**Cooperation in International Environmental Treaties[[1]](#footnote-1)**

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The deleterious effects of climate change have been known since 1896, when Swedish chemist Svante Arrehenius first described the greenhouse gas effect that traps the Sun’s rays in carbon dioxide and other gases, leading to an increase in global temperature. However, the contributions that human society made to this effect have only recently been discovered. In 1995, the Intergovernmental Panel on Climate Change (IPCC) conducted an Assessment Report that provided evidence widely accepted by the global scientific community that 1) the global temperature has sharply increased in the last one hundred years, and 2) that the causes are largely anthropogenic. The global temperature increase is largely connected with pollution from industrialization, as more and more of the world’s countries become developed economically.

This problem is collective in nature, and could not be solved by one country alone. States needed to cooperate in order to devise a plan to stop man-made causes of global warming. In 1997 the third Conference of the Parties (COP) meeting produced the landmark treaty on climate change in the Kyoto Protocol. During the process of negotiations, state leaders came together to address this global problem. The treaty bound states to reduce carbon emissions, and mitigate anthropogenic causes of global warming.

The UNFCCC was created at the Earth Summit in 1992, and entered into force in 1994. The Kyoto Protocol was first negotiated at a UNFCCC annual Conference of the Parties (COP) in 1997, and entered into force in 2005. The end of the first commitment period was 2012. States were bound to reduce greenhouse gas (GHG) emissions to specific target levels by this point. This paper will examine treaty compliance using the Kyoto Protocol as a case study. The research puzzle focuses on state compliance variation of international environmental treaties. What factors lead some states to be more compliant than others?

**EXISTING LITERATURE**

*I. Tragedy of the Commons*

Institutions are important to ameliorating the tragedy of the commons problem in the anarchic international system. The causes of non-compliance are largely framed as a collective action problem. Individuals in large groups choose to free-ride rather than cooperate to reach a common goal (Olsen, 1965). This problem is common in environmental treaties. It is often referred to at the “tragedy of the commons” and results in the depletion of a resource from overuse due to a lack of responsibility for the property (because the property is not owned by anyone). Hardin (1968) connected this problem to pollution by showing how users put something into the commons rather than taking resources out: sewage, chemicals, noxious fumes, radioactive wastes, etc. (1245). “The calculations of utility are the same as before. The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them” (Hardin, p.1245). The problem of pollution was also connected to population growth—as more polluters damaged the commons, the resources became irreparably depleted. Hardin (1998) called for laws to limit the depletion of environmental resources, especially concerning fisheries. His answer was to assign property rights and limit use of resources to prevent exploitation. Institutions do this by having states ratify international treaties that assign responsibilities to states, and then enforce them. This has led to a focus on the role of institutions in environmental policy literature.

*III. Compliance Literature*

The literature on compliance in international agreements shows that regime type, economic development, and issue linkages will be important factors in achieving compliant outcomes. Hathaway (2007) showed how regime type was positively correlated to ratifying and complying with international human rights treaties. In this model, states tended to already have human rights values in place, and had a clean record of violations comparatively. Also, domestic institutions held states accountable to implementing the treaty. Simmons (1998) also looked at the role of domestic regimes in complying with international agreements. She also found that democracies were more likely to comply with agreements they signed. However, Simmons attributed the causes of compliance to democratic legalism: democracies were more likely to respect rule of law, promote compromises, and utilize processes of adjudication fairly than other regime types—processes crucial to compliance (83). Democracies are also more constrained by domestic interest groups than authoritarian states. In democracies, the government is held accountable to constituents who re-elect it, and has greater opportunities for opposition groups to participate, creating a more inclusive political system than authoritarian governments do (Driesen 2006; Putnam 1993; Dahl 1971).

States are incentivized to comply when one issue in a treaty is linked to another area of benefit or interest to a state. For example, when states trade with one another they are incentivized to cooperate in other areas, like security, as well, since they may punish one another for non-cooperative behavior through sanctions. Functionalists focused on the “spillover effects” of cooperation in one area leading to increased cooperation in other areas (Ernst Haas 1964; Mitrany 1965). More recently, Neoliberal institutionalists look at how cooperation is embedded in actors through institutional rules and decision-making procedures (Keohane and Nye 1977; Keohane 1984; Simmons and Martin 2002). In this theory, actors come to adapt their behavior according to the rules laid out by international institutions in order to achieve the goals they want through said institutions. In this theory, institutions are correlated to issue-linkage since they have the power to connect issues through incentives and punishments. States in common institutions, like the UN, will therefore be more likely to cooperate in various issue areas.

Democracies are more likely to be developed, or to pursue economic policies that lead to development (Lipset 1959). The conditions that lead to development are fostered in democratic systems, like “industrialization, wealth, urbanization, and education” (Lipset, p.71). Inglehart and Welzel (2005) branched upon this work and found that post-modern values, like concern for the environment, are likely to be present in developed democracies, according World Values Survey (WVS) data. Democratization leads to socio-economic modernization, which in turn, leads to valuation of self-expression and other post-materialist cultural values. Therefore, democracies should be more likely to ratify and comply with environmental treaties than other regime types.

**THEORY**

The major theories used to explain why states ratify and comply with international treaties are neorealism, neoliberalism, and constructivism. Theories tell us states’ motivations for joining and their intentions to comply (Cole, p.569).

*Neo-Realism:* For realists, states ratify and comply with international treaties when “the anticipated benefits of doing so outweigh the costs” (Cole, p.570). Treaties are not very important for realists and are often viewed as “mere window dressing that serves as a shield for powerful liberal states to promote and protect their interests in the international arena” (Avdeyeva, p.880). States are rational actors that behave in a way that maximizes their self-interest, namely, in acquiring or maintaining power. This idea is connected to state sovereignty and how it is bolstered through economic interaction and international security. States are unlikely to enter into agreements that decrease their sovereignty, economic status, or security apparatus. If states do enter into treaty agreements, they do so for pragmatic reasons of coordination in an issue area that could decrease transaction costs, increase information, and punish free-riding (Waltz 1979; Arredondo and Garcia 2011; Meernik and Shairick 2011). States do not care about values and norms, according to realists.

*Neo-Liberalism:* Neo-liberal theory predicts that states ratify and comply with international treaties to “reinforce domestic policies and reforms” (Cole, p.571). In this theory, states are also rational actors behaving in a way that maximizes self-interest. However, Neo-liberalism focuses on reputational costs, technical capacities and information provided by institutions, and respect for the rule of law in domestic application (Simmons, pp.83-4). Neo-liberalism also looks at ways that institutions coordinate state action regarding distributional gains over time by providing information about the capacities of members over time (Keohane and Martin, 1995, p.45).

*Constructivism:* Constructivism predicts that states ratify and comply with international treaties to “reaffirm a sincere commitment to treaty principles” (Cole, p. 571). There are “standards of appropriate conduct” that are “socially constructed reference points against which state behavior can be gauged” (Simmons, p.85). States will ratify treaties because they believe in them. For example, democratic states are more likely to ratify human rights treaties, according to constructivist theory. According to Frank (1999), states are more likely to hold certain beliefs, like environmental protection, when they have greater linkages to world society through communication, trade, and NGOs. Dense linkages increase the likelihood of ratifying and complying with a treaty. Wotipka and Tsutus (2008) add to this idea of linkages by arguing that normative pressures from international society will influence states’ decision to ratify and comply with international treaties. Constructivist theory also captures the divide between developed and developing states that has stalled much of the negotiating on Kyoto (Zhao 2005; Moore 2012). Many developing states seek restitution for the damage done by earlier industrialization in developed states. Constructivist theory captures their identity as victims in this issue area.

*Institutionalism:* Finally, for institutionalism, states join international treaties “as an expression of legitimate statehood” and in order to be taken seriously (Cole, p.572). This is especially important for new states, or newly democratic states. Signing a treaty could signal that they have democratic values and are not going to slide back into authoritarianism in the future. States are “social actors driven by a desire to conform with social pressures, be a member of a large group of states which they deem legitimate, and behave appropriately” (Avedeyeva, p.893). This theory puts emphasis on “world cultural models and scripts” (Cole, p.572). If a greater number of states, especially if they are powerful, are members of the treaty, a state is more likely to also join the treaty to be taken seriously by these states.

Given the problematic nature of the Tragedy of the Commons and common pool resources, it is important to research ways in which voluntary treaties and institutions contribute to a solution. International voluntary treaties, like the Kyoto protocol, help to ameliorate collective action dilemmas. My research will look at the variation among states with compliance of international climate change treaties to answer this question and thereby supplement the literature.

**DESIGN OF THE STUDY**

I tested treaty compliance by looking at one of the projects produced by the Kyoto Protocol, called “Land-Use, Land-Use Change, and Forestry” (LULUCF). LULUCF activities were first laid out in Articles 3.3 and 3.4 of the Kyoto Protocol in 1990, and further defined in the Marrakesh Accords (COP7) in 2001 (“Background,” UNFCCC website). Its goal is to reduce state emissions in a cost-effective manner that focuses on increasing and maintaining carbon sinks such as forests, grasslands, and croplands (“Background,” UNFCCC website). States decrease GHG emissions by implementing off-setting activities, like planting trees and through forest management. States also reduce emissions by actively reducing emissions by halting deforestation activities.

**METHODOLOGY**

*I. Concepts*

*i. Realism*: States are rational actors that will join treaties only if the benefits of joining outweigh the costs. States are likely to comply only if compliance does not affect their sovereignty, economic welfare, or international security. States are concerned with relative as well as absolute gains to be had from cooperation, since today’s friend could be tomorrow’s adversary.

*ii. Liberalism:* States are rational actors that seek to utilize institutions to decrease transaction and information costs that are higher on their own or bilaterally. States will ratify and comply with treaties that serve pragmatic purposes, such as coordinating mechanisms.States are concerned with absolute gains, and so worry most about cheating.

*iv. Constructivism:* State behavior is guided by socially-constructed normative values. States will ratify and comply with treaties that are aligned with their beliefs and identities. The process of interaction affects whether or not states trust each other. Norms of cooperation will aid in cooperation, whereas norms of distrust will deter it.

*II. Variables*

The dependent variable:

Variation on the outcome of compliance with Kyoto Protocol target values for the LULUCF project.

1. above compliance
2. meets compliance
3. below compliance

This variable was coded based on the target values listed by the LULUCF project goals that states are legally bound to. If states were within five gigagrams of the target value, they were coded as compliant. If they were more than five units above or below, they were coded as above compliance or below compliance, consecutively.

The independent variables include:

a. Market-based incentives: side payments, issue linkage, rate of trade in cap and trade system (Barrett and Stavins 2003).

b. Regime type: democratic or authoritarian (Hathaway 2007) as captured by Polity 2 scores.

c. GDP per capita, and GDP absolute as captured by the World Bank data.

The independent variables are a combination of factors said to be associated with treaty ratification and compliance. I will test them all to see whether one set accounts for more variation on the dependent variable than the others.

*III. Hypotheses*

*i. States are more likely to ratify the Kyoto Protocol if they are democracies than if they are authoritarian regimes since they share democratic norms.*

*ii. States are more likely to comply if market-based incentives are set in place by the Protocol to facilitate trade, making compliance easier for states.*

*iii. The presence of a binding target for Annex I countries and absence of a binding target for non-Annex I countries causes countries to not ratify or enforce the Protocol, since the workload of reducing emissions is not evenly distributed.*

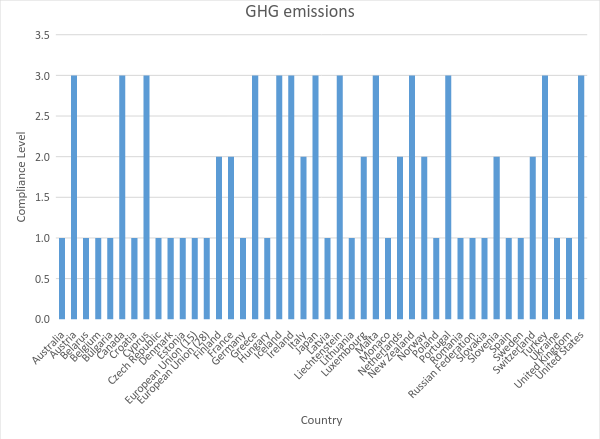
*iv. Developed states are more likely to implement the LULUCF successfully since they have greater resources to do so.*

**EMPIRICAL TESTS AND RESULTS**

Data were obtained for Annex I states’ emissions levels from 1990 to 2012 from the UNFCCC. This was coded by the author into a scale of compliance ranging from level one to three: 1=GHG emission levels were reduced beyond the target level, 2=GHG emission levels were reduced within five points of the target level, 3=GHG emission levels were not reduced to the target level. The quantitative data was supplemented by qualitative evidence in the case studies section.

State compliance is displayed in Figure 1. The data included emissions from 1990, when data collection began, to 2012, the most recent year available.

Figure 1.

1=Above target level

2=At target level

3=Below target level

Compliance variation is captured in Figure 2. The variation is interesting, since some countries are compliant that we would not expect to be (Croatia, Estonia, Poland, Romania), and some countries are not compliant that we would expect to be (Canada, Ireland, New Zealand). It is also surprising that the Netherlands, Norway, and Switzerland are only ‘compliant’ (a score of 2). Clearly, compliance is not based solely on economic development, since there are non-compliant industrialized countries (like the United States) that are capable of funding emissions reductions projects. This proves Hypothesis IV correct: *Developed states are more likely to implement the LULUCF successfully since they have greater resources to do so.* It also addresses Hypothesis III:  *The presence of a binding target for Annex I countries and absence of a binding target for non-Annex I countries causes countries to not ratify or enforce the Protocol, since the workload of reducing emissions is not evenly distributed.* States (like the United States) that have the resources to comply are not ratifying the Protocol because of uneven workloads. This is not fully explained by compliance scores, though. It calls for a more detailed look at domestic politics, which is addressed later in the brief case study of the United States.

Figure 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Country** | **Compliance Score** | **Country** | **Compliance Score** |
| Australia | 1 | Finland | 2 |
| Belarus | 1 | France | 2 |
| Belgium | 1 | Italy | 2 |
| Bulgaria | 1 | Japan | 2 |
| Croatia | 1 | Luxembourg | 2 |
| Czech Republic | 1 | Netherlands | 2 |
| Denmark | 1 | Norway | 2 |
| Estonia | 1 | Slovenia | 2 |
| Germany | 1 | Switzerland | 2 |
| Hungary | 1 | Austria | 3 |
| Latvia | 1 | Canada | 3 |
| Lithuania | 1 | Cyprus | 3 |
| Monaco | 1 | Greece | 3 |
| Poland | 1 | Iceland | 3 |
| Romania | 1 | Ireland | 3 |
| Russian Federation | 1 | Liechtenstein | 3 |
| Slovakia | 1 | Malta | 3 |
| Spain | 1 | New Zealand | 3 |
| Sweden | 1 | Portugal | 3 |
| Ukraine | 1 | Turkey | 3 |
| United Kingdom | 1 | United States | 3 |

\*Coding scheme: 1=above compliance, 2=meets compliance, 3=below compliance.

Compliance variation was tested with several independent variables: GINI score, Polity 2 score, Foreign Direct Investment, GDP per capita, GDP absolute, and Ethnic Group fractionalization. As Figure 3 shows, the model explains almost 94 percent of the variation in compliance.

Figure 3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model Summaryb** | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .968a | .938 | .920 | 359108.24097 |
| a. Predictors: (Constant), EthnicGrpFract, GINI, GDPabsolute, polity2, FDIperGDP, GDPpercapita, FDI | | | | |
| b. Dependent Variable: LULUCF | | | | |

However, most of the variables were not found to be statistically significant on their own, as shown in Figure 4. This shows that Hypothesis I is not as influential on outcomes as the literature suggests:  *States are more likely to ratify the Kyoto Protocol if they are democracies than if they are authoritarian regimes since they share democratic norms.* Indeed, a glance at compliance scores, shown in Figure 2, shows that democracies can be non-compliant and authoritarian states can be compliant. The exception to these findings was that GDP absolute was statistically significant. This can be explained by the theory that developed states are likely to have the material resources to implement emissions reductions projects, like LULUCF. It proves Hypothesis IV was correct: *Developed states are more likely to implement the LULUCF successfully since they have greater resources to do so.* However, it does not explain why most of these projects occur in developing countries that do not have an abundance of material resources.

Figure 4.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 1863401.905 | 936979.454 |  | 1.989 | .058 |
| GINI | 762.565 | 13271.711 | .003 | .057 | .955 |
| polity2 | -198671.330 | 76308.491 | -.166 | -2.604 | .015 |
| FDI | 2.531E-7 | .000 | .012 | .117 | .908 |
| GDPpercapita | -2.017 | 5.158 | -.027 | -.391 | .699 |
| GDPabsolute | 5.127E-7 | .000 | .965 | 9.916 | .000 |
| FDIperGDP | -23978.162 | 1578265.393 | -.001 | -.015 | .988 |
| EthnicGrpFract | 92156.698 | 459679.378 | .012 | .200 | .843 |
| a. Dependent Variable: LULUCF | | | | | | |

Hypothesis II was found to be incorrect: *States are more likely to comply if market-based incentives are set in place by the Protocol to facilitate trade, making compliance easier for states.* Emissions trading is “one of the three Kyoto mechanisms, by which an Annex I Party may transfer Kyoto Protocol units to or acquire units from another Annex I Party. An Annex I Party must meet specific eligibility requirements to participate in emissions trading” (“Glossary of Climate Change Acronyms,” UNFCCC website).

Emissions trading does not exist universally. Currently trading schemes are in Australia, Canada, the European Union, Japan, and New Zealand (“Emissions Trading,” Sourcewatch website). States with carbon market trading schemes were both compliant and non-compliant. Of the states with carbon markets the scores were: Australia(1), Canada(3), the European Union(1-3), Japan(2), and New Zealand(3). Although there was variation across all possible scores, states were actually more likely to be non-compliant. However, the generalizability of these results is questionable since it was not a universe of cases due to the fact that not every state has created a carbon market trading scheme currently. This hypothesis would fare better to test again in the future when more states have carbon markets, and thus reveal more variation in the ways they affect state compliance behavior.

**Brief Case Analysis: Russian Federation, Switzerland, and the United States**

Each of these cases had surprising compliance scores. The Russian Federation scored very high (I) when one would expect this state not to for various reasons, namely its anti-democratic practices and history of industrialized pollution. Switzerland scored as average compliance (II) when one would expect this state, which has a great reputation, to be a high compliance case, so that it could protect its reputation. Finally, the United States scored very low on compliance (III) when one would expect this state to be very high because of its pro-democratic stance and exceptional material resources. According to neo-Liberal theory, states with the capability to comply and signature to the treaty are likely to do so--it is a matter of having the resources mostly. This was clearly not the case, since all three states had the capability and yet there was variation in their outcomes. This section uses more detailed information about domestic politics of each country in order to address the perception of ‘uneven workloads’ first laid out in Hypothesis III:  *The presence of a binding target for Annex I countries and absence of a binding target for non-Annex I countries causes countries to not ratify or enforce the Protocol, since the workload of reducing emissions is not evenly distributed.*

*United States: Domestic Constraints*

In 2001 the Bush administration declared that it would not ratify the Kyoto Protocol because the science was uncertain, it did not impose binding costs on developing states, and it could potentially drive up domestic energy prices (Hovi, Skodven, Andrese, p.1). The major reservation for the US was that the countries legally bound to comply to emissions reductions represented less than a third of the world’s emissions (ibid). States with high levels of GHG emissions, like China, India, and Brazil, were not legally bound to any target levels. Not signing the protocol was also was a strategic move, since the protocol could not enter into force until 55 countries had ratified it (accounting for 55% of 1990 CO2 emissions) (ibid). This effectively ‘passed the buck’ to Russia, whose role will be discussed in the second case. The US is the world’s second largest emitter of greenhouse gases, second only to China, and only since 2010. Yet the US has been involved in the annual Conference of the Party (COP) meetings, despite its decision not to sign. For instance, the US pushed for the implementation of flexible mechanisms that would reduce the cost of reducing GHGs. The revealing aspect about the US is that it won’t formally ratify the protocol, but continues to be involved. The ‘Umbrella group’ is a “loose coalition of non-EU developed countries which formed following the adoption of the Kyoto Protocol” and includes Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine, and the US (“Who’s who? Groupings and Actors,” UNFCCC website).

The US has largely stalled in passing climate change legislation since the mid-2000s. Since the end of the first commitment period of the protocol ended in 2012, an increasing gap in relevant legislation passed has grown between the EU and the US. Keleman and Vogel (2010) argue that the US has “traded places” with the EU--it has gone from leading environmental policies in the 1960s and 70s to largely opposing multilateral action in more recent times. These two entities are the most viable for “exercising global environmental leadership” (Keleman and Vogel, p.431). For instance, in 2007 the EU implemented the ‘20-20-20 policy’ to reduce GHGs by 20 percent by 2020, increase renewable energy sources by 20 percent, and cut energy consumption by 20 percent (Skjaerseth, Birger, Bang, Schreurs, p.61). Another example is the EU Emissions Trading Scheme (ETS) that implemented a Europe-wide carbon market in 2008. The US failed to pass proposed legislation on climate change in 2009 (proposed by President Obama; it died in the Senate). President Obama then utilized the Clean Air Act to implement stricter emissions reductions requirements by the Environmental Protection Agency (EPA) for the transport sector and stationary emissions sources (Skjaerseth, Birger, Bang, Schreurs, p.62). One reason for the US stall is that the structure of the US domestic political system constrains legislators to constituent interests in order to be re-the elected (Schumpeter 1976). The EU Commission, in contrast, has weak ties to European constituents. Another reason for the US stall is the large number of veto players that slows down legislation negotiation (Tsebelis 1995). In 2006, the Democrats began pushing for climate change legislation, capitalizing on the unpopularity of the Bush Administration in the Iraq War. However, the energy industry supported the Republican Party and pulled in questioning of the seriousness and legitimacy of the anthropogenic causes of climate change science. Wind and clean energy sectors were also important lobbying sources at this time. There were many voices involved in the issue, and these influenced negotiations in Congress. The bills proposed were unsuccessful because “competing Senate bills sought to accommodate the constituency interests of pivotal, fence-sitting lawmakers” (Skjaerseth, Birger, Bang, Schreurs, p.73). Harrison (2007) found that public opinion tended to be supportive but inattentive and pro-energy groups were highly mobilized (p.95). Actor preferences were strong when it came to energy policy, and therefore, issue-linkage was low across other areas where politicians might have benefitted and thus compromised. This influence of the domestic politics on state positions in international issues is called regulatory politics. Both domestic actors and domestic regulations affect groups (both industry and pro-environment) to pressure politicians to advocate certain positions. This can lead to deadlock, or inaction, and explains the United States’ lagging in its potential for leadership in the Kyoto Protocol and other environmental multilateral actions.

*Russian Federation: Issue Linkages*

Russia ratified the Kyoto Protocol on November 5, 2004. This action gave the Protocol the percentage needed to enter into force, and so was an impactful decision. Russian policy tended to prioritize economic development over environmental protection, so this decision seemed surprising. Russia is also economically dependent on fossil fuels since it is the world’s largest exporter of natural gas as well as the third largest energy consumer (Henry and Sundstrom, p.47). However, Russia’s industrial emissions have decreased significantly since the collapse of the Soviet Union, making the commitment much easier to meet. Russia’s emissions fell by 30 percent between 1990 and 2000 (Henry and Sundstrom, p.49). This meant that Russia actually had extra carbon credits it could profit from, by selling them to heavier-polluting states. Russia announced it would ratify the protocol in 2002, before the World Summit on Sustainable Development, but then waited to ratify in actuality for another two years (Henry and Sundstrom, p.50). The Russian public was largely uninterested in the ratification of the protocol, and was not a significant factor in Putin’s decision-making process. However, the powerful business and energy lobbies were in favor of the protocol, which is very different from the situation in the United States where these groups were vehemently opposed. The decision-making largely came down to Putin, since Russia is a super-presidential system where the executive holds the majority of power. Putin needed the approval of the Federal Council and the State Duma, but “because of his institutional power, it was Vladimir Putin’s decision alone that would determine the outcome of the ratification debate” (Henry and Sundstrom, p.56). This decision-making structure is very different from either the US or Switzerland, where the executive is much more constrained. Ultimately, Putin decided to ratify the treaty to “symbolize Russia’s cooperative stance as an international partner” and “signif[y] a degree of strategic distancing from the United States and a closer alliance with Europe” (Henry and Sundstrom, p.59). By supporting norms that Europe favored, Russia was able to gain EU support to enter the World Trade Organization, also. Therefore, Russia’s ratification was largely incentivized by issue linkage facilitated by appearing more friendly toward the West. This shows the strategic use of norms advocated by the international community. Putin was able to utilize environmental norms to gain economic benefits for Russia.

*Switzerland: Setting High Goals*

Switzerland ratified the Kyoto Protocol on July 9, 2003. It committed to a reduction of 8 percent of 1990 levels by 2012, which it met. Switzerland’s high goal caused it to be ‘compliant’ as compared to ‘above compliant.’ This is very different from Russia, which had a large allowance for emissions that it could easily meet. Switzerland shares the same reduction goal as the EU, and both entities are considered to be leaders in environmental protection policy. Switzerland signed up for a second commitment period at the 18th COP in Doha, Qatar and pledged to reduce GHG emissions by 50 percent of 1990 levels by 2030 (“Switzerland,” Climate Action Tracker website). It was also the first country to submit its Intended Nationally Determined Contributions (INDC) plan to the UNFCCC. Thirty percent of this is to come from domestic reductions, and the other twenty is to come from projects that decrease emission abroad (“Switzerland,” Climate Action Tracker website). Swiss Director for the Federal Office of the Environment, Bruno Oberle, said, “The target for 2013-2020 is more ambitious and demands the commitment of all the sectors involved” in April 2014 (“Kyoto Protocol,” Switzerland Federal Authorities website). However, little was found on the domestic politics of why Switzerland is merely compliant, and does not exceed compliance like many EU member states. However, there is not a lot of information on why Switzerland is compliant when its reputation is for being a leader in environmental policy. This could benefit from future research that looks more closely at states deemed successful or leaders in climate change policy to see how closely the reputation follows practice.

**CONCLUSION**

What explains the puzzle of why some states ratify and comply with international environmental treaties despite the economic cost, potential for free-riding and lack of effective punishment mechanisms? We know that this variation is largely not caused by misinformation, since the IPCC provides detailed, current information that is widely disseminated. My findings support two of the four hypotheses regarding the effects of international institutions in environmental policy. Regime type (H1) is not as influential in treaty ratification as GDP per capita (H4). This supports liberal institutional theory that focuses on functionalist aspects of compliance. States comply when they have the resources to do so. I also found that market-based incentives (H2) do not necessarily make compliance easier for states--some states are still not compliant even with these mechanisms, while others are compliant without them. Finally, the brief case study of the United States revealed that, at least for this country, the disproportionate requirements between Annex I and non-Annex I countries (H3) does affect states’ decision to ratify the protocol but norms have greater influence in compliance. Even though this is only one case, it is an important outlier since the US is a great power, has a large economy, and can have a major impact on global emissions.

Policy prescriptions from these findings would focus on funding mechanisms from international institutions to aid states in developing capabilities for compliance. The UNFCCC has the Clean Development Mechanism that transfers money from developed to less-developed states for clean energy projects. Also, one would note how negotiations stalled at Copenhagen over the unequal distribution between Annex I and non-Annex I states and attempt to reconcile differences between these two groups. This supports Constructivist theory that advocates an understanding of norms and how actor identities affect their positions when they come to the bargaining table at the annual COPs.

Future research will incorporate data on permit trading systems, as they become more universally used and information is collected more consistently than at present. The level of development in a state makes it more likely to comply with LULUCF standards. This supports the predictions made by neo-Liberal theory, that posit compliant outcomes have largely to do with

**APPENDIX**

1. List of annual conference of the parties

|  |  |  |
| --- | --- | --- |
| **Conference Name** | **Date** | **Location** |
| COP 21 | November 2015 | Paris |
| COP 20 | December 2014 | Lima, Peru |
| COP 19 | November 2013 | Warsaw, Poland |
| COP 18 | November 2012 | Doha, Qatar |
| COP 17 | November 2011 | Durban, South Africa |
| COP 16 | November 2010 | Cancun, Mexico |
| COP 15 | December 2009 | Copenhagen, Denmark\* |
| COP 14 | December 2008 | Poznan, Poland |
| COP 13 | December 2007 | Bali, Indonesia |
| COP 12 | November 2006 | Nairobi, Kenya |
| COP 11 | November 2005 | Montreal, Canada |
| COP 10 | December 2004 | Buenos Aires, Argentina |
| COP 9 | December 2003 | Milan, Italy |
| COP 8 | October 2002 | New Delhi, India |
| COP 7 | October 2001 | Marrakesh, Morocco |
| COP 6 | November 2000 | The Hague, Netherlands |
| COP 5 | October 1999 | Bonn, Germany |
| COP 4 | November 1998 | Buenos Aires, Argentina |
| COP 3 | December 1997 | Kyoto, Japan |
| COP 2 | July 1996 | Geneva, Switzerland |
| Inaugural COP | March 1995 | Berlin, Germany |

\*First commitment period ended; next period negotiated but not agreed upon.

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