Understanding Environmental Policies in the World:
The Role of Citizens and Governments

by

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Contents

Abstract

This study employed a quantitative analysis of survey data from 172 countries to explore the relationships between governmental types and environmental accountability. Data from MicroCase 2013 was used to analyze the research question.

The hypotheses all had a major theme that various types of governments and the actions they take, as dictated by their citizenry to the extent the government responds to their wishes, will have an impact on environmental accountability. The major findings were that the more accountable the government (government officials) is to the electorate, then the higher the level of environmental accountability the nation has. All of the factors of government type, economic freedom, region, political rights, rule of law, and effective government tested had a positive influence on environmental accountability.

A major factor in whether a nation has a high level of environmental accountability or not is related to the type of government a nation has as well as the stability, ability to deliver services, and law enforcement ability of that nation. As environmental groups and citizens around the world seek to promote a cleaner environment these aspects must be taken into consideration.

I. Introduction

Virtually all the 2020 Democratic presidential candidates have listed climate change as a high priority on their platforms. Barely a week goes by where there is not some debate on the state of the world's climate. The severity of nearly every hurricane, tornado, blizzard, or flood is blamed on manmade climate change. Even now, as the Amazon enters its' dry season and fires rage out of control, environmentalists are voicing great concern on the impact the fires will have on the ecology of the planet. There are those who say that without immediate, drastic action, the damage being done to the planet's climate will be irreversible. Some believe the time when individual actions could make an impact and reverse the damage being done to the environment has passed. Now, the Earth has reached a point where only large-scale efforts will halt or reverse the damage. Many believe this can only be accomplished with intervention by the world's governments.

When dealing with the problem of global warming/climate change, the obvious solutions deal with a reduction of pollution. There are as many varied ways in which pollution enters the environment as there are ways to deal with it. Countries may focus on manufacturing industries by introducing regulations as a means of curbing the release of pollution. They may also place emission standards on privately owned vehicles as a means of controlling pollution. As a means of keeping vehicles in good working order and ensuring that their engines are working properly, countries may also require periodic inspections and mandate repairs should they be required before allowing the vehicles to operate on roadways.

While these methods are designed to help improve the environment, they are only a part of the environmental policies of a given nation. Other policies may not be designed to combat

global warming at all, but are designed to protect the environment. An often-overlooked example of this is the operation of water treatment plants. These are designed to clean wastewater from humans and either release it back into the environment or recycle it for use again. Not only does this reduce the impact humans place on the water systems in the environment, protecting various plants and animals from harm, but it also protects humans from various diseases by purifying the water they drink. Some countries do a better job of this than others. Everyone has heard the warning of "don't drink the water in Mexico." Another policy which has a health benefit was the removal of lead from gasoline. This was done as a result of studies that found lead exposure in children increased aggressive behavior. While this policy certainly aided in providing cleaner air for humans to breathe, it also had the social benefit of reducing aggressive behavior in humans, thereby, likely reducing various crimes. This shows that policies such as these and others like them have a multi-layered benefit for society.

By reducing the impact of human interaction with the environment, environmental policies also serve to preserve, and in some instances, repair the ecosystem. Studies have shown that when humans stop interacting with the environment, areas can repair themselves. One surprising example of this is Chernobyl. Since humans have left the area, the plants and wildlife in the area have not only recovered, but flourished.

This study, by showing the emphasis that different types of governments place on environmental concerns, can be used to draw a correlation between the health, physical, and mental development of those nations. This will allow for a comparison to be drawn and, over time, this data can be tracked to see either increases or decreases in chronic health problems. Not only will this study aid in understanding the environment, but it will also aid in understanding long-term human health problems and ways to combat chronic problems.

This will be an empirical research study of the environmental policies of 172 nations using data in the Micro Case system. The data used will be quantitative data gathered from those nations detailing their environmental policies compared with the type of government. Most nations will have very different emphasis on which policies they adhere to. Nations that are highly industrialized will likely have more policies than emerging nations in early or pre-industrial stages. The type of government will also have influence on policies. In democratic nations, it is expected that if the populous is concerned about environmental policies, then the government will be as well. In more authoritative nations, only those governmental leaders who place a high value on environmental policies are expected to place emphasis on them as part of their governance.

When looking at governments world-wide, there are many different types and they are at various stages of development. This quantitative study will break down the emphasis that different types of countries place on environmental policies. The organization of this paper will be broken down into three sections. The first section will be a literature review, which will provide sources of peer reviewed literature on the key topics of environmental policies in various nations. The second section will discuss the methodology of this study. In short, it will detail how the data was gathered. The third and last section will look at the findings and provide analysis of those findings.

II. Literature Review

Introduction

There has been extensive and exhausting conversation on the perceived dire situation regarding the state of the environment. Many environmentalists and some climate scientists are adamant that steps be taken immediately to halt the damage being done to our planet. The purpose of this literature review is to review scholarly articles on the subject of governmental responses to the environmental crisis. For this purpose, this review will focus on two schools of thought which are, first, the emphasis that democratic nations place on environmental policies, and second, the emphasis that authoritarian regimes place on environmental concerns in the management of their nation.

The Emphasis Democratic Nations Place on Environmental Policies

When looking at the development of nations, it is easy to see that there is a vast difference between how they operate. In democracies, every citizen has the right to vote to decide not only their leaders, but on many aspects of how their government will operate.

However, there are differences between these types of nations and how they execute their environmental policies. In some instances, there is room for shared responsibility and cooperation between nations, especially with regard to border nations when the actual border may be difficult to locate. An example of this is the border between the United States and Canada. As Timothy Casey writes, "The first international peace park established in the world at Glacier-Waterton Lakes recognizes this difficulty of distinction and jointly manages a landscape in both countries as if it was one biotic community" (Casey 2011, 345). This is not the only area

where the United states and Canada must cooperate. Casey notes that easy access for oil tankers from Alaska to the continental United States takes place through the Northwest Passage. Canada claims this passage as their territory while the United States contends that it should be international waters (Casey 2011).

Highlighting differences in these two nations approach to environmental policy, in Canada, the local provinces have more control on the development and use of resources than the national government does. In the case of the United States, the federal government has much more control through the authority placed in various federal management agencies. (Casey 2011).

These two methods highlight both the centralized and decentralized approach to management. Even though Canada has a strong environmental policy, its leaders did feel the need to drop out of the Kyoto Protocols, because Canada "failed to meet its reductions goal in such a short timeframe….and would save itself around $14 billion in penalties" (Johnson 2018, 79). Canada would, however, later sign onto the Copenhagen Accord, which was a non-binding treaty. (Johnson 2018, 79). This highlights that while Canada may have strong environmental concerns, it will not hesitate to back away from commitments if it is in its national interests in other ways.

Brazil, another democratic nation, has made huge inroads in changing their energy dependence structure. "Hydropower alone represents over 80 per cent of electricity generation in the country" (Guimarães and Piefer 2017, 24). While Brazil does have a good sustainable energy policy, it also has its share of problems. "A lack of long-run strategic policy planning, lack of infrastructure investment, and other issues" (Guimarães and Piefer 2017, 28) show that Brazil has obstacles which it struggles to overcome.

Another democratic nation which is struggling with environmental issues is India. It is, however, making great strides at improving their ecological footprint. "India's wind market is set to be the fifth largest annual market globally with a 5.8% share of the global market in 2015" (Siefert 2017, 343). While it has made inroads in attempting to provide clean power to their citizens, India has fallen short in dealing with wastewater pollution, "due to inadequate treatment capacity, nearly 70% of the wastewater generated in the country is dumped untreated into various water bodies" (Wang 2016, 126). This can lead to numerous long-term health problems for India's citizens. The problem India faces is a disconnect between where the pollution is primarily coming from and the existing laws. Its laws focus mainly on industrial polluting, not pollution from farms and ranches. Additionally, according to India's constitution, authority for dealing with water quality rests with the states (Wang 2016). Lastly, "While India's recent economic growth has led to severe river pollution, the scale of efforts required for combating such pollution has not been adequately reflected in government expenditure… a mere 0.02% of the nation's GDP" (Wang 2016, 127).

A democratic nation that has been making huge inroads to reduce its output of pollutants is Germany. "Germany has reduced its emissions of greenhouse gases more than almost any other industrialized democracy and is exceeding its ambitious Kyoto commitment" (Karapin 2012, 1). While this looks good, and Germany is to be lauded that it has have reduced its greenhouse gas emissions by 23%, exceeding their Kyoto Protocols commitment of 21% (Karapin 2012), it is only one piece of the environmental puzzle. Karapin finds that there are as many successes in the German model as there are failures.

While the Netherlands is a socialist country, it does practice a free market economy system. In the case of the Netherlands, "during the 1980s, green building policy in the

Netherlands became more institutionalized" (Retzlaff 2010, 28). This means that the government took a lead role in determining the standards which would be followed. Later, "The Dutch government issued an action plan for sustainable construction in 1995 that outlined broad goals and policies for all areas of green buildings, including energy use, water consumption, and air quality" (Retzlaff 2010, 29). Retzlaff (2010) also found that without prodding from government, local builders were unlikely to pursue a green initiative of their own volition.

Egypt, considered by some a democratic country, faces its own unique problems in dealing with environmental concerns. Cam McGrath writes that the Nile is becoming so polluted that people "are suffering from kidney problems, skin irritations, and other health problems" (McGrath 2011, 45). The problem, as McGrath (2011) writes, is that most of the population of Egypt lives along the river. "A report issued by Egypt's environmental ministry in September 2009 identified three main sources of Nile pollution as untreated sewage, agricultural drainage, and industrial effluents….an estimated 12 million cubic metres of wastewater a day, of which a large portion is discharged into the Nile" (McGrath 2011, 47).

While there seems to be debate between virtually every group of people about the idea of manmade climate change, there is not much debate on the importance of the decarbonization of countries. To this end, the United Kingdom passed "The Climate Change Act of 2008, mandating national emissions reductions of at least 50 percent by the year 2050" (Pielke, Jr. 2010, 84). Some nations, such as Japan, announced their plan and were immediately criticized for not doing enough (Pielke, Jr. 2010, 88).

Last to mention, but not least, is the environmental policy implementation of the United States. In the United States, the Environmental Protection Agency takes the lead at the federal level for implementing the environmental policy of the United States. Due to the unique makeup

of the United States government, however, control for monitoring can be moved to the state level. "Once a state obtains approval for its programs, programs are implemented through federal and state authority concurrently, though the state is given primary enforcement authority-or primacy-within its borders" (Woods 2006, 260). Added to this, there is literally a plethora of interest groups and other advocacy groups which monitor, educate, and impact the public on the implementation of environmental policy within the United States. These groups perform the function of being watchdogs for the state and federal governments, alerting the EPA when companies fail to follow the appropriate environmental laws.

The Emphasis Authoritarian Regimes Place on Environmental Policies

The second school of thought deals with the emphasis that authoritarian governments place on their environmental policies. Of these, China ranks at the top of the list of large, industrialized countries that are authoritarian. One of China's largest problems is how to provide energy for its huge population. One of the ways it does this is with the use of wind energy. "The rapid and constant rise of wind energy is directly linked to the Chinese government's public commitment and patronization, and the mushrooming wind energy industry" (Siefert 2017, 346). While some may question China's motives in using wind energy to provide energy for its citizens, there can be no doubt that China must look to any method available to it.

However, in his book "Red Alert" Stephen Leeb claims that China "depends on coal for 70% of its energy use" (Leeb and Dorsey 2011, 4). A problem China is facing, however, is that alternate energy sources require other rare earth metals. To get these metals, China is heavily involved in the recycling of electronic waste. "Guiyu, China's capital of E-waste recycling" (Leeb and Dorsey 2011, 13), is also heavily polluted by the activity of removing the heavy

metals from circuit boards. "Lead poisoning, elevated instances of miscarriages and other abnormal health issues abound" (Leeb and Dorsey 2011, 14). According to Leeb, there seems to be no real concern for the environment but only for getting the materials needed as cheaply as possible to further the goal of energy production.

While there have been many climate summits over the years, it has been difficult to get all nations on board with the idea of reducing emissions. A problem encountered when negotiating the Kyoto Climate Accords was that "China and India were exempt, meaning that they didn't have to reduce their emissions if they didn't want to" (Johnson 2018, 77).

In looking at the country of North Korea, there can be no doubt that it faces significant challenges. "Climate change impacts—declining availability of food, water and energy, sea level rise, migration, and extreme weather events—are stress multipliers for countries already at risk from internal instability and economic weakness" (Habib 2015, 77). While the North Koreans have little power in the global community to negotiate any climate related treaties, the nature of their vulnerability makes it imperative that they have a voice in the debate. Indeed, the state of North Korea's power generation is abysmal. "The country's unreliable and wasteful electricity transmission infrastructure is also in desperate need of rehabilitation" (Habib 2015, 84).

An interesting twist on the way a government and its people view environmental issues can be found in Iran. Being an Islamic nation, Iran follows the Qur'an. The "Qur'an and Islamic legal traditions (shari'a) place a significant role on the protection of the environment" (Afrasiabi 2003, 437). While the government of Iran has slowly increased its focus on environmental policy and issues, the cooperation and joint planning between the many environmental groups and the government is disjointed and lacks fluidity (Afrasiabi 2005).

Russia is another authoritarian government. This is reflected in its environmental policy of fossil fuels and nuclear power. It is a huge exporter of fossil fuels, but is also a huge exporter of nuclear power plants, "exporting more than any other nation" (Goldstein and Qvist 2019, 176). Russia builds and operates the plants, with sites already in "China, India, and Iran" (Goldstein and Qvist 2019, 183). There are also numerous other countries who are either contracted for nuclear plants from Russia or are in talks with Russia to purchase plants.

Reaching back to Saudi Arabia, its "environmental policies have shown that the government has attempted to address environmental problems by drafting policy proposals in addition to legislative efforts to constitute a comprehensive set of environmental laws" (Al-Gilani and Filor 1997, 786). According to Al-Gilani and Filor (1997), however, they have been inconsistent and failed to implement many of the policies. This is an example of making a show of addressing concerns with no intention of doing anything positive to solve them. Unfortunately, this seems to be all to true of many nations throughout the world.

In the Democratic Republic of the Congo, Kubanza finds "the plight of the poor people in Kinshasa has been worsened by the accelerated rate of urbanization which has occurred in the presence of bad urban governance" (Kubanza and Simatele 2016, 432). This is a case of the government being in a position of not being able to properly manage its resources and responsibilities, having too few resources, and too many people. As is common among developing nations, if they are unable to provide basic necessities for their citizens, then they are also going to have difficulty dealing with environmental factors and likely no will to do so.

Conclusion

This literature review focused on the environmental records of two types of nations. These were highlighted by the differences and similarities that democratic and authoritarian regimes place on environmental policies. As was evident from the brief review, no nation seems to have a solid record of environmental policies which other nations can emulate. All nations seem to have unique challenges which they attempt to overcome. The challenges they face are as diverse as one can imagine. Some nations are tiny, and poor compared to others and face problems of water pollution, while others are large and wealthy, and must spread their resources out to combat not only water, air, soil, and coastal pollution as well.

The next section will detail the methodology that will be used to correlate variables to further explore various hypothesis' which will answer the research question, which type of country places more emphasis on environmental concerns the most.

III. Methodology

This section explains the methodology that answers the research question "what kinds of countries emphasize environmental policies the most." The variables will be broken down into independent and dependent variables and describe the testing that will explore the correlation between them.

The concepts which will be tested deal with various types of governments and the environmental effectiveness of those governments. The data will be taken from the global files compiled on Micro Case and comprises data from 172 countries. The independent variables that will be tested are type of government, economic freedom, region, political rights, rule of law, and

effectiveness of government. The dependent variable each of these will be tested against is the environmental effectiveness.

Independent Variables

1. 332 GOVERNMENT- This nominal variable breaks down governance into 5 distinct categories which are, from 1 to 5, Established Multi-party Democracy, Recently Established Multi-Party Democracy in Transition, One-Party Regime, Autocratic Regime, and Disordered State/Civil War (Kidron & Segal, 1995). When tested against the dependent variable of Environmental Effectiveness, this will show the relationship between these two variables to determine if there is a positive or negative relationship between governmental types and environmental effectiveness.

2. 274) ECON.FREE2 – This ordinal variable rates the overall economic freedom rating of the various nations by breaking them into 3 categories and rating them from 1 to 3. The categories are 1) Capitalist, 2) Regulated, and 3) Statist (Kidron & Segal, 1995). These variables can be thought of as increasing amounts of government control over the economy. It is important to understand with this variable that a country can be a democratic type of government, but also be a regulated economy.

3. 347) REGION 2- This ordinal variable breaks down the world into 5 regions which are, 1) Africa, 2) Middle East, 3) Asia/Pacific, 4) Western Hemisphere, and 5) Europe (Kidron & Segal, 1995). The purpose of this variable is to be able to group areas of the world together. By then inserting the dependent variable, a look at the environmental effectiveness of regions can be determined.

4. 321) POL RIGT 08- This ordinal variable rates political rights of the citizens of nations on a scale of one to seven, with one being least free, and seven being most free (Kidron & Segal, 1995). The measure of political rights is another measure of freedom, but is different from economic freedom. Political freedom deals with the citizen's ability to participate in the decision-making process of government by having the ability to choose their own leaders and have a voice in the lawmaking process.

5. 304) RULE LAW 04- This ratio variable measures the quality of the judicial system of a nation. It is a measure of the "quality in terms of rule of law; a measure of the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence, 2004" (Kidron & Segal, 1995). This variable is an indication of the stability of the government of a nation. The less stable and chaotic the nation state is, the less it will be able to perform basic services for the citizenry.

6. 300) EFF.GOV 04- The quality of government ratio variable deals with how well the government delivers the public services to the citizenry (Kidron & Segal, 1995). This can be anything from trash pickup to the running of a social welfare system. This is a measure of how effective a government operates. If a government cannot deliver the public services that the citizenry requires, then there will be less confidence in that government, leading to civil unrest and a further breakdown in not only liberties but the ability of the government to function at even more levels. It is important to note that this variable has nothing to do with the type of government a nation has. It is possible for a single party government to be just as effective as a multi-party democratic nation.

Dependent Variable

1. 263) ENVIR.ACC- This dependent, ratio variable is the measure of environmental accountability from low (0) to high (110) for a government (World Resource Institute, 2005). The first and most important question to ask is "What is environmental accountability?" This concept could be looked at in various ways, but the most straightforward definition for environmental accountability "can be seen as the ways in which environmental office holders (e.g. states) and the private sector are responsible for and need to justify their actions to the larger public. For actions that cause (negative) impacts on the environment, they should therefore be under the scrutiny of and threat of sanctioning by society" (Young 2019, 34). The level of environmental accountability a country has with its citizens is going to be much different depending on the type of government and the amount of freedoms the citizenry enjoys.

Hypotheses

Hypothesis 1: Established democracies will have a higher level of environmental accountability than other governments.

The type and age of a government is the first variable to look at. The type of government a nation has is going to be the most important driver of what type of services it will provide the citizenry. Since an established democracy is assumed to be the most stable government, which is also the most answerable to the citizenry, it is hypothesized that it will have more environmental accountability than other forms of government.

Hypothesis 2: Higher economic freedom leads to higher environmental accountability.

High economic freedom is synonymous with a government which is highly accountable to its citizenry. Since government officials are answerable to the citizenry, then those officials

will put in place and execute stronger environmental policies, if that wish is mandated by the voting members of the society. Therefore, it is hypothesized that the more economic freedom a government allows its citizenry to enjoy should be an indicator of how much accountability it then has to the citizenry for the results of its environmental policies.

Hypothesis 3: Europe will have a higher level of environmental accountability than Authoritative regions.

Often, nations which are near one another share cultural and political similarities. This is due to the migration of like-minded people back and forth across borders over a period of decades or longer. These nations share common heritage in the form of cultural likeness. An example of this is the Middle East or Western Europe. It can also be assumed that nations that are close together, with borders to multiple other nations, will have put in place environmental policies similar to each other in an effort to forestall tensions between nation states. Therefore, it is hypothesized that environmental accountability will be similar.

Hypothesis 4: Governments which allow the citizenry a high level of political rights also have a high level of environmental accountability.

Nations that have a high level of political rights tend to be held accountable by the citizenry, if the citizenry choose to do so. It is often said that people get the government they deserve. If the voting bloc of a nation has specific ideas and programs they want implemented, and it is assumed that nations that are more democratic and have governments that allow a high level of accountability, then the programs the voting block want implemented will be done. In the case of environmental accountability, it is assumed that nations with a high level of political rights will also have high accountability.

Hypothesis 5: There is a positive relationship between rule of law and environmental accountability.

Rule of law is paramount to the orderly operation of any government. While rule of law means that there are established laws that the populous must follow or risk being incarcerated or fined, it also means that the government is also obliged to follow the rule of law and ensure an orderly community. In a nation where there is no or very little rule of law, this can mean that there is a higher instance of mob rule which leads to a breakdown of society. In a land where the rule of law is absent, it can also be surmised that basic services are also absent. This would likely lead to little or no environmental accountability.

Hypothesis 6: There is a positive relationship between governments which are effective at delivering basic services to its citizenry and environmental accountability.

It can be assumed that a government that is effective at delivering public services and will also be effective at handling environmental concerns in a responsible manner. Governments that are not effective in accomplishing the basic tasks that are required to effectively run its institutions is not able to be concerned with and cannot have a high level of environmental accountability.

Research Method:

This research will be conducted utilizing the GLOBAL file on the MicroCase program. This program has data from 172 countries. The data used from these files will be quantitative data and used to empirically answer the research question "What kinds of countries emphasize environmental polices the most?" The data used in this research from MicroCase is from 1995-2008.

This research paper will use both scatter plots as well as ANOVA presentation techniques to gauge if relationships exist between the six independent and one dependent variable. It is important to note that the six independent variables all deal with types of government and the interaction of the citizenry. Having a democratic nation is not the sole factor which can account for high or low environmental accountability. The dependent variable, environmental accountability, is a measure of environmental governance and will be measured against each of the independent variables.

The first four hypotheses will have the results presented in ANOVA format. The independent variable will always be plotted on the x-axis and the dependent variable will always be plotted on the y-axis. Hypothesis five and six will use scatterplots, with the independent variable plotted on the x-axis and the dependent variable plotted on the y-axis.

The test for statistical significance for this research will be less than 0.05. If the results are below 0.05 then the relationship will be considered statistically significant. If the results are above 0.05, then they will be considered not statistically significant. The ANOVA results will use the measure of association Eta Squared. The scatter plots will utilize Pearson's Correlation Coefficient for the measure of association. "Pearson's correlation coefficient (r) is a measure of the degree of relationship between two metric (interval or ratio) variables" (Le Roy 2013, 238).

Pearson's Correlation will use the following standards:
.25 – too weak to be useful
Between .25 and .34, the relationship is weak
between .35 and .39, the relationship is moderate
.40 or above, the relationship is strong (Le Roy 2013, 238)

Eta^2 will use the following standards:

under .1, the relationship is very weak

between .10 and .19, the relationship is weak

between .20 and .29, the relationship is moderate

.30 or above, the relationship is strong (Le Roy 2013, 196)

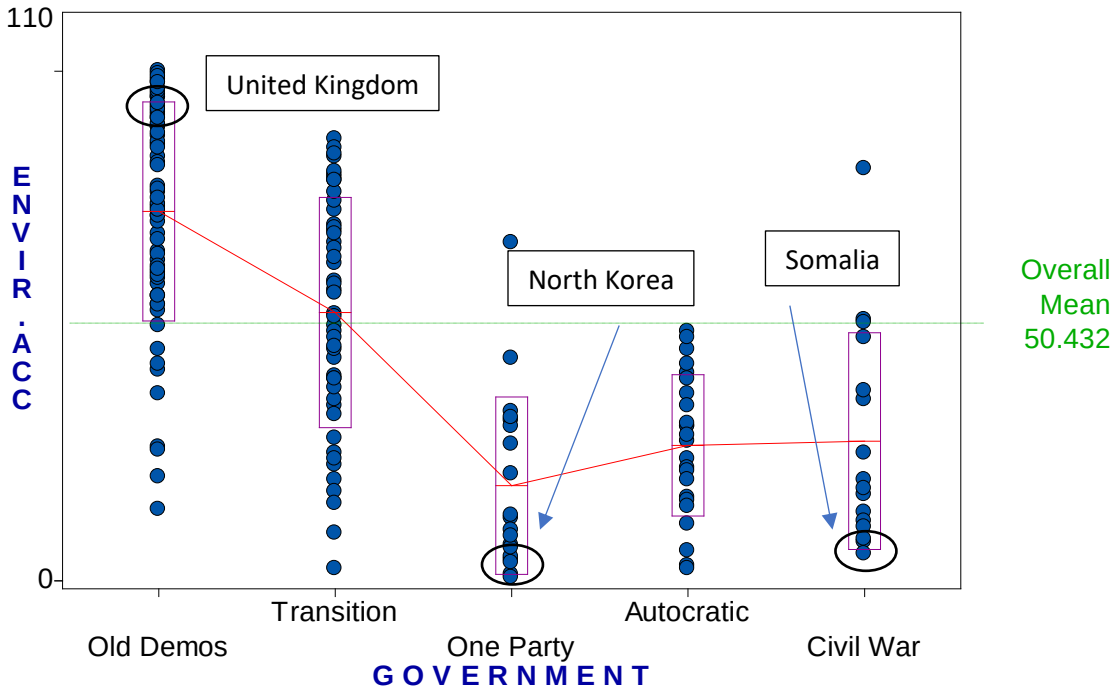
The next section, Findings and Analysis, will show the results and explain the meaning of that data.

IV. Findings and Data Analysis

This portion of the paper will analyze the hypotheses that were previously outlined. The hypotheses were all tested against data found in the MicroCase 1987-2003 database. The results of the test will be presented and will detail if each the hypotheses were supported or not supported. The results will be presented in ANOVA or Scatterplot as appropriate for the particular data set. Pearson's Correlation Coefficient (r) or Eta Squared will be used to show the degree of the relationship between the two variables.

The first hypothesis is that established democracies will have a higher level of environmental accountability than other governments.

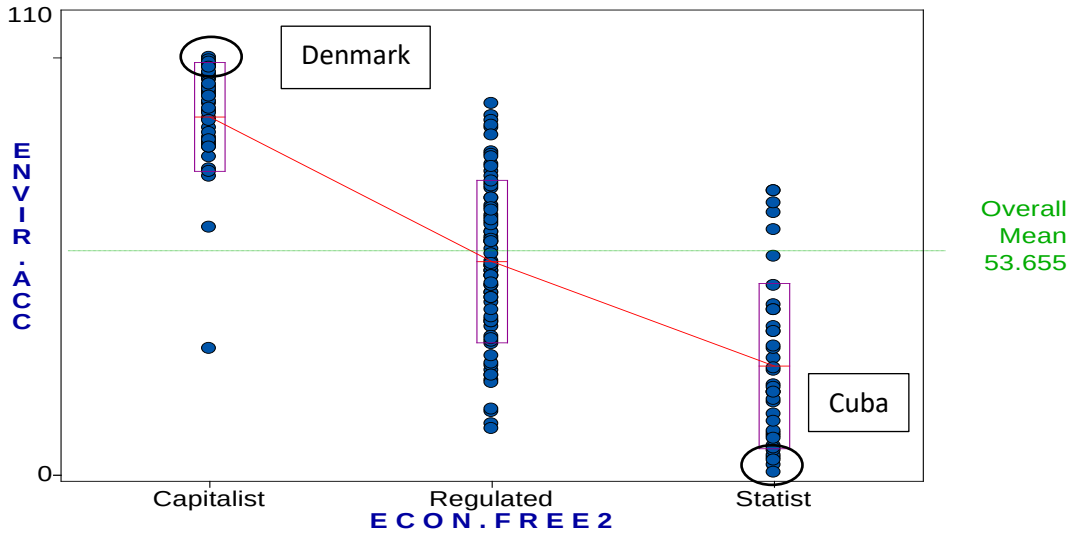
Figure 1: Government Types and Environmental Accountability



Eta Squared = 0.510 Prob = 0.000 N = 172 Missing = 0

For hypothesis one, ANOVA regression was used to represent the different categories of government within the independent variable of government type. The independent variable is placed on the x-axis and the independent variable, environmental accountability, is placed on the y-axis. The line going across connects the average value within each category. The line going across horizontally represents the overall mean, which is 50.432. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is statistically significant. Since the Eta Squared is .510, this indicates a strong relationship between the independent variable governmental types and environmental accountability. In the case of the United Kingdom, it scores high on environmental Accountability. The chart shows that, overall, countries that are either in a state of civil war, autocratic, or one party are below the overall mean. Such is the cases of North Korea under the One-Party column and Somalia in the Civil War column. This could be the result of governments either being unable to function, such as those in a civil war. In the case of autocratic and one-party government, those types do not have a high level of accountability with their citizenry so do not sacrifice other policies in favor of environmental ones. This hypothesis was supported.

Figure 2: Higher Economic Freedom and Environmental Accountability

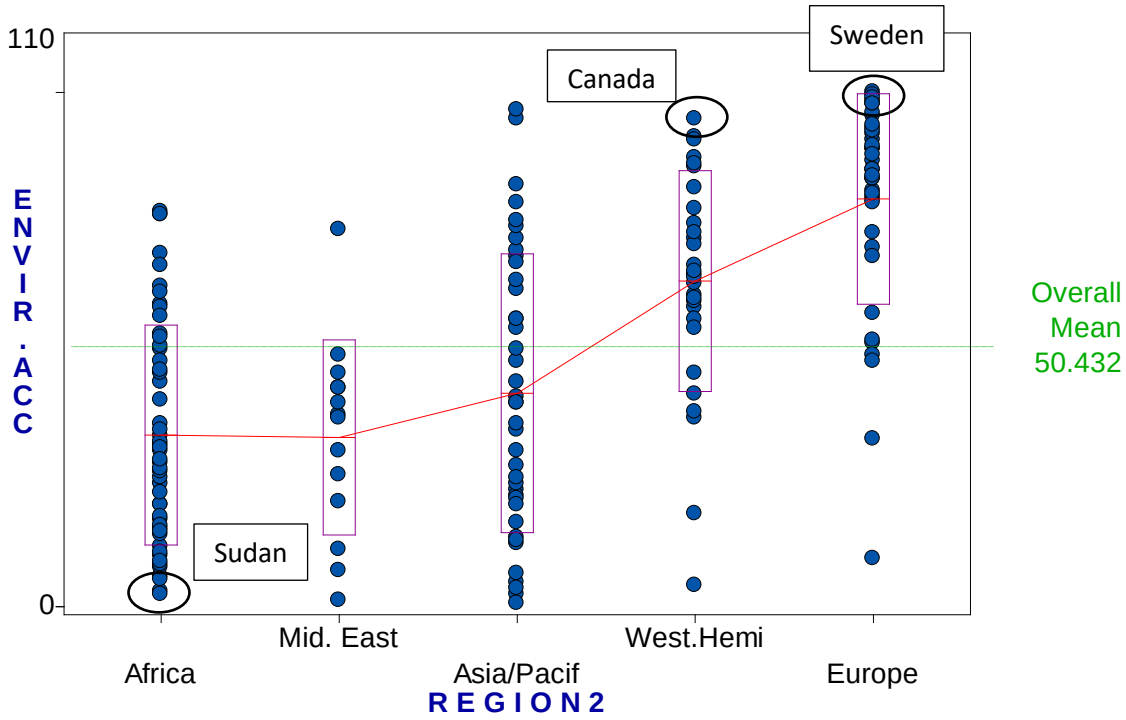


Eta Squared = 0.587 Prob = 0.000 N = 153 Missing = 19

Hypothesis 2 explores the idea that higher economic freedom leads to higher environmental accountability. The results of this hypothesis will also be displayed with ANOVA. Once again, the independent variable economic freedom will be on the x-axis while the dependent variable environmental accountability will be on the y-axis. The line going across the x-axis represents the average value within each category. The line going across horizontally represents the overall mean, which in this case is 53.655. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is statistically significant. Since the Eta Squared is .587, this indicates a strong relationship between the independent variable economic freedom and environmental accountability. The economic freedom in Denmark is exceedingly high, with few governmental controls on the economy. The more control a government has over the economy, it can be assumed the more control it will have over environmental programs. A factor to consider with this line of thought however, is that if the government does not necessarily answer to the people,

then it can choose not to follow environmental policies. In this case, Cuba is a good example of a governmental system that does not have to worry about criticism from the citizenry. This hypothesis was supported.

Figure 3: Europe's Environmental Accountability Compared to Authoritative Regions

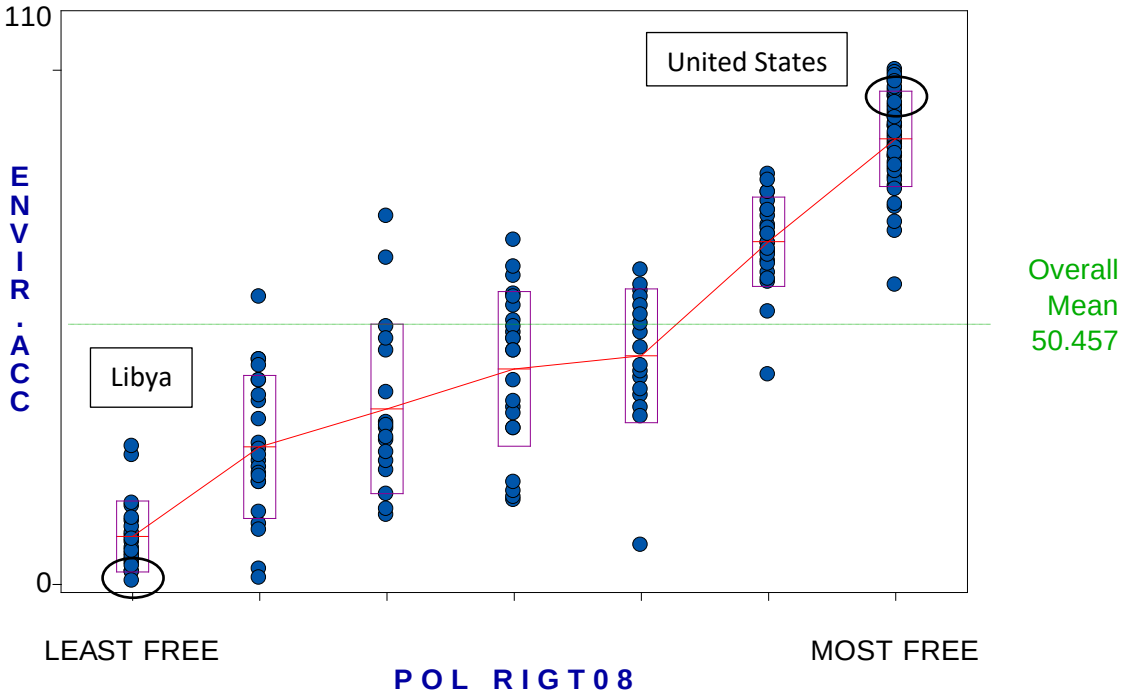


Eta Squared = 0.410 Prob = 0.000 N = 172 Missing = 0

Hypothesis 3 explores Europe's environmental accountability compared to other regions throughout the world. The results of this hypothesis will also be displayed with ANOVA. Once again, the independent variable of region will be on the x-axis while the dependent variable environmental accountability will be on the y-axis. The line going across the x-axis represents the average value within each category. The line going across horizontally represents the overall mean, which in this case is 50.432. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is

statistically significant. Since the Eta Squared is .410, this indicates a strong relationship between the independent variable region and environmental accountability. While nations in the western hemisphere also scored high, such as Canada, overall Europe did have higher environmental accountability than any other region as indicated by Sweden. This is especially true for the Sudan, located in Africa. After studying the cases in multiple categories, it was found that this hypothesis was supported.

Figure 4: Level of Political Rights and Environmental Accountability.

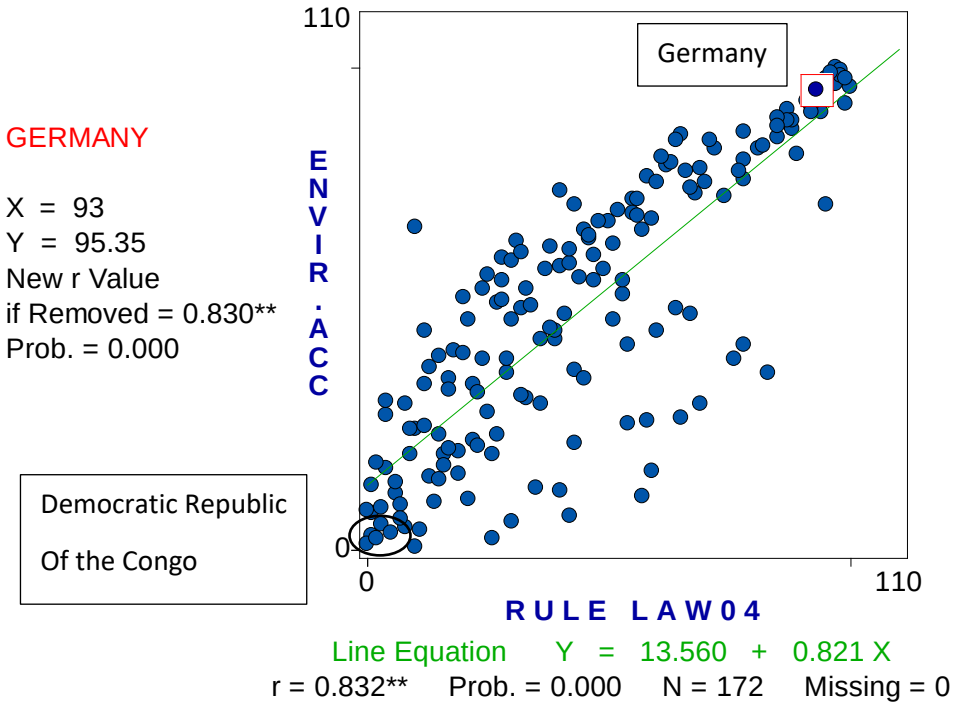


Eta Squared = 0.804 Prob = 0.000 N = 169 Missing = 3

Hypothesis 4 compares governments which allow citizens a high level of political rights also have a high level of environmental accountability. The results of this hypothesis will also be displayed with ANOVA. As with the previous graphs, the independent variable of political rights will be on the x-axis while the dependent variable environmental accountability will be on

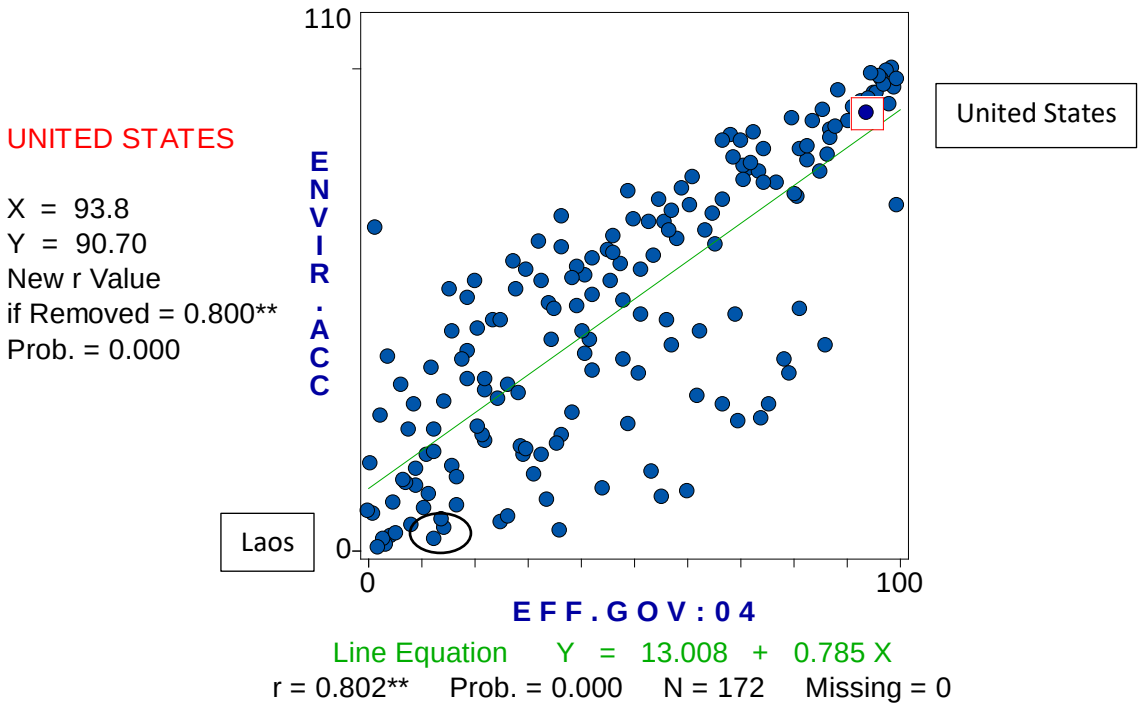
the y-axis. The line going across the x-axis represents the average value within each category. The line going across horizontally represents the overall mean, which in this case is 50.457. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is statistically significant. Since the Eta Squared is .804, this indicates a strong relationship between the independent variable region and environmental accountability. In looking at the least free category, Libya scored very low. Indeed, there was a strong trend of rising environmental accountability as the level of freedom increased across the x axis. At the far right, nations such as the United States scored very high in environmental accountability. Analyzing this hypothesis took time, since there were multiple categories to analyze and then research the governmental models of the various nations. After studying the cases in multiple categories, it was found that this hypothesis was supported as well.

Figure 5: Relationship Between Rule of Law and Environmental Accountability



Hypothesis 5 compares the relationship between rule of law and environmental accountability. As with the previous graphs, the independent variable of rule of law will be on the x-axis while the dependent variable environmental accountability will be on the y-axis. Unlike the previous figures, this hypothesis is displayed in scatterplot. The regression line shows a positive relationship between the independent variable of rule of law and environmental accountability. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is statistically significant. Looking at the Pearson Correlation Coefficient, it is .832, which is strong. This means that there is a strong, positive relationship between rule of law and environmental accountability. Rule of law is a measure of how well the government delivers services related to a measure of the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence, 2004 (WDI, 2005). In nations where these services are healthy, then there is a greater chance that other factors will be present in the government that will correlate with a higher level of environmental accountability. For example, in nations such as the Democratic Republic of the Congo had rule of law score of 1, and an environmental accountability score of 2.91. Where the rule of law was very low, there was also not a high quality of governance in general. The In this case, the environmental accountability is also going to be low. On the other side of the spectrum, Germany had a rule of law score of 93 and an environmental accountability score of 95.35. This hypothesis was supported.

Figure 6: Relationship Between Effective Governments and Environmental Accountability



Hypothesis 6 analyzes relationship between governments which are effective at delivering basic services to its citizenry and environmental accountability. As with the previous graphs, the independent variable of effective government will be on the x-axis while the dependent variable environmental accountability will be on the y-axis. The results of this hypothesis will also be displayed in scatterplot. The regression line shows a positive relationship between the independent variable of effective government and environmental accountability. As stated previously, the cut off for probability is 0.05. In this case, the probability level is recorded at 0.000. This means that this relationship is statistically significant. Looking at the Pearson Correlation Coefficient, it is .802, which is strong. This means that there is a strong, positive

relationship between effective government and environmental accountability. Effective government is a measure of the competence of the bureaucracy and the quality of public service delivery (WDI, 2005). Nations where it is a challenge to deliver basic public services, the environmental accountability is low. Some nations, such as China, are challenged in ways other than the delivery of public services. This is an example of a nation where the government rating is 60.1, but the environmental accountability is only 12.21. In this instance, the environmental accountability is low for reasons other than the inability to deliver basic public services. In the case of Laos, the result of government effectiveness is low, coinciding with a low rating in environmental effectiveness. The United States, on the other hand, has ba high rating in each category, with a 93 out of 100 in government effectiveness and 90.70 in environmental accountability.

V. Implications and Conclusions

The purpose of this study is to determine what effect the types of government have on environmental accountability. For good or ill, citizenry of a particular nation is obligated to live under the type of government that they find themselves in. This study was based on the data supplied by MicroCase on 172 nations. These nations are incredibly varied and range from democracies to nations who are in a civil war.

All six of the hypotheses in this study were supported by the data. There is a common theme to all the hypothesis in this study. That theme is that the more freedoms the citizenry of any given nation have, the more environmental accountability a given nation also has. The reason for this is not because there is a set of guidelines on environmental policy that a

democratic government is obligated to follow in order to be called a democracy. As such, there are also no particular set of environmental guidelines that authoritarian governments do not follow, thereby causing them to be classified as authoritarian regimes. The difference is in the will of the people combined with how receptive the established government is to the will of the people. Looking back at figure 1, China is classified as a single-party government. This could explain why the environmental accountability is so low. In a single party system, there is less accountability placed on the officials in government office. Consequently, even if the citizenry desire policies put in place, those officials will have less pressure to do so.

In instances where governments are set up in such a way that there is a high level of accountability between the government and the electorate, then the elected officials are obligated to respond to the wishes of the voters. As was evidenced by the results of hypothesis four, the nations in which the citizenry had a high level of political rights, there was also a high level of environmental accountability. Virtually everyone wishes to live in a clean environment and breathe clean air. In nations where the population is engaged with their elected officials and can present their wishes to those officials, then the public servant must either listen and act on those mandates or risk being voted out of office.

The independent variable rule of law encapsulates law enforcement and the court system. In order for a nation to operate in a stable fashion, rule of law must be high. This goes hand in hand with the independent variable of effective government. When nations cannot deliver services in an effective, efficient manner, it will lead to a breakdown in society as the people become disenfranchised. This could lead to the inception of a different type of government, one that is classified as experiencing civil war or in a disordered state (Kidron & Segal, 1995). Once this happens, environmental accountability will surely suffer.

Improving the environment is something that every nation must be a part of. In today's industrialized world, pollution and waste, especially air pollution, does not stay localized. Pollution migrates with the blowing of the wind and spreads with running water. Today the world is interconnected in many aspects. From the internet, economies, and political treaties, to socialization. There is no doubt that the world is also connected ecologically. As long as there are different political systems around the world, there will be different levels of accountability. The global challenge for leaders and environmental groups will be to find a way to further interlock nations not for the purpose of control but to set a clear, standard global environmental policy. Global environmentalism is a nuanced, difficult problem to solve. In order to solve the problem of global pollution the environmental accountability of nations must be raised. In order to do this, more analysis and data is required to further understand the factors that keep environmental accountability low in select nations and how to raise it.

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Author's Biography

Dwayne Green is a senior at Methodist University majoring in Political Science with a concentration in Public Administration. He is scheduled to graduate in May 2020 and would like to work in Emergency Management in Clinton, North Carolina. Dwayne was born in Hayti, Missouri on October 30th, 1970. He attended Bloomfield High School and later Southeast Missouri State University in Cape Girardeau, Missouri. After his sophomore year he enlisted in the United States Army on October 13, 1993, as a Satellite Communications Specialist.

While in the Army, he attained the rank of Master Sergeant, completing the requisite leadership courses of Primary Leadership Development Course, Basic Noncommissioned Officers Course, and Advanced Noncommissioned Officers Course. Other training courses Dwayne completed were Airborne School at Fort. Benning, Georgia, where he earned his Basic Parachutist wings and later U.S. Army Jumpmaster School, later qualifying for the Master Parachutist badge. He also completed the U.S. Army Survival, Evasion, Resistance, and Escape (SERE) course as well as many other training courses.

Dwayne spent most of his career at Fort. Bragg, North Carolina in the 82nd Airborne Division and Special Operations units. He also served for 2 years in Korea, deployed to Iraq and Afghanistan many times, and took part in training in England, Germany, and Jamaica.

Dwayne is married to Carrie Green, who is also a Methodist graduate and lives in Clinton, NC, with their daughter, Leila Green who is 8 years old. They are currently completing requirements to become foster parents.