated to the environment is a solid indicator of how concerned a country is with the environmental issues. The Environmental Sustainability Index (ESI) examines the level of sustainability of each country by taking into consideration several components such as environmental health, levels of pollution, education and many others. The variable “environmental intergovernmental organizations” provided by the ESI fits the dependent variable that this study seeks to investigate and thus, was analyzed in the following fifteen Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, El Salvador, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. This variable measures how many memberships (out of a maximum 100) individual countries have in environmental intergovernmental organizations. Some of these organizations are very general in nature, but the majority of groups are regionally and issue specific- for example, the Group of Latin American and Caribbean Sugar Exporting Countries. A list of these groups can be found in Appendix A.



This variable could be more exact if it measured the level of participation and activism of each country in each organization, however, this could not be accomplished due to limitations of available data. In order to evaluate what may cause different amounts of memberships in environmental intergovernmental organizations, several independent variables will be considered including: the gross domestic product (GDP), environmental health, literacy, and available environmental knowledge. The table below represents each country and the amount of environmental intergovernmental organization memberships that specific country obtains.

### **Number of Memberships in EIO's in 15 Latin American Countries**

Country	Number of Memberships in Environmental Intergovernmental Organizations
Brazil	19
Argentina	16
Ecuador	16
Cuba	15
Mexico	15
Colombia	14
Panama	12
Bolivia	12
Chile	12
El Salvador	11
Peru	11
Uruguay	10
Venezuela	10
Nicaragua	10
Paraguay	8

The Gross Domestic Product is measured according to each country's official exchange rate as of 2007 provided by the World Fact Book. This variable seeks to measure the strength of the economies of the countries considered. According to Maslow's Hierarchy of Needs, countries with weaker economies will not be as concerned with post-material needs because their focus will be on improving the economy. Following this rationale, countries with weak economies or low GDPs are expected to have fewer memberships in environmental intergovernmental organizations.

Environmental health can be measured in a variety of ways. The components considered in this study are mortality rate from intestinal infectious diseases, child mortality rate from respiratory diseases, and child (under five) mortality. All of these conditions tend to occur due to poor air and water quality. Intestinal infectious diseases usually indicate that the population is affected by poor sanitation and water quality. The source for this variable is the World Health Organization. To control for age, the data was standardized by using Canada's population structure, a tool that offers a relatively stable reference distribution. The child mortality rate from respiratory diseases was measured among children from 0-14 years of age. This variable, determined by the World Health Organization, reflects the degree to which children are impacted by poor air quality. Children (under five) mortality rate, provided by the United Nations Statistics Division, seeks to measure the vulnerability of the most vulnerable population group. This group can often be affected by poor environmental conditions; however, since it does not

evaluate solely environmentally caused deaths, a statistical correlation can be determined to detect if a relationship exists.

Since education is another factor that has influenced environmental activism in past studies, the literacy levels of the 15 countries investigated in this study were considered. This variable was measured in 2007 and provided by the CIA World Fact book. The World Fact Book defines literacy as “individuals over the age of 15 with the ability to read and write” (World Fact Book). While it would be more accurate to obtain the levels of environmental education the population receives, these data are not attainable for this study. By considering the literacy, I hope to measure the percentage of the population that has at least a basic education and would be able to read about issues concerning the environment.

Knowledge in environmental science, technology and policy is also considered as an additional independent variable. This variable was extensively measured by the amount of publication, in proportion to the population, in the following nine highly ranked peer-reviewed journals including: *Ecology*, *Conservation Biology*, *Environmental Science and Technology*, *Biological Conservation*, *Global Change Biology*, *Environmental Health Perspectives*, *Water Resources Research*, *Environmental Toxicology and Chemistry*, and *Global Biogeochemical Cycles*. Knowledge is considered as a variable because it can presumably be a catalyst for political action. Additionally, with the appropriate knowledge effective and informed decisions can be made regarding relevant policy. It also promotes new more efficient technologies to emerge.

In the second part of the analysis, I seek to measure the effectiveness of the intergovernmental organizations. I compiled the list of grants allocated by the Global Environment Facility, beginning from the year each country joined, to find the sum and considered total grants each country received from GEF as a whole monetary fund. Since the countries all joined within one year of one another this is an accurate measurement of the comprehensive funds they have received from the Global Environment Facility. This variable will indicate if countries with larger amounts of memberships in environmental intergovernmental organizations receive more funding.

Although governmental effectiveness is not being considered as an independent variable in this study in relation to environmental intergovernmental organization, this measurement is useful in determining what conditions affect the Global Environment Facility to provide funding. Since this variable is provided by the ESI it is important to consider that it defines governmental effectiveness as “quality of public service provision, the quality of the 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). This definition is applicable to funding from the GEF because it measures, in part, how much the government is reliable in keeping its commitments to fulfilling policies, which can include potential environmental policies made by these organizations. The ESI measures effectiveness on a scale where the minimum value (within the Latin American countries considered in this study) equals -1.29 and the maximum value equals 1.19. This scale, derived by the World Bank, compiles 25 sources of information on governmental effectiveness to produce comparable indicators.

Concept	Operationalization	Expected direction of relationship with DV
Economic Status	GDP	+
Education	Literacy Rate- 15 and older that can read and write	+
Effect of Environment on Population	Mortality Rate of Children 5 and under, rate of intestinal infectious diseases, rate of respiratory diseases	-
Environmental Education Available to the Public	Number of scholarly publications in environmentally based journals	+
International Funding	Total monetary amount given to a specific country via grants from the Environment Facility	+

## Data

*Correlations: Table 1*

		Environmental Intergovernmental Organizations
GDP	Pearson Correlation	.633 (**)
	Sig. (2 tailed)	.007
	N	15

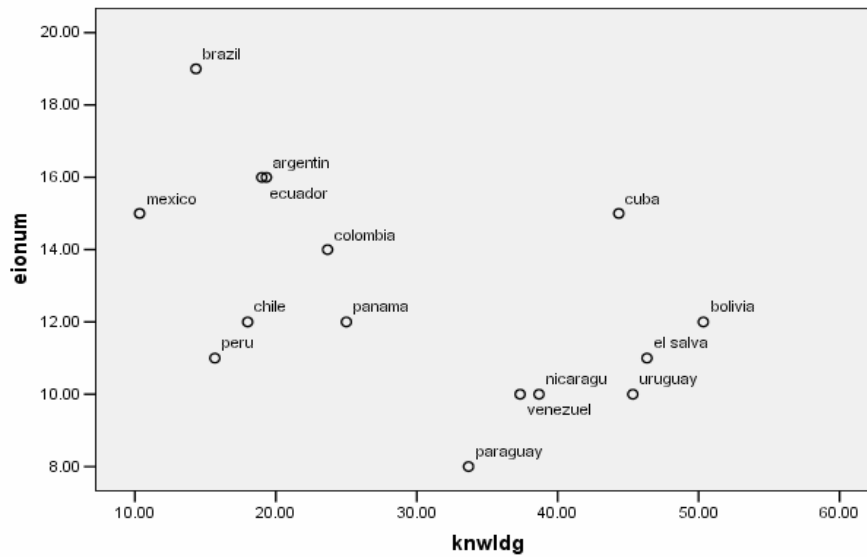
\*\* Correlation is significant at the 0.01 level (2 tailed).

*Correlations: Table 2*

		Environmental Intergovernmental Organizations
Mortality Rate from Intestinal Infectious Diseases	Pearson Correlation	-.450
	Sig. (2 tailed)	.092
	N	15

Graph 1

Relationship between Environmental Intergovernmental Organizations and Knowledge



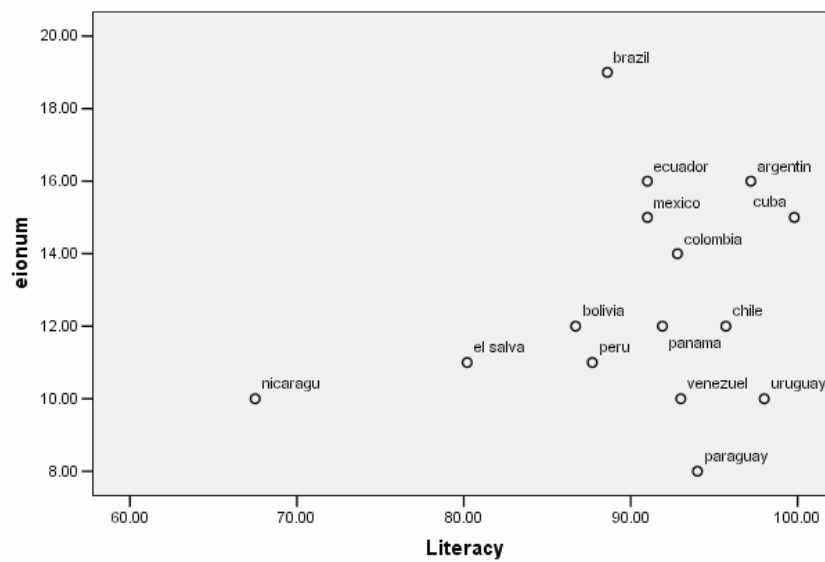
Correlation -.529

Significance .043\*

\*Correlation is significant at the .05 level

Graph 2

Relationship between Environmental Intergovernmental Organizations and Literacy



Correlation .228

Significance .415

*Linear Regression Model: Table 3*

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.741	.549	.426	2.26315

Predictors: (Constant), Mortality Rate from Intestinal Infectious Diseases, GDP, Literacy

**ANOVA**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	68.593	3	22.864	4.464	.028
Residual	56.340	11	5.122		
Total	124.933	14			

Predictors: (Constant) GDP, Intestinal Infectious Diseases, Literacy

Dependent Variable: Environmental Intergovernmental Organizations

*Coefficients*

		Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients	t	Significance
Model		B	Standard Error	Beta		
1	(Constant)	16.451	11.077		1.485	.166
	GDP	.006	.002	.588	2.817	.017
	Mortality Rate from Intestinal Infectious Diseases	-.092	.070	-.401	-.1317	.215
	Literacy	-.034	.111	-.092	-.307	.765

*Linear Regression Model: Table 4*

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.740 (a)	.548	.425	2.26552

Predictors: (Constant), Mortality Rate from Intestinal Infectious Diseases, GDP, Knowledge

**ANOVA**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	68.475	3	22.825	4.447	.028
Residual	56.459	11	5.133		
Total	124.933	14			

Predictors: (Constant) GDP, Intestinal Infectious Diseases, Knowledge

Dependent Variable: Environmental Intergovernmental Organizations

### Coefficients

		Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients	t	Significance
Model		B	Standard Error	Beta		
1	(Constant)	13.509	2		6.755	.000
	GDP	.006	.003	.560	2.247	.046
	Mortality Rate from Intestinal Infectious Diseases	-.071	.052	-.308	-1.371	.198
	Knowledge	-.016	.060	-.072	-.266	.795

Dependent Variable: Environmental Intergovernmental Organizations

### Correlations: Table 5

		Global Environment Facility Funding
Environmental Intergovernmental Organizations	Pearson Correlation	.688
	Sig. (2 tailed)	.005**
	N	15

\*\*Correlation is significant at the .01 level

### Correlations: Table 6

		Global Environment Facility Funding
GDP	Pearson Correlation	.981
	Sig. (2 tailed)	.000**
	N	15

\*\*Correlation is significant at the .01 level (2 tailed).

## Analysis

Several bivariate tests were conducted as seen in tables above. Table 1 reflects a relatively strong positive correlation between the number of memberships in environmental intergovernmental organizations and gross domestic product. This means that as the GDP increases so does the amount of memberships. This supports the post-materialistic assumption that the countries with an established economy will be concerned more with post-material values such as the environment. This statistic is significant so there is confidence that these results did not happen by chance.

Table 2 represents the correlation between memberships in intergovernmental organizations and mortality rate from intestinal infectious diseases. The table shows a strong negative correlation. Therefore, countries that have fewer memberships in intergovernmental organizations have a higher mortality rate due to intestinal diseases. Although this statistic is not significant it must be considered because although chance may be involved a relationship is nonetheless present. Correlations for mortality rate of children under five years of age and rate of

respiratory diseases were also run. Results indicated a  $-.182$  correlation between child mortality rate from respiratory diseases and environmental intergovernmental organizations with a  $.517$  significance level. Additionally, a  $-.103$  correlation was indicated for the relationship of children under-five mortality rate and memberships in environmental intergovernmental organizations with a  $.715$  significance. Correlation was also run between children under-five mortality rate and respiratory and intestinal diseases to ensure that these mortalities were caused by poor environmental conditions. Children under-five and respiratory disease resulted in a relationship of  $.511$  with significance of  $.051$ . Additionally, intestinal diseases were statistically significantly correlated at  $.683$ . These three indicators of poor environmental conditions directly affecting the population's quality of life are all negatively correlated with amount of memberships in intergovernmental environmental organizations. Intestinal disease was chosen because it had the strongest relationship and was closest to being statistically significant.

A negative correlation is displayed in graph 1 plotting the relationship between environmental intergovernmental organizations and knowledge in environmental science, technology, and policy. Countries with more environmental knowledge tend to have fewer memberships in environmental intergovernmental organizations. Similar to the results found in bivariate test that demonstrated a relationship between knowledge and gross domestic product that is fairly strong and negative at  $-.579$  with a significance of  $.024$ . This test indicates that countries with lower GDPs have more environmentally related knowledge available than those that with higher membership in environmental intergovernmental organizations. This result seems to be the opposite of findings in previous studies conducted in which education was predicted to be a high indicator of democratic values and democratic values tend to produce governmental institutions that serve to represent the people of that particular country.

Graph 2 yields the opposite results as graph 1 as literacy rates have a positive relationship of  $.228$  with memberships of environmental intergovernmental organizations. Although this finding correlates with my hypothesis and the literature, it provides significance value of  $.415$ . This makes it very difficult to say that this relationship is accurate with confidence.

The regression models represented in tables 3 and 4 seek to indicate whether or not the chosen independent variables have more explanatory power together than they do separately. Table 4 represents the model with literacy, intestinal infectious diseases, and GDP. Again, literacy seems to be of little significance and it has changed direction from the previous bivariate correlation so it is very difficult to interpret this variable within this dataset. In table 5, knowledge is substituted for literacy because these similar variables might cause multicollinearity. Both of these models have very similar high adjusted R squares and high significance levels. GDP is the only variable in table 5 that maintains statistical significance and provides much of the explanatory value of the adjusted R squared.

Table 5 represents the correlation between environmental intergovernmental organizations and the amount of international funding received, specifically from the Global Environment Facility. This relationship is a positive strong correlation of  $.688$  and it is statistically significant which indicates that the more environmental intergovernmental organizations a particular country is a member of the more funding that country will receive.

Table 6 indicates that a positive, almost perfect, and significant correlation of  $.981$  exists between funding from the Global Environment Facility and a country's GDP. This suggests that the Global Environment Facility tend to grant more money to countries with stronger economies. A correlation was also run to investigate if the countries with higher memberships in environmental intergovernmental organizations had more effective governments. This

correlation proved to be weak at .176 and insignificant at .529. Additional tests correlating GEF funding with effective governments also resulted in a weak relationship at .191 and statically insignificant value of .494.

Table 7 summarizes the findings of all the independent variables and their expected direction compared to their actual direction:

*Table 7*

Concept	Operationalization	Expected direction of relationship with DV	Actual direction of relationship with DV
Economic Status	GDP	Positive	Positive
Education	Literacy Rate- 15 and older that can read and write	Positive	NA
Effect of Environment on Population	Mortality Rate of Children 5 and under, rate of intestinal infectious diseases, rate of respiratory diseases	Negative	Negative
Environmental Education Available to the Public	Number of scholarly publications in environmentally based journals	Positive	Negative
International Funding	Total monetary amount given to a specific country via grants from the Global Environmental Facility	Positive	Positive

For further analysis it may be helpful to critically individually assess three of the countries studied. Brazil, Mexico and Venezuela are of particular interest because they seem to be evenly distributed among the range of the dependent variable. Brazil has the most memberships as it is involved in nineteen environmental intergovernmental organizations, while Mexico represents the median with fifteen memberships and Venezuela accounts for the countries with the fewest memberships as it only has ten.

Brazil is an example of both the hypotheses presented in this study because it has the strongest economy and, as expected, the highest amount of memberships in environmental intergovernmental organizations. Additionally, it receives the most GEF funding. The reason for Brazil's active international environmental involvement can be traced back to a particular event that unified many of its existing environmental groups. In 1992, the UN chose Brazil to host the Conference on Environment and Development (UNCED). All types of environmentalists worked together in order to create the Brazilian Forum, a group that would represent Brazil adequately in this conference.

The Brazilian Forum contained about 935 entities with members that had variety of interests. The Brazilian Forum unified these groups as they worked together in order to prepare for the conference. "The Brazilian Forum was not only a collection of environmentalist or of citizens' movements; it also included research institutes and voluntary development agencies with international funding" (14 Christen). Although different interests were represented, the



background of the individuals did not vary significantly. “Two-thirds of those in Brazilian Forum declared that they had directors who also belonged to state organizations” (15 Christen). This helps us to understand why Brazil receives a large amount of international funding. First, the conference held in 1992 allowed relationships to develop between the international community and organizations in Brazil. Secondly, during this conference many groups saw the benefit of working with the state and the international community. “The experience of the UNCED also convinced many activists of the need to professionalize their organizations, while giving them the opportunity to contact international NGOs and new donors” (16 Christen). Relationships with the international community provide amounts of funding that would be nearly impossible for a small grassroots organization to generate. Although the Brazilian Forum no longer meets because the convention has been over for quite some time, it did change the way environmental organizations interacted with one another. Some have even formed coalitions in order to strive for progress together.

Mexican environmental history varies a great deal from the unification seen in Brazil. Particular environmental problems affecting Mexico, specifically in the Yucatan Peninsula include: deforestation, soil erosion and over fishing (7 Christen). There are approximately fifteen environmental organizations in the region and the two most significant and stable have been PRONATURA of the Yucatan and Amigos de Sian Ka'an (ASK). Sian Ka'an's. “Both [groups] focus primarily on nature conservation, employing the sustainable development philosophy that conservation will be most effective when it is economically profitable for local residents” (8 Christen). These organizations' philosophies tend to align closely with the environmental interests of the international community. Additionally, the leaders of the Mexican post-material environmental groups closely reflect the trends seen in Brazil with highly educated individuals facilitating these organizations. “The founders and leaders of the larger Yucatan environmental organizations have been highly educated (often with postgraduate training) members of the upper class” (9 Christen). These individuals, however, often do not represent the impoverished populations affected by poor environmental conditions.

PRONATURA of the Yucatan and Amigos de Sian Ka'an vary greatly in contrast to two other smaller environmental organizations that emerged in the Yucatan namely, Grupo Ecologista del Mayab (GEMA) and Plan Piloto Forestal. Although, the GEMA is no longer currently active in the Yucatan, its interactions with the state and the international community are prevalent because they may represent other similar organizations in the region. GEMA and Plan Piloto Forestal have a different focus than ASK and PRONATURA, they advocate for the material needs provided by the environment. “GEMA was classifiable as an urban activist group concerned primarily with the quality of life for all residents of the rapidly growing city of Cancun” (8 Christen). GEMA was among the few organizations concerned about wastewater treatment, greenbelts, and recycling. Since GEMA focuses more on urban issues it received little support from international sources. “[GEMA] leaders complained bitterly about the lack of national and international support for what they considered to be relevant direct-action initiatives” (8 Christen). Once again, an example emerges of the international community's absence in working with organizations that represent protecting material needs provided by the environment. Mexico represents the statistical findings of this study accurately, because the environmental organizations that work for post-material environmental goals seem to receive international funding, while those that do not are left to use the local resources provided by the locals affected by the poor environmental conditions.

Venezuela represents the countries with the fewest memberships in environmental intergovernmental organizations. The country's most prevalent environmental concerns are primarily of material nature: overcrowding, air pollution, and contaminated water supplies. Like Brazil, Venezuela has an interesting environmental historical context that must be considered when analyzing its environmental activism. Very early on the Venezuelan state took an interest in environmentalism. It established various national laws concerning industrial pollution and drafted its Organic Law on the Environment in 1976. This activism was short lived though, because its environmental laws and institutions became a means to gain control rather than to protect the environment. Eventually the economic burden was too high due to the high inflation rates to even manage a façade. The state pulled out of many environmental groups and began to extract resources at an alarming rate. "The average rate of deforestation for Venezuela during the 1980s was 1.2 percent a year, twice as high as in Brazil" (11 Christen). The state's priority of the economy over the environment became apparent as the environment was pillaged for economic gain.

The Venezuelan government's lack of concern for environmental issues led to an enormous civil society response. "As state-directed environmental initiatives decline in the 1980s, the number of non-governmental environmental groups working in Venezuela soared" (11 Christen). These non-governmental groups approach to solving environmental issues much reflects those that lack jurisdiction and funds to carry out expensive and invasive projects. "Two-thirds of the forty organizations studied by this author considered formal and informal education on of their main activities" (11 Christen). They focus on educating the population about environmental issues that directly affect their quality of life. Although, the dependent variable of this study indicates low amount of environmental intergovernmental organizations, this does not mean that environmental action in countries like Venezuela is stagnant; it may simply mean that the environmental activity is being pursued by non-state actors.

## Conclusion

Based on the bivariate and liner regression tests conducted, the strongest relationship that was statistically significant was found between international environmental groups and gross domestic product. This relationship supports the theory of Maslow's Hierarchy of Needs in that only countries with strong economies will have post-material values such as the environment and thus, allows us to accept the first hypothesis. It seems that these countries do indeed have the financial resources to be involved in more environmental organizations.

The presence of environmental intergovernmental organization, however, does not mean the absence of other types of environmental activism. Trends for environmental organizations seem to be classified into two categories: international and locally-based. International organizations seem to focus on post-material environmental concerns such as the conservation and ozone protection while locally based groups are motivated by poor urban environmental conditions affecting the population's quality of life. These locally-based groups are often represented in grass root NGOs.

There are several ways this study could be improved through further research. A higher N value would improve this study greatly. If more information became available regarding Latin American countries excluded from this investigation then this study could maintain its focus yet increase in accuracy because a higher N would most likely result in a higher statistical significance. Additionally, a measurement for eco-dependency would more result in a more inclusive study on material needs provided by the environment. Finally, to better understand the

materialist- post-materialistic divide among international and non-governmental organizations it would be helpful to obtain more information regarding non-governmental organizations. In order to assess non-governmental organizations as a variable each NGO would have to be analyzed for amount of members and effectiveness. Additionally, further research regarding actual legislation passed by influence of NGOs, quasi-NGOs, or the intergovernmental organizations and measuring the effectiveness of that legislation.

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## Appendix A

### List of 100 Intergovernmental Organizations considered for the Variable EIONUM

Number	Name of the Intergovernmental Organization considered for EIONUM
1	Arab Atomic Energy Agency
2	Association of Agricultural Research Institutions in the Near East and North Africa
3	Afro-Asian Rural Reconstruction Organization
4	Association of Coffee Producing Countries
5	Arab Federation of Fish Producers
6	African Groundnut Council
7	Amazonian Cooperation Council
8	Association of Natural Rubber Producing Countries
9	Arab Organization for Agricultural Development
10	Asia-Pacific Association of Agricultural Research Institutions
11	Asian and Pacific Coconut Community
12	African Remote Sensing Council
13	Association for International Scientific and Technical Communication and Cooperation
14	African Timber Organization
15	Asian Vegetable Research and Development Centre
16	International Center for Agriculture and Biosciences
17	International Commission for the Hydrology of the Rhine Basin
18	International Commission for Food Industries
19	Permanent Interstate Committee for Drought Control in the Sahel
20	Commission internationale pour la protection du lac de Constance
21	Café Mundial
22	Central American Energy Commission
23	South American Commission for the Control of Foot-and-Mouth Disease
24	Cocoa Producers' Alliance
25	Desert Locust Control Organization for Eastern Africa
26	East African Agriculture and Forestry Research Organization
27	European Atomic Energy Society
28	East African Meteorological Department
29	East African Marine Fisheries Research Organization
30	European and Mediterranean Plant Protection Organization
31	European Safeguards Research and Development Association
32	Inter-State Organization for Advanced Technicians of Hydraulics and Rural Equipment
33	European Energy Commission
34	Food Aid Committee
35	Food and Agriculture Organization of the United Nations
36	Group of Latin American and Caribbean Sugar Exporting Countries
37	Inter-African Coffee Organization
38	International Atomic Energy Agency
39	Inter-American Tropical Tuna Commission
40	International Cotton Advisory Committee
41	Intergovernmental Commission on Central American River Basins
42	International Cocoa Organization
43	International Council for the Exploration of the Sea
44	Inter-African Committee for Hydraulic Studies
45	International Coffee Organization

46	International Cotton Producers Association
47	International Commission for the Protection of Lake Constance
48	International Commission for the Protection of the Rhine against Pollution
49	International Commission for the Protection of the Saar against Pollution
50	International Commission for the Protection of the Moselle against Pollution
51	International Commission for the Southeast Atlantic Fisheries
52	International Commission for Scientific Exploration of the Mediterranean Sea
53	International Grains Council
54	International Hydrographic Organization
55	International Jute Organization
56	International Maritime Organization
57	International Natural Rubber Organization
58	Interatomenergo
59	Indian Ocean Commission
60	International Olive Oil Council
61	International Pepper Community
62	International Red Locust Control Organization for Central and Southern Africa
63	International Rubber Study Group
64	International Relief Union
65	International Seed Testing Association
66	International Tea Committee
67	International Tropical Timber Organization
68	International Whaling Commission
69	International Wool Study Group
70	Joint Institute for Nuclear Research
71	Joint Nordic Organization for Lappish Culture and Reindeer Husbandry Affairs
72	Organization for the Management and Development of the Kagera River Basin
73	Mano River Union
74	Northwest Atlantic Fisheries Organization
75	North American Plant Protection Organization
76	North Atlantic Salmon Conservation Organization
77	Niger Basin Authority
78	North-East Atlantic Fisheries Commission
79	Near East Plant Protection Organization
80	Nordic Forestry Union
81	Nordic Council for Reindeer Research
82	North Pacific Anadromous Fish Commission
83	North Pacific Fur Seal Commission
84	Organisation africaine et malgache du café
85	Joint Anti-Locust and Anti-Aviarian Organization
86	International African Migratory Locust Organisation
87	International Office of Epizootics
88	International Sugar Organization
89	International Vine and Wine Office
90	Latin American Energy Organization
91	Latin American Fisheries Development Organization
92	Gambia River Basin Development Organization

93	Senegal River Development Organization
94	Regional International Organization for Plant Protection and Animal Health
95	Regional Organization for the Protection of the Marine Environment
96	Southern African Regional Commission for the Conservation and Utilisation of the Soil
97	South-East Asia Lumber Producers Association
98	South West Atlantic Fisheries Advisory Commission
99	Union of Banana Exporting Countries
100	World Meteorological Organization