

# Global Policy Meets Local Action:

A Case Study of Municipal Action Resulting from the Kyoto Protocol

Lauren Allen

Honors Capstone  
Professor Eve Bratman, Faculty Advisor  
University Honors in International Studies  
Fall 2011

## ABSTRACT

Despite difficulties in international negotiations, local governments worldwide have been voluntarily committing to reduce their Greenhouse Gas (GHG) emissions. This paper examines the impact that the Kyoto Protocol has had on the actions of three cities, Seattle, Hamburg, and Sao Paulo, whom have acted as leaders in preventing climate change at a local level. The paper addresses how the climate change regime has allowed cities to challenge their traditional role in solving international issues.

## I. INTRODUCTION

---

As environmental concerns have emerged over the past century, there has been a large shift in the level from which they have been approached.<sup>1</sup> Historically, most issues were identified and then addressed at a local, or “grassroots,” level. People first took notice of the environment and its importance when species loss began to affect their hunting, pollution began to affect their health, and forest loss began to affect their lifestyle. Groups of concerned people would form and they would fight for a specific cause.<sup>2</sup> Since the 1972 United Nations Conference on the Human Environment in Stockholm, considered a turning point in the history of environmental concern and organization, there has been an increasing realization of the necessity to solve many of the world’s environmental problems through a global approach.<sup>3</sup> Air pollution, ozone depletion, land degradation, water contamination, water scarcity, environmental toxins, biodiversity, overpopulation, resource consumption, food production and of course, climate change, are all trans-boundary environmental issues that have global repercussions.<sup>4</sup>

International treaties have successfully begun to address a few of these problems. By far the most successful international environmental treaty to date is The Montreal Protocol on Substances That Deplete the Ozone Layer, which curtailed the production of

---

<sup>1</sup> There has been considerable literature and debate on the origins and starting moment of the environmental movement. This debate is outside the scope of this paper, but for further information I recommend *Reclaiming Paradise: The Global Environmental Movement* by John McCormick.

<sup>2</sup> John McCormick, *Reclaiming paradise: the global environmental movement*, (Bloomington: Indiana U Press, 1989), 1.

<sup>3</sup> N. Brian Winchester, “Emerging Global Environmental Governance,” *Indiana Journal of Global Legal Studies* 16, no. 1 (2009).; Sheila Jasanoff and Marybeth Long Martello, *Earthly politics: local and global in environmental governance*, (Cambridge: MIT Press, 2004), 31.

<sup>4</sup> Francis Cairncross, “What Makes Environmental Treaties Work?” *Conservation Magazine*, Spring 2004.

harmful chlorofluorocarbons.<sup>5</sup> Another milestone agreement was the North Pacific Fur Seal Treaty of 1911, which outlawed open water seal hunting. It was the first international treaty to address conservation and although it dissolved in World War II, for 30 years it successfully prevented the extinction of seals from hunting.<sup>6</sup> The Convention on International Trade in Endangered Species (CITES) and the Whaling Conventions have used the Fur Seal Treaty as a model to prevent the extinction of both elephants and whales.<sup>7</sup> However, the vast majority of global environmental issues persist today and international negotiation has been strikingly ineffective. While these successes are remarkable, they are not representative of the over 300 multilateral agreements on environmental concerns.<sup>8</sup> This disappointment can be largely attributed to the fact that “most of these treaties lack adequate financial support, and sanctions for non-compliance are either not provided or are unenforceable.”<sup>9</sup> Nations make vague commitments to the treaties so although the number of treaties is growing, the environment is not reaping the benefits.<sup>10</sup> Among these failed agreements that did not reach their intended objectives is the Kyoto Protocol to reduce greenhouse gases (GHGs) and prevent climate change through binding emissions targets.

However, although the countries involved have not reached the target emissions cuts agreed upon, the Kyoto Protocol was successful in another way. By focusing international attention on the importance of climate change, the agreement had the

---

<sup>5</sup> Winchester, “Emerging Global Environmental Governance.”

<sup>6</sup> “North Pacific Fur Seal Treaty of 1911,” NOAA Celebrates, Dec 12, 2006, <http://celebrating200years.noaa.gov/events/fursealtreaty/welcome.html#treaty>.

<sup>7</sup> Winchester, “Emerging Global Environmental Governance.”

<sup>8</sup> Cairncross, “What Makes Environmental Treaties Work?”

<sup>9</sup> Winchester, “Emerging Global Environmental Governance.”

<sup>10</sup> Hilary French, “Coping with Ecological Globalization,” In *State of the world: 2000*, (New York: W.W. Norton, 2000,) 184-211.

positive effect of inspiring municipal action on the topic. This is an important, albeit not entirely intentional, aspect of international negotiation that is often not considered in an evaluation of an agreement's success. Particularly with regards to environmental agreements, even so-called unsuccessful negotiation can consolidate scientific research and set international priorities.<sup>11</sup> Local governments that lack the resources to conduct such in depth investigation and collaboration can use the results of discussion to aim local policy at addressing global environmental problems.

## II. METHODOLOGY

---

This paper is a comparative case study that will expand on the idea of the importance of global environmental negotiation as an inspiration for local policy using the Kyoto Protocol and its impact on three case study cities as an example. The three cities that will be focused on are Hamburg, Germany; Seattle, USA; and São Paulo, Brazil. This paper will utilize peer-reviewed literature, newspaper articles, and the climate action plans and city council websites of the three cities compared.

The three cities chosen have been selected to provide for vast comparison opportunity. The three national governments of these cities have had extremely different roles in climate change negotiations, specifically regarding their roles at the Kyoto discussions. Geographically, the cities selected will be, or are already being, affected by climate change in very different ways. There are economic differences between the cities which factor into their capacity to respond to climate change. The differences between

---

<sup>11</sup> Thomas Hale, "A Climate Coalition of the Willing," *The Washington Quarterly*, 34, no. 1 (2011): 91.

these three cities will allow a look at how Kyoto has had an impact on all of them, though in different ways.

### III. BACKGROUND

---

#### *Kyoto Protocol*

The Kyoto Protocol is a protocol to the United Nations Framework Convention on Climate Change (UNFCCC) that sets binding GHG reduction targets for 37 industrialized countries.<sup>12</sup> The protocol, which was adopted in Kyoto, Japan on December 11<sup>th</sup>, 1997, uses the emissions statistics from 1990 as a baseline for reduction targets. The average reduction target is a 5.2% reduction against 1990 levels, though commitments vary greatly.<sup>13</sup> Parties to the UNFCCC are classified as Annex I; industrialized countries or countries in transition, or Non Annex I; developing countries. The protocol was developed on the premise that GHGs emitted from anywhere have an equal effect on climate change. Under this premise, certain countries are allowed to actually increase their emissions, while other countries must decrease theirs and balance out emissions to reach the overall 5% reduction. Another important aspect of the protocol's structure is that countries that have historically contributed to greenhouse gas emissions are given greater responsibility in reductions whereas developing countries are not required to commit to a target.

Countries are expected to fulfill their targets primarily through national measures but the protocol offers three mechanisms that countries can utilize for assistance. The first is

---

<sup>12</sup> "Kyoto Protocol," United Nations Framework Convention on Climate Change, [http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php), (accessed November 26, 2011).

<sup>13</sup> Maike Sippel, "Global Climate Policy and Corresponding Activities on a City-Level," *Hamburg Institute of International Economics (HWWA)*, June 2004: 1-40.

emissions trading which “allows countries that have emission units to spare - emissions permitted them but not ‘used’ - to sell this excess capacity to countries that are over their targets.”<sup>14</sup> The second mechanism is the Clean Development Mechanism, commonly referred to as CDM, which allows a country with an emissions reduction target to implement an emissions reduction project in a developing country and count the reduction toward their Kyoto commitment. It is expected that “between 2001, the first year CDM projects could be registered, and 2012, the end of the Kyoto commitment period, the CDM [will] produce some 1.5 billion tons of carbon dioxide equivalent (CO<sub>2</sub>e) in emission reductions.”<sup>15</sup> The third mechanism, joint implementation, enables a country with a commitment to install a project in another Annex I country.

The protocol entered into force on February 16<sup>th</sup> of 2005 by which point countries were expected to have demonstrated progress toward their targets.<sup>16</sup> The commitment period ends in 2012, by which point all targets should be achieved. As of the writing of this paper, the majority of parties to the treaty are not expected to meet their commitments by the end of 2012.<sup>17</sup>

### *Cities as Effective Climate Change Actors*

Because of the enormity of the climate change challenge, it is plausible to conclude that the international level is the only effective plane from which to address climate change. Climate change is a global concern and cannot be reversed by the actions of one city, or even a few, but cities do have a much greater capacity to make genuine change than nations

---

<sup>14</sup> “Kyoto Protocol,” UNFCCC.

<sup>15</sup> “Generating the Funding Needed for Mitigation and Adaptation,” In *World development report 2010: Development and Climate Change*, (Washington, DC: World Bank, 2010,) 257-285.

<sup>16</sup> Gwyn Prins and Steve Rayner, “The Kyoto Protocol,” *Bulletin of the Atomic Scientists*, 64, no 1. (2008): 45.

<sup>17</sup> Prins and Rayner, “The Kyoto Protocol.”

as a whole.<sup>18</sup> An aspect that is often left out of the discussion is the complexity of climate change. Despite attempts at it, a “one-size-fits-all” approach has not proven effective towards climate change, and most countries do not have the capacity to be so intricately involved in the climate related needs and capabilities of such varied areas within their borders. Although “the importance of local action as a means of securing global sustainable development was highlighted in the 1987 Brundtland Report and at the 1992 UNCED held in Rio de Janeiro, Brazil,”<sup>19</sup> and has continued to be referenced since, international discussions have not given substantial consideration to the potential for sub-national governments to be players in this field.

There are three main keys that make cities such an appropriate facilitator of GHG emissions reductions. Because of the amount of energy cities consume, their exponential growth patterns, and their vulnerability to climate change, they are both ideal and motivated actors. Cities are centers of consumption and waste production, consuming over two-thirds of the world’s energy and accounting for more than 70% of global CO<sub>2</sub> emissions.<sup>20</sup> The concentration of resource consumption means that small measures can go a longer way. Cities are also growing at a rapid rate and it is anticipated that by 2030, 60% of the world’s population will live in cities.<sup>21</sup> The growing concentration of people not only signifies the growing importance of making cities sustainable, but similar to resources, means that emissions reduction efforts can actually have a greater impact. “Urban densities yield many opportunities for low carbon living, such as the use of cycling paths or

---

<sup>18</sup> Cynthia Rosenzweig, “All Climate is Local,” *Scientific American*, 305, no. 3 (2011): 70-73.

<sup>19</sup> Harriet Bulkeley and Michele Merrill Betsill, *Cities and climate change: Urban Sustainability and Global Environmental Governance*, London: Routledge (2003).

<sup>20</sup> “C40 Cities Live – Blog,” <http://live.c40cities.org>.

<sup>21</sup> Sippel, “Global Climate Policy and Corresponding Activities on a City-Level.” Some estimates project even larger percentages.

mass transport.”<sup>22</sup> Cities are also more individually motivated to prevent climate change since they are often in more vulnerable positions. For example, “75% of urban settlements are located in coastal areas at risk from sea-level rise.”<sup>23</sup> Cities can also be motivated to address climate change in order “to influence national policies, address stakeholder concerns, create incentives for new industries and/or to create environmental co-benefits.”<sup>24</sup> In addition to this, using cities to implement new policy ideas and technological solutions is ideal because they can serve as a “test-bed for larger action” and can identify what works and what does not, both environmentally, economically, and politically.<sup>25</sup>

However, this experimentation would not be without the recognition that “each city is unique in its infrastructure, scope of control over municipal services, [and] technical savvy.”<sup>26</sup> In fact, the organization of climate policy at a more narrow level allows for personalization of policies to appropriately fit the city in which they are being implemented. Not only are cities physically capable, but also “sub-national governments - states, provinces, cities, towns – often have substantial discretion over policy choices which bear heavily on climate change.”<sup>27</sup>

Because of this great need and capacity for city-level action, “a number of urban leaders have decided to take matters into their own hands, adopting solutions that already exist or inventing new ones for limiting greenhouse gas emissions and preparing for the effects of

---

<sup>22</sup> “C40 Cities Live – Blog.”

<sup>23</sup> “C40 Cities Live – Blog.”

<sup>24</sup> Sujata Gupta and Dennis A. Tirpak, et al., 2007: Policies, Instruments and Co-operative Arrangements, In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, United Kingdom and New York, USA.

<sup>25</sup> “C40 Cities Live – Blog.”

<sup>26</sup> “C40 Cities Live – Blog.”

<sup>27</sup> Hale, “A Climate Coalition of the Willing.”



ongoing global warming.”<sup>28</sup> In fact, cities from around the world have begun to change the role of local governments in the international context.<sup>29</sup> For example, the C40 Cities Climate Leadership Group “is a network of large and engaged cities from around the world committed to implementing meaningful and sustainable climate-related actions locally that will help address climate change globally.”<sup>30</sup> The group is the result of a partnership between former Mayor of London Ken Livingstone and the Cities program of President Clinton’s Climate Initiative. Its purpose is to enable cities to become the leaders in global climate action that they have the potential to be.

Another international network of sub-national governments working to prevent climate change is ICLEI – Local Governments for Sustainability, which is an association of over 1220 local government leaders. The first climate change measure to be implemented by ICLEI was the Urban CO<sub>2</sub> Reduction Project, implemented in 14 cities. Subsequently, following the creation of the UNFCCC at the Rio Earth Summit in 1992, ICLEI started the Cities for Climate Protection Campaign (CCP) in 1993. Since the beginning of the CCP, it “has been recognized as the instrumental tool to initiate local mitigation and adaptation actions in both developed and developing countries, and provided key inputs in global climate advocacy efforts of cities and local governments.”<sup>31</sup>

---

<sup>28</sup> Rosenzweig, “All Climate is Local.”

<sup>29</sup> Sippel, “Global Climate Policy and Corresponding Activities on a City-Level.”

<sup>30</sup> “C40 Cities Live – Blog.”

<sup>31</sup> “ICLEI – Local Governments for Sustainability: Climate.” *ICLEI Climate Program*, <http://www.iclei.org/index.php?id=800>.

## IV. LITERATURE REVIEW

---

As mentioned, it currently appears unlikely that many of the Annex I states will meet their Kyoto Protocol commitment targets by the end of 2012. Because of this, the treaty has repeatedly been described as a failure.<sup>32</sup> Scholars cite numerous reasons for this failure, including the decisions of individual actors and the structure of the treaty.

Three of the largest GHG emitters, the United States, China, and India either did not ratify the Kyoto Protocol or were not bound to an emissions target. According to Gardiner, not only does this mean that global emissions will continue to rise, but that participating parties will feel less of a sense of obligation to comply with set targets.<sup>33</sup> What is even more frustrating about the situation created by these actions, particularly on the part of the United States, is that they are setting a precedent for defection. As in any prisoner's dilemma situation, where actors have strong economic incentive to jump ship despite rational incentive to cooperate, this precedent creates difficulty in future negotiations.

Unlike successful international accords, the Kyoto Protocol does not agree on a set of objectives and the methods to reach those objectives.<sup>34</sup> Prins and Rayner assert that there are inherent flaws in the structure of the agreement, despite the fact that it is based on other agreements that were successful. Unfortunately the parallels to these, including the Strategic Arms Reduction Treaty (START) and the international stratospheric ozone regime, are limited. The idea of targets and timetables, which had worked so well in the case of START, became the basis of a climate change agreement. The key difference

---

<sup>32</sup> Prins and Rayner, "The Kyoto Protocol."

<sup>33</sup> Stephen M. Gardiner, "The Global Warming Tragedy and the Dangerous Illusion of the Kyoto Protocol," *Ethics & International Affairs* 18, no. 1 (2004): 23-39.

<sup>34</sup> Prins and Rayner, "The Kyoto Protocol," 46.

between these two issues though was that the actors in START were both technically capable of the actions required of them as well as politically motivated. The treaty also only involved two actors, focused on a single technology, was in the direct control of the government, and was not in conflict with economic growth. The Ozone Regime gave confidence to the idea that a global commons problem should be solved through global action. The problem with this concept in the context of Kyoto is that in reality, it was not implemented. Some of the biggest emitters, namely India and China, were not bound to emissions commitments for political reasons. While this may have been helpful in reaching a consensus, the protocol never even had the potential to prevent climate change without the participation of developing countries. Furthermore, though climate change is a global commons problem, it does not require global participation to resolve. The actions of the 20 largest emitters will ultimately be what affect the climate.<sup>35</sup>

There are further theories on why the Kyoto Protocol was so unsuccessful. Ferrey cites the protocol's failure to embrace renewable technology as its downfall.<sup>36</sup> A publication by the Institute for Global Environmental Strategies notes the inherent conflict between setting weak emissions targets to encourage broad participation versus setting ambitious targets with the risk of losing participation.<sup>37</sup> No conclusion is drawn on which of these scenarios is preferable, but it is pointed out that ultimately neither of the two possibilities under the treaty will achieve the reductions in emissions needed. Although the Kyoto Protocol has not been the effective instrument many had hoped for due to the

---

<sup>35</sup> Prins and Rayner, "The Kyoto Protocol."

<sup>36</sup> Steven Ferrey, "The Failure of International Global Warming Regulation to Promote Needed Renewable Energy," *Boston College Environmental Affairs Law Review*, 37, no. 1 (2010): 67-126.

<sup>37</sup> Institute for Global Environmental Strategies, "Lessons from the Kyoto Protocol: Implications for the Future," *International Review for Environmental Strategies*, 5, no. 1 (2004).

various reasons presented, the draw to a global agreement to solve a global problem is both understandable and logical. Countries are motivated to participate in international systems for a variety of rational reasons. For the sake of relevance, this review will focus on the motivations that also affect sub-national governments.

Institutional agreements, including those made in an international forum, can be useful in concentrating information in a neutral dialogue, as reported by Milgrom, North and Weingast.<sup>38</sup> This consolidation of knowledge was an especially beneficial outcome of the Kyoto Protocol since it dealt with a science that some were still skeptical about at that point. Though the treaty that resulted may not have reflected it in the commitments made, there was a strong consensus coming out of the negotiations that climate change was considered a priority.<sup>39</sup>

According to Abbott and Snidal, international organizations allow for centralization of activities and can increase efficiency. Specifically, they arise in situations where “the costs of direct state interaction outweigh the costs of international organization.”<sup>40</sup> Climate change poses a great threat to many countries, and is not a problem that any one country has the capacity to individually solve. What is problematic about this though is that climate change will not equally affect all countries. However, the Kyoto Protocol Clean Development Mechanism is a relevant example of an increase in efficiency. It is advantageous both in creating a system that allows for alternative ways to reduce

---

<sup>38</sup> Paul R. Milgrom, Douglass C. North, and Barry R. Weingast, “The Role of Institutions in the Revival of Trade,” *Economics and Politics*, 2, no. 1 (1990): 1-23.

<sup>39</sup> Hale, “A Climate Coalition of the Willing.”

<sup>40</sup> Kenneth W. Abbott, and Duncan Snidal, “Why states act through formal international organizations,” *The Journal of Conflict Resolution*, 42, no. 1 (1998): 3-32.

emissions, and it establishes financial support for countries who desire to increase sustainability efforts but do not have the monetary resources.

As Hale writes, the UNFCCC and Kyoto negotiations were useful in “coordinating scientific knowledge about the issue, establishing a global carbon-trading mechanism, [and] placing the issue at the top of the international agenda.”<sup>41</sup> These motivations for nations to act can be witnessed at the international level, but also have trickle down effects to sub-national governance. Throughout this paper these results of international negotiation on the Kyoto Protocol are reflected in the actions taken by local governance.

While this paper will show the Kyoto Protocol’s influence on the three case study cities, it is important to realize that there are also innumerable other factors that affect the actions of these cities with regards to climate change. This paper is in no sense an attempt to cite the Kyoto Protocol as the sole cause of local climate action, but rather is meant to fill the gap within the literature on why sub-national governments have been so involved in climate policy. Accordingly, I will briefly examine the existing literature on the topic. The extensive research examining the actions being taken by communities, cities, and states to reduce climate change reflects amazement with the involvement of these sub-governments in a topic that has traditionally been considered a global issue to be left to nations to deliberate. Many explanations have been provided for the abundance of local action being taken.

Pam Doughman and Allison Chatrchyan’s research on local policy measures implemented in California, New York, and the Northeast of the United States focuses on

---

<sup>41</sup> Hale, “A Climate Coalition of the Willing.”

states acting due to a lack of action on the national government's part. They state that the government's lack of action on the issue is not reflective of preferences on a state and local level, and explain that this leads local governments to take the initiative on their own.<sup>42</sup>

Rosenzweig writes that mayors of cities are pushing climate legislation because they are more aware of how climate change will affect their cities. She believes that they are motivated by a desire to avoid negative impacts to their city.<sup>43</sup> Rosenzweig's article lacks an adequate acknowledgement of an individual city's deficiency in ability to alter their climate change destiny single-handedly. Though it may seem so obvious it is unnecessary to state, this awareness in the mind of a mayor is an important factor in discussing their motivations. The acknowledgement that the scientific effects of a city implementing a climate policy will be negligible insinuates that pushing emissions reduction is also a strategic political move, either to encourage others to follow suit or to prove to their constituency that they are pursuing a solution. While this acknowledgement is important, her argument that concern for the individual city can be a factor that motivates climate action is valid.

Kousky and Schneider assert that based on interviews with officials in staff from 23 different municipalities, climate action decisions are not as altruistic as they appear, and are generally perceived by officials to be "good business." Most commonly, they write, the decision to enact climate friendly policy is done for the potential of cost savings in the long run. Furthermore, the accounting data they produce for over a dozen cities shows that it is

---

<sup>42</sup> Pam Doughman and Allison M. Chatrchyan, "State and Regional Efforts to Address a Global Environmental Issue: Climate Change Policies in California, New York, and the Northeast," *Conference Papers—International Studies Association*, (2007 Annual Meeting): 1-28.

<sup>43</sup> Rosenzweig, "All Climate is Local."

in fact possible for emissions reduction legislation to be implemented in a method that cuts costs.<sup>44</sup>

These three reasons - an attempt to influence national or international policy, an effort to protect the city from climate change, and a way to profit economically - all appear repeatedly throughout literature on local climate change action. In fact, they will each be true of one of the case studies examined in the remainder of this paper. However, the literature on local climate action has failed to acknowledge the role that the international treaty on climate change has played.

## V. HAMBURG

---

Germany has been one of the leaders and agenda setters in global climate change negotiations since the 1980s, advocating ambitious policies to reduce emissions.<sup>45</sup> Their willingness to take the lead has been valuable throughout the climate change solution searching process, particularly at the U.N. Earth Summits in Rio de Janeiro in 1992 and Johannesburg in 2002, at the Conference Of the Parties session in Kyoto in 1997, and at the Bali negotiations in 2007. Their appearances were “of high symbolical value but also helped overcome political obstacles that were blocking international action.”<sup>46</sup> Germany’s commitment to the UNFCCC under the Kyoto Protocol is a 21% reduction of emissions by

---

<sup>44</sup> Carolyn Kousky and Stephen H. Schneider, “Global climate policy: will cities lead the way?” *Elsevier*, 3, no. 4 (2003).

<sup>45</sup> Helmut Weidner and Mez Lutz, “German Climate Change Policy: A Success Story With Some Flaws,” *The Journal of Environment & Development* 17, no. 4 (2008): 356-378. <http://jed.sagepub.com/content/17/4/356> (accessed November 26, 2011).

<sup>46</sup> *Ibid.*

2012 from 1990 levels.<sup>47</sup> By 2008, Germany had already reduced emissions by 22.4%<sup>48</sup> - 23.3%<sup>49</sup>, and they anticipate being one of the few countries to reach their Kyoto commitments. One thing that has contributed to Germany's success is that the country "has not shied away from strong, regulatory, and tax policies that impose significant costs on industry and the general population."<sup>50</sup>

Today the environment, and particularly climate change, is recognized as a key issue in German politics, but this was not always the case. The rise of climate change to an issue of importance within German policy was rapid, and can be attributed in large part to Germany's large nuclear energy industry. The lobby for the industry was investing a lot of energy into pushing climate change on the political agenda, proposing nuclear energy as the carbon-emissions free solution. However, the Chernobyl nuclear catastrophe of 1986 detracted from the intended message being received by the public.<sup>51</sup> Nuclear energy was no longer seen as a probable solution, but Chernobyl help to draw further attention to the climate issue. In response to public concern, almost overnight German Chancellor Helmut Kohl established a Ministry of Environment to demonstrate a commitment to addressing climate change.<sup>52</sup> Since this moment, the environment has been an extremely important

---

<sup>47</sup> The Kyoto Protocol officially calls for an 8% reduction of emissions from the European Union as a whole, and deliberation amongst member states resulted in the agreement that Germany would reduce their emissions by 21%, which would be equal to 80% of the EU's total reductions.

<sup>48</sup> "Climate Control: Germany Reaches Kyoto Emissions Commitments - SPIEGEL ONLINE - News - International," SPIEGEL ONLINE - Nachrichten, <http://www.spiegel.de/international/germany/0,1518,593296,00.html>.

<sup>49</sup> Anja Kueppers, "Germany's Transition to a Low Carbon Economy and the Transatlantic Climate Bridge," *Presentation by Communications Officer on Climate and Energy Policy*, German Embassy: Washington, DC.

<sup>50</sup> Weidner and Lutz, "German Climate Change Policy."

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.



issue in public opinion, which has given all political parties a motivation to prioritize it.<sup>53</sup>

This public support has been extremely useful in allowing Germany to assume leadership roles during climate negotiations.

It is impossible to discuss Germany's environmental priorities and politics without acknowledging that European Union politics play heavily into Germany's policy. In fact, Germany did not commit to the Kyoto Protocol as a country, but rather as a member of the EU. As a member state Germany has the designated commitment of a 21% reduction of greenhouse gas emissions within the EU agreement, even though the EU as a whole only agreed to an 8% reduction. The EU defines environmental policy with 10-year environment action programmes. The programme covering the period of the Kyoto Protocol implementation is the 6<sup>th</sup> programme and covers the span from 2002-2012. In this programme, "special focus was placed on climate change which has been acknowledged as 'posing the main challenge for the next ten years and beyond.'"<sup>54</sup> The three priorities outlined under the topic of climate change were for the Kyoto Protocol to enter into force, to have made significant progress toward reaching Kyoto commitments by 2005, and to be in a credible position to advocate for a second commitment period.<sup>55</sup> The steps outlined that would be taken to achieve these goals included improving monitoring technology, establishing an EU carbon credit trading scheme, and adopting common policy measures as appropriate.<sup>56</sup> Germany is a very active member of the EU on almost all

---

<sup>53</sup> Paul G. Harris, *Europe and global climate change politics, foreign policy and regional cooperation*, Cheltenham, UK: Edward Elgar, (2007).

<sup>54</sup> European Union, "Environment Action Programmes," BMU - Herzlich willkommen auf der Internetseite des Bundesumweltministeriums!, [http://www.bmu.de/english/economy\\_products/downloads/doc/3265.php](http://www.bmu.de/english/economy_products/downloads/doc/3265.php).

<sup>55</sup> "Sixth Community Environment Action Programme," *Official Journal of the European Communities*, 242 (2002): 1-15.

<sup>56</sup> Sixth Community Environment Action Programme."

environmental concerns, especially climate change. The country has pushed for stronger collective action from the EU so as to provide the leadership needed to both encourage other regions to follow through on Kyoto commitments, and to persuade them to be willing to commit to a follow up treaty.

In order to back these requests within the EU, Germany has developed its own even more aggressive climate action standards. Germany's national climate policy is founded on the idea that "the increase in average global temperature must be limited to 2° C above pre-industrial levels in order to avoid unacceptable consequences and risks of climate change."<sup>57</sup> Since 1990 when the German government "announced its intentions to strive to reduce CO<sup>2</sup> emissions in West Germany by 25% of 1987 levels by 2005," it has consistently set ambitious targets for itself.<sup>58</sup> The reunification of Germany brought the 1995 "revised CO<sup>2</sup> reduction target: 25% of 1990 levels by 2005."<sup>59</sup> This challenging reduction goal was announced during the first Conference of the Parties and was helpful in overcoming stagnation during the negotiation of the Kyoto Protocol because it was an impressive target coming from a developed country. At the final Kyoto negotiations in 1997, the diplomatic activities of Angela Merkel, the German Minister of the Environment, were a crucial part in the adoption of the protocol.

In an effort to persuade the EU to commit to a greater GHG emissions reduction target, Germany has created a package of 14 laws and regulations and 7 other measures

---

<sup>57</sup> Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety Policy, "BMU – Klimaschutz: Klimaschutzpolitik in Deutschland," *BMU – Herzlich willkommen auf der Internetseite des Bundesumweltministeriums*.

<sup>58</sup> Weidner and Lutz, "German Climate Change Policy."

<sup>59</sup> Weidner and Lutz, "German Climate Change Policy."

that are designed to reduce their greenhouse gas emissions by 40% from 1990 levels.<sup>60</sup> Germany has announced that if the EU will collectively agree to reduce emissions by 30%, Germany will implement this package. The purpose of this agreement would be to use it as a tool in negotiating a post Kyoto climate agreement. As the EU Environmental Programme states, being in a position to endorse stricter targets in a follow-up global climate treaty was one of the union's goals, and Germany taking the lead on this effort is a way to put them in this position. Overall, Germany's role in the Kyoto Protocol and future global climate treaty negotiation can be defined as a leader, often stepping up to make commitments that others are unwillingly to in an attempt to encourage cooperation towards a greater good.

Hamburg is the second-largest city in Germany and is home to over 1.8 million people. It is a major transport hub and port city, as well as one of the most affluent cities in Europe. Located in northern Germany, it has an oceanic climate, generally experiencing mild temperatures and snowfall only once or twice a year. It is a popular tourist city both for domestic tourists as well as international tourists. Hamburg was awarded the title of "European Green Capital 2011," an award to acknowledge their "ongoing and ambitious goals for further environmental improvement and sustainable development."<sup>61</sup> Some of the effects of climate change anticipated for Hamburg are an average temperature increase of between 2.8 to 4.7°C by the end of the century, heavier rainfall in the winter and less

---

<sup>60</sup> "BMU – Klimaschutz: Klimaschutzpolitik in Deutschland."

<sup>61</sup> "About the Award – European Green Capital," *EUROPA – European Commission – Homepage*, <http://ec.europa.eu/environment/europeangreencapital/about-the-award/index.html>.

rainfall in the summer, potential flooding, and disruption of the port due to altered tidal systems.<sup>62</sup>

Hamburg's current Climate Action Policy runs from 2007-2012, and sets the goal of reducing emissions by two million tons by 2012. As mayor Ole von Beust stated in his introduction to the Climate Action Plan, "that is a reduction of approximately 20% versus baseline 1990."<sup>63</sup> Although the Kyoto Protocol does not bind cities of signatory countries to the commitments made, and neither does Germany's environmental policy require this obligation of individual cities, Hamburg voluntarily committed to assume the pledge of a reduction equivalent to the pledge made by Germany as a country.<sup>64</sup> Hamburg uses the same baseline of 1990 as is used in the Kyoto Protocol, with the end of the commitment period set at 2012, also based on the Kyoto Protocol. Additionally, in their climate action plan, Hamburg replicates the language published by the German government regarding how the rise in global temperature must be limited to 2° C. Hamburg has also set a long-term target of "reducing CO2 emissions by 40% by 2020."<sup>65</sup> This objective is meant to demonstrate an enduring dedication to the issue of climate change.

Hamburg's city council has been active in advocating for other cities to also take local climate change action. In 2009 they hosted the Hamburg City Climate Conference, First Annual Conference of the Covenant of Mayors. The event took place in November, a month before the UN Climate Summit in Copenhagen, and was intended as a way to

---

<sup>62</sup> Parliament of the Free and Hanseatic City of Hamburg, "Update of the Hamburg Climate Action Plan 2010/2011," *Hamburg Parliament – 19<sup>th</sup> Legislative Period*, 19, no. 8311 (2011): 1-38.

<sup>63</sup> "Update of the Hamburg Climate Action Plan 2010/2011."

<sup>64</sup> Germany's official pledge is a 21% reduction in emissions, whereas Hamburg's is approximately a 20% reduction, "Update of the Hamburg Climate Action Plan 2010/2011."

<sup>65</sup> "Update of the Hamburg Climate Action Plan 2010/2011."

exchange ideas on how cities should fit into the global climate agenda, as well as cost-effective strategies to promote clean energy and clean transportation.<sup>66</sup>

The European Commission has designed an award called the “European Green Capital” award to be given to one city every year to recognize local authorities that take action to improve the environment, and show a high level of commitment to progress.<sup>67</sup> The award was initially conceived at a meeting in 2006 and created to inspire cities to make their cities more sustainable and lower GHG emissions. As mentioned, Hamburg was awarded the title of European Green Capital for the year of 2011. This award adds credibility to their leadership as a city that prioritizes environmental initiatives, including climate change mitigation.

The influence of the Kyoto Protocol in Hamburg is an indirect one, and smaller than would be expected for a city within a country bound by a Kyoto Protocol commitment. As a country, Germany has become a leader amongst nations, with the Kyoto Protocol and the UNFCCC as their motivation that other countries might follow in their footsteps. Hamburg’s role amongst cities has in large part replicated Germany’s role amongst other nations. This can be seen both through the city setting an emissions target to match Germany’s Kyoto Protocol commitment, their replication of language from the German government, as well as in their efforts to encourage other cities to join them in making such commitments. The Kyoto Protocol places an international priority on climate change, which allows governments that are eager to see progress made to seize the opportunity to encourage other governments to make commitments. As mentioned, if global

---

<sup>66</sup> “Hamburg City Climate Conference 09,” *CIPRA*, <http://www.cipra.org/en/alpmedia/even>.

<sup>67</sup> “About the Award – European Green Capital.”

temperatures continue to rise Hamburg will face a variety of threats. The city has a vested interest in preventing catastrophic climate change, and the excitement around the Kyoto Protocol provides an outlet to spread their actions.

## VI. SEATTLE

---

Meanwhile, the United States was following a much different course than Germany. The US attended the Kyoto Protocol negotiations in 1997 and signed the treaty agreeing to a binding carbon emissions target of 7% below 1990 levels by 2012. In 2001, the U.S. government under the Bush administration decided not to ratify the treaty, citing that compliance with it had the potential to economically harm the country. “Michele St. Martin, communications director for the White House Council on Environmental Quality, said the Kyoto Protocol would have resulted in a loss of five million jobs in the United States and could raise energy prices.”<sup>68</sup> However, as the second largest carbon emitter at the time, the US pulling out of the treaty was an affront to the Kyoto Protocol and every country that had signed it. The US decision to not ratify the Kyoto Protocol was not an isolated moment in the country’s climate change policy history. Since the beginning of negotiations on the subject, the US has received sizeable criticism for being such a large contributor to emissions, and being so unwilling to agree to reduce them.

In response to the US pulling out of the Kyoto Protocol, Paul Schell, Mayor of Seattle at the time, pledged to bring Seattle to the standards required by the Kyoto Protocol. Resolution 30316 from the City of Seattle represents the first legislative response from the city to the national government refusing to ratify the Kyoto Protocol. Resolution 30316

---

<sup>68</sup> Eli Sanders, “Seattle leads U.S. cities joining Kyoto Protocol,” *The New York Times*, May 16, 2005.

was first introduced on April 16, 2001, less than a month after the announcement on March 28<sup>th</sup> that the US would not be ratifying the treaty. The city resolution calls for support of efforts to curb global warming, GHG reduction goals to be set for the city, and actions to be implemented to reach those goals. Additionally interesting is the text within the resolution, which reads, “the federal government has demonstrated an alarming unwillingness to play a leadership role in climate protection.”<sup>69</sup> Under different circumstances, this statement could be attributed to a general lack of climate change legislation from the national government, but this resolution’s introduction just 18 days after the US pulling out of the Kyoto Protocol suggests a direct correlation between the two events. This highlights the importance of the Kyoto Protocol as a symbol of a commitment towards mitigating climate change. The resolution continues to say, “local actions can help to pave the way for national leadership, by providing working models of greenhouse gas reduction initiatives that reinforce other high-priority policy objectives.”<sup>70</sup> Seattle’s response to the national government’s action towards Kyoto is an example of how an international agreement can create unintended effects. In contrast with Hamburg, Seattle’s actions toward climate change do not replicate the national governments, but rather directly conflict and challenge them. In this instance, the city embraces the opportunity to communicate the message that climate change is a priority for them and their constituents.

When Greg Nickels replaced Schell as Mayor in 2002, he carried on this idea and on the day the Kyoto Protocol went into effect, February 16, 2005, Nickels launched a campaign to unite cities across the country in working towards the Kyoto Protocol target

---

<sup>69</sup> Seattle.gov, “Resolution Number: 30316,” *Seattle City Clerk’s Online Information Services*, <http://www.seattle.gov/leg/clerk>.

<sup>70</sup> Ibid.

the US had initially agreed to. Nickels' original goal was to inspire 140 cities to sign on to the alliance to match the 140 countries that were part of the Kyoto Protocol.<sup>71</sup> Nickels was quoted by an article in the *Los Angeles Times* from February 22, 2005 regarding the launch of the campaign as having stated that he is "deeply disappointed that the U.S. is not part of the treaty."<sup>72</sup> Though Nickels had already publicly stated that the implementation of the Kyoto Protocol was the inspiration for his campaign, this statement clarifies that the US lack of participation in the treaty played a role in the decision. By May of 2005, 131 mayors had already joined the agreement, and when Nickels brought the idea to the U.S.

Conference of Mayors in June of 2005 the numbers grew. At this point more than 1,000 mayors have signed on with representation from all 50 states.<sup>73</sup> At the conference, Nickels addressed them about the two main purposes of the climate agreement he was proposing, saying that the drive to create this alliance was both to generate local responses to climate change, as well as to send a message to the national government that climate change is a priority throughout the country. The alliance requires cities to agree to the following three commitments:

- Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns
- Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol – 7% reduction from 1990 levels by 2012

---

<sup>71</sup> Tomas Alex Tizon, "Mayor Is on a Mission to Warm U.S. Cities to the Kyoto Protocol," *Los Angeles Times*, February 22, 2005. At the time this article was written 140 countries had joined the Kyoto Protocol. Australia would later to join to bring the current number of countries involved to 141.

<sup>72</sup> Tizon, "Mayor Is on a Mission to Warm U.S. Cities to the Kyoto Protocol."

<sup>73</sup> City of Seattle Office of Sustainability & Environment, "Progress Report 2009," *Seattle Climate Protection Initiative* (2009): 1-18.



- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system<sup>74</sup>

These commitments make clear reference to being motivated by the international treaty, by the United States' lack of participation in the treaty, and by a desire for the US to conform more to the developed world's climate program via a national carbon credit system.

In September of 2006 Seattle released their climate action plan, titled "Seattle, A Climate of Change: Meeting the Kyoto Challenge." The action plan goes far beyond the resolution proposed under Schell's term and details 18 specific actions that will be taken to reduce emissions. Not only is the Kyoto Protocol referenced in the title of the document, but the introduction to the action plan details that the aim of the document is to prepare Seattle to meet the Kyoto commitment, and includes the story of Nickels' launching a campaign to all US Mayors on the day the Kyoto Protocol went into effect.<sup>75</sup>

One of the biggest emissions sources Seattle sought to address was transportation emissions. Seattle is a commuter city where cars and trucks "travel approximately two billion miles every year in Seattle."<sup>76</sup> The emissions from this travel are the largest source of climate pollution in the city, which is why the first measure on the Climate Action Plan is to "Significantly Increase the Supply of Frequent, Reliable and Convenient Public Transportation."<sup>77</sup> Something that Seattle struggled with, and that many cities encounter, is that the city is not directly responsible for providing public transportation. Particular to

---

<sup>74</sup> "U.S. Conference of Mayors Climate Protection Agreement," *The United States Conference of Mayors Climate Protection Center*, <http://www.usmayors.org/climateprotection/agreement.htm>.

<sup>75</sup> City of Seattle, "Seattle, a Climate of Change: Meeting the Kyoto Challenge," *Climate Action Plan*, [http://www.seattle.gov/archive/climate/docs/SeaCAP\\_plan.pdf](http://www.seattle.gov/archive/climate/docs/SeaCAP_plan.pdf).

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

Seattle, the responsibility falls onto King County Metro, Sound Transit, Pierce Transit and Community Transit. However, the city proposed measures such as better synchronizing stoplights to improve transit flow, maintaining roadways, expansion of existing public transportation services, and increasing the hours of service of public transportation. The majority of these actions were funded by marginal taxes (1/10 of 1%) on property owners, as well as roadway tolls. Also important to this effort is how progress would be measured. Specific to this objective, the city stated that they would measure trends in gasoline contribution to Seattle's climate pollution levels, they would monitor trips made using modes of transportation other than single occupancy vehicles, and they would measure vehicle miles traveled in Seattle. The action plan goes on to detail 17 more initiatives, some specific GHG reduction goals, and some designed to provide better long term infrastructure such as (17) Directing more resources to the challenge, and (18) Improving measurement capacity.

However, even once the climate action plan had been announced, many remained skeptical that Seattle would be able to follow through on their commitment. But in 2008, Nickels announced that Seattle had met their commitment of a 7% drop from 1990 levels, four years ahead of schedule. According to an NPR broadcast on December 10, 2009, what the city is even more proud of is that in doing this, the city has grown in population, in jobs, and in housing.<sup>78</sup> The largest GHG emissions reductions came from stricter building codes and cleaner power. The electric utility that services Seattle is owned by the city so they are able to mandate that power does not come from coal or other fossil fuels, which was a

---

<sup>78</sup> Martin Kaste, "By Following Kyoto Protocol, Seattle Inspires Others," *National Public Radio*, December 10, 2009, <http://www.npr.org/templates/story/story.php?storyId=121280271>.

challenge to respond to but was successfully accomplished. Despite this, criticisms have continued because although some of the Climate Action Plan objectives were met or exceeded, the one that has not been very successful is reduction of single occupancy vehicle traffic.<sup>79</sup> Infrastructure problems such as lack of public transportation take long-term systematic change, which Seattle is still working towards but will need time to reach.

Seattle and the other 1054 cities that have signed onto the US Conference of Mayors Climate Protection Agreement are a direct outcome of the Kyoto Protocol, and an example of how even failure to participate in treaties can have implications. The Kyoto Protocol also served the purpose of setting an achievable goal for the cities. It took a complex issue and put a number on it, so that cities could understand where they needed to be.<sup>80</sup> The treaty gave the city governments the motivation needed and allowed for the creation of a separate structure that would provide the sense of obligation cities needed to follow through with their commitments.

## VII. SÃO PAULO

---

As a developing country, Brazil's role at the Kyoto negotiations was very different from that of Germany and the United States. Although they are the 6<sup>th</sup> largest carbon emitter of all developing countries, their status as a non-Annex I party to the UNFCCC means they do not have an emissions reduction commitment. The Brazilian government has publically praised the Kyoto Protocol as the most appropriate avenue towards climate

---

<sup>79</sup> Ibid.

<sup>80</sup> The fact that many contest that the targets set in the Kyoto Protocol are much lower than needed is irrelevant to this discussion, since the purpose of mentioning it is to highlight that the number now exists – regardless of what the number is.

change mitigation.<sup>81</sup> Although they do not have an emissions requirement, Brazil is one of the countries that has embraced the protocol the most, and has specifically taken advantage of the Clean Development Mechanism. The CDM proposal during the Kyoto Protocol negotiations was actually submitted by Brazil, and incorporated into the treaty. The state and city of São Paulo in particular has utilized this mechanism.

The city of São Paulo is the capital of and most populated city in Brazil, and worldwide is the seventh largest city with a population of over 11 million people. The city of São Paulo is located within the state of São Paulo, which has a population of 40 million people and is responsible for 25% of Brazil's greenhouse gas emissions.<sup>82</sup> Both the state and city have taken notable actions toward climate prevention, and while the distinction between the two is important, they both fall into the category of sub-national governments. Also of importance is that in Brazil, governments at both the state and city level are given the authority to legislate on environmental protection and pollution control.<sup>83</sup>

São Paulo city first began considering local climate change initiatives as a method to reduce air pollution within the city. The problems caused by air pollution enabled GHG emissions reduction legislation to be justified because of the health and economic benefits. In 1996, the city published its "Agenda 21 Local," which was an environmental plan for the city that focused greatly on climate change. The agenda states that "it is the outcome of a first work stage started after Rio 92," one of the preceding COPs prior to Kyoto.<sup>84</sup> In 2003, São Paulo signed ICLEI's Cities for Climate Protection (CCP), which promotes local policy

---

<sup>81</sup> "São Paulo Brazil: A hybrid PPP institutional model," In *Cities and Climate Change*, 212 (online): OECD Publishing, 2010.

<sup>82</sup> Ibid.

<sup>83</sup> Ibid.

<sup>84</sup> Government of the City of São Paulo, "Introduction," *Agenda 21 Local: Commitment of the City of São Paulo*, [http://frankros.tripod.com/ag21/ag21\\_i\\_re.pdf](http://frankros.tripod.com/ag21/ag21_i_re.pdf).

making with regards to climate change. As a part of the program, São Paulo completed an inventory of its emissions and it was found that the two main sources were transportation, at 48.6%, and landfills, at 23.5%.<sup>85</sup>

In 2005, the year that the Kyoto Protocol went into effect, São Paulo began implementing projects through the Clean Development Mechanism. The CDM was implemented as a compromise between Annex I and non-Annex I states at the Kyoto negotiations. Annex I countries wanted the flexibility to be able to meet their requirements via other means than in country emissions reductions. Non-Annex I countries feared that this would reduce accountability and result in commitments being met on paper but not in reality. The compromise was that carbon credits could be issued for projects implemented in developing countries, which gave Annex I countries the flexibility they needed while supporting a technology transfer and financial support to developing countries. The CDM has received a lot of criticism for a variety of reasons, especially for the risk of false credits being issued. However, as a city São Paulo has embraced it and successfully implemented numerous projects.

Perhaps the most successful project is The Bandeirantes Landfill Gas to Energy project, which “was developed by the City of São Paulo to collect and process biogas from the Bandeirantes Landfill to generate electricity at an on-site power plant.”<sup>86</sup> The project is estimated to have prevented the release of more than 7,400,000 tons of CO<sub>2</sub> into the atmosphere from 2004 to 2010, and lowered GHG emissions from the city by 11%.<sup>87</sup> The

---

<sup>85</sup> “São Paulo Brazil: A hybrid PPP institutional model.”

<sup>86</sup> ICLEI –Local Governments for Sustainability, “Turning pollution into profit: The Bandeirantes Landfill Gas to Energy Project,” *ICLEI Case Studies*.

<sup>87</sup> Ibid.; “São Paulo Brazil: A hybrid PPP institutional model.”

site is expected to continue collecting gas until 2018. In addition to that, the process produced clean energy, generated additional revenue, created jobs, and increased awareness of climate change in the community.<sup>88</sup> After receiving CDM approval, the project was implemented by the city in cooperation with a local private company, Biogas Ambiental.

The site began operation in 2004 and in 2007 Brazil held a public auction to sell the Certified Emissions Reductions (CER). It was the first public auction of CER in the world, and was considered a great success.<sup>89</sup> São Paulo directed the money they received for the credits towards environmental improvements in the communities surrounding the landfill. The landfill project was a well-implemented model that could be modified and replicated in other cities facing the same concerns of emissions escaping from waste and a need for clean energy. More importantly, São Paulo took the risk of being the first ones to auction off credits after the project had been implemented. This proved that CDM credits held a value and were worth the investment, which had previously been a concern of those considering CDM projects.

Another large CDM registered biogas recovery from landfill project was built at the Sao João landfill, also in São Paulo city. In addition to these two large-scale projects in the city which each produce 20 MW of energy, within São Paulo state “ten other biogas to energy projects (100 to 500kW steam) are also being installed in breweries as well as dozens of small scale plants (50 to 200kW) in farms.”<sup>90</sup> This leadership in, and embrace of, the clean development mechanism is unique for a local government. São Paulo very

---

<sup>88</sup> Sippel, “Global Climate Policy and Corresponding Activities on a City-Level,” p. 14.

<sup>89</sup> ICLEI –Local Governments for Sustainability, “Turning pollution into profit.”

<sup>90</sup> <http://www.theclimategroup.org/programs/policy/states-and-regions/sao-paulo-state/>

effectively chose partners who would be able to help them with the CDM approval process. For example, in the case of the Bandeirantes Landfill, São Paulo partnered with Biogas Ambiental, who was responsible for securing approval as a CDM project.<sup>91</sup> As a major city in a developing country, São Paulo has stood out as a leading example of how a local government can utilize and benefit from the Kyoto Protocol's CDM.

## VIII. CONCLUSION

---

This paper established that the Kyoto Protocol has been considered an unsuccessful international treaty for a variety of reasons. It provided literature suggesting why states would be drawn to solve such an issue in an international context in the first place. A connection was then made between how these specific benefits to nations could also benefit municipalities. This led to the question of why municipalities would be interested in solving climate change to begin with, which was answered with supporting examples from additional literature. This paper then examined the actions implemented by three municipal cities, Hamburg, Seattle, and São Paulo, to mitigate climate change. Climate action within the city, leadership activity outside the city, and mechanisms used were all looked at.

All three cities have taken on ambitious efforts to reduce their climate change emissions, given their respective standings economically and politically. Furthermore, this paper demonstrated how all three cities can attribute part of this action to the Kyoto Protocol. In the case of Hamburg, the Kyoto Protocol provided the international focus on climate change that motivated them to capitalize on the opportunity to push other cities to

---

<sup>91</sup> ICLEI –Local Governments for Sustainability, “Turning pollution into profit.”

join them in aggressive action against climate change. In Seattle, the national government's decision to be the only developed country not to ratify the Kyoto Protocol was the impetus they needed to take a stand. By declaring their decision to commit to the targets agreed upon by the US during the negotiation process, Seattle sent a strong message that they wanted climate change legislation from the national government. In São Paulo, the sub-national state and city governments utilizes the clean development mechanism set up by the Kyoto Protocol to bring economic and environmental advantages to the local area.

On the issue of climate change, international dialogue has proven ineffective at addressing the very real threat the planet faces. Temperatures are rising and commitments are not being met. Cities have challenged their traditional role in the solution of global commons problems and are not sitting back to wait for legislation from a national level. The Kyoto Protocol, although intended to be a way to establish a global solution to climate change via GHG emissions commitments, has not produced the results that it sought. However the process has not been entirely worthless. It has had a substantial impact on the value placed on finding a solution to climate change, and that has been reflected in the actions made by local governments. The Kyoto Protocol began to solidify numbers, it set something to strive for, and for some, it created a way for action to happen in the form of the CDM. The steps that have been taken are not nearly large enough, but they are a start.

The original intention of this paper was to use the Kyoto Protocol as an example of how global institutions and agreements can affect municipal policy. However, after completing this research, I have found that the circumstances surrounding the Kyoto Protocol and Climate Change are so unique that to apply them to international dilemmas and solutions as a whole would be presumptuous. The many and varied motivations



behind municipal action, the complexity of climate change as a science, and the overwhelming number of global actors have created irreplicable conditions. However, this research is significant because under these unique circumstances, cities have challenged their traditional roles in the global context.

With this in mind, future research should look at how the role of cities continues to evolve. It would be interesting to examine whether this newfound “independence” carries over into other areas, or whether the partnerships forged on the issue of climate change remain in that realm. Furthermore, if a follow-up treaty is produced when the Kyoto Protocol expires at the end of this year, it would be of benefit to study the roles that municipalities play in that discussion, if any, as well as their reactions to whatever is produced.

---

## IX. REFERENCES

---

Abbott, Kenneth W., and Duncan Snidal. "Why states act through formal international organizations." *The Journal of Conflict Resolution*, 42, no. 1 (1998): 3-32.

"About The Award | European Green Capital." EUROPA - European Commission - Homepage. <http://ec.europa.eu/environment/europeangreencapital/about-the-award/index.html> (accessed November 20, 2011).

Translated from German.

Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety Policy. "BMU - Klimaschutz: Klimaschutzpolitik in Deutschland." BMU - Herzlich willkommen auf der Internetseite des Bundesumweltministeriums!. [http://www.bmu.de/klimaschutz/nationale\\_klimapolitik/doc/5698.php](http://www.bmu.de/klimaschutz/nationale_klimapolitik/doc/5698.php) (accessed November 23, 2011).

Translated from German.

Bulkeley, Harriet, and Michele Merrill Betsill. *Cities and climate change urban sustainability and global environmental governance*. London: Routledge, 2003.

"C40 Cities Live - Blog." C40 Cities Live - Blog. <http://live.c40cities.org/> (accessed January 8, 2012).

Cairncross, Francis. "What Makes Environmental Treaties Work?." *Conservation Magazine*, Spring 2004. <http://www.conservationmagazine.org/2008/07/what-makes-environmental-treaties-work/> (accessed November 26, 2011).

"São Paulo Brazil: A hybrid PPP institutional model." In *Cities and Climate Change*, 212. (online): OECD Publishing, 2010.

City of Seattle Office of Sustainability & Environment. "Progress Report 2009." *Seattle Climate Protection Initiative* 1 (2009): 1-18. <http://www.seattle.gov/archive/climate/docs/CPI-09-Progress-Report.pdf> (accessed December 22, 2011).

City of Seattle. "Seattle, a Climate of Change: Meeting the Kyoto Challenge." Climate Action Plan. [www.seattle.gov/archive/climate/docs/SeaCAP\\_plan.pdf](http://www.seattle.gov/archive/climate/docs/SeaCAP_plan.pdf) (accessed January 5, 2012).

"Climate Control: Germany Reaches Kyoto Emissions Commitments - SPIEGEL ONLINE - News - International." SPIEGEL ONLINE - Nachrichten. <http://www.spiegel.de/international/germany/0,1518,593296,00.html> (accessed November 26, 2011).

Doughman, Pam, and Allison M. Chatrchyan. "State and Regional Efforts to Address a Global Environmental Issue: Climate Change Policies in California, New York, and the Northeast." *Conference Papers—International Studies Association* (2007 Annual Meeting): 1-28. *Academic Search Premier*, EBSCOhost (accessed January 14, 2012.)

European Union. "Environment Action Programmes." BMU - Herzlich willkommen auf der Internetseite des Bundesumweltministeriums!.  
[http://www.bmu.de/english/economy\\_products/downloads/doc/3265.php](http://www.bmu.de/english/economy_products/downloads/doc/3265.php)  
(accessed November 30, 2011).

Ferrey, Steven. "The Failure of International Global Warming Regulation to Promote Needed Renewable Energy." *Boston College Environmental Affairs Law Review* 37, no. 1 (2010): 67-126. [web.ebscohost.com](http://web.ebscohost.com) (accessed January 13, 2012).

French, Hilary. "Coping with Ecological Globalization." In *State of the world: 2000*, 184-211. New York: W.W. Norton, 2000.

Gardiner, Stephen M. "The Global Warming Tragedy and the Dangerous Illusion of the Kyoto Protocol." *Ethics & International Affairs* 18, no. 1 (2004): 23-39.

Government of the City of São Paulo. "Introduction." Agenda 21 Local: Commitment of the City of São Paulo. [frankros.tripod.com/ag21/ag21\\_i\\_re.pdf](http://frankros.tripod.com/ag21/ag21_i_re.pdf) (accessed January 9, 2012).

Gupta, S., D. A. Tirpak, N. Burger, J. Gupta, N. Höhne, A. I. Boncheva, G. M. Kanoan, C. Kolstad, J. A. Kruger, A. Michaelowa, S. Murase, J. Pershing, T. Saijo, A. Sari. 2007: Policies, Instruments and Co-operative Arrangements. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Hale, Thomas. "A Climate Coalition of the Willing." *The Washington Quarterly* 34, no. 1 (2011): 89-101.

"Hamburg City Climate Conference 09." CIPRA.  
<http://www.cipra.org/en/alpmedia/events/2445> (accessed January 4, 2012).

Translated from German.

Harris, Paul G.. *Europe and global climate change politics, foreign policy and regional cooperation*. Cheltenham, UK: Edward Elgar, 2007.

"ICLEI - Local Governments for Sustainability : Climate." ICLEI Climate Program.

<http://www.iclei.org/index.php?id=800> (accessed December 1, 2011).

Institute for Global Environmental Strategies. "Lessons from the Kyoto Protocol: Implications for the Future." *International Review for Environmental Strategies* 5, no. 1 (2004).

<http://philibert.cedric.free.fr/Downloads/Transforming%20Kyoto.pdf> (accessed January 11, 2012).

Jasanoff, Sheila, and Marybeth Long Martello. *Earthly politics local and global in environmental governance*. Cambridge, Mass.: MIT Press, 2004.

Klinge, Matthew W.. *Emerald city: an environmental history of Seattle*. New Haven: Yale University Press, 2007.

Kousky, Carolyn, and Stephen H. Schneider. "Global climate policy: will cities lead the way?." *Elsevier* 3, no. 4 (2003). [www.sciencedirect.com](http://www.sciencedirect.com) (accessed January 15, 2012).

Kueppers, Anja. "Germany's Transition to a Low Carbon Economy and the "Transatlantic Climate Bridge"." Presentation by Communications Officer on Climate and Energy Policy. [www.vapdc.org/Sum%20Conf%2009%20Pres%20Kupers\\_Germany%20Renewables%20TCB\\_compressed.pdf](http://www.vapdc.org/Sum%20Conf%2009%20Pres%20Kupers_Germany%20Renewables%20TCB_compressed.pdf) (accessed November 30, 2011).

"Kyoto Protocol." United Nations Framework Convention on Climate Change. [unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php) (accessed November 26, 2011).

McCormick, John. *Reclaiming paradise: the global environmental movement*. Bloomington: Indiana University Press, 1989.

Milgrom, Paul R., Douglass C. North, and Barry R. Weingast. "The Role of Institutions in the Revival of Trade." *Economics and Politics* 2, no. 1 (1990): 1-23. <http://classwebs.spea.indiana.edu/kenricha/classes/v640/v640%20readings/milgrom%20et%20al%20-%201990.pdf> (accessed January 16, 2012).

"NOAA 200th Top Tens: Historical Events: North Pacific Fur Seal Treaty of 1911." NOAA Celebrates 200 Years of Science, Service and Stewardship. <http://celebrating200years.noaa.gov/events/fursealtreaty/welcome.html#treaty> (accessed November 25, 2011).

Parliament of the Free and Hanseatic City of Hamburg. "Update of the Hamburg Climate Action Plan 2010/2011." *Hamburg Parliament* "19th Legislative Period" 19, no. 8311 (2011): 1-38. [http://klima.hamburg.de/contentblob/2982846/data/hamburg-climate-action-plan-2010-2011-english-version\).pdf](http://klima.hamburg.de/contentblob/2982846/data/hamburg-climate-action-plan-2010-2011-english-version).pdf) (accessed December 28, 2011).

- Prins, Gwyn, and Steve Rayner. "The Kyoto Protocol." *Bulletin of the Atomic Scientists* 64, no. 1 (2008): 45-48.
- Rosenzweig, Cynthia. "All Climate is Local." *Scientific American* 305, no. 3 (2011): 70-73.
- Sanders, Eli. "Seattle leads U.S. cities joining Kyoto Protocol." *The New York Times*, May 16, 2005. <http://www.nytimes.com/2005/05/15/world/americas/15iht-global.html> (accessed November 8, 2011).
- Seattle.gov. "Resolution Number: 30316." Seattle City Clerk's Online Information Services. <http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?s1=&s2=&s3=30316&s4=&Sect4=AND&l=20&Sect1=IMAGE&Sect2=THESON&Sect3=PLURON&Sect5=RESN1&Sect6=HITOFF&d=RESN&p=1&u=/~public/resn1.htm&r=1&f=G> (accessed January 17, 2012).
- Sippel, Maïke. "Global Climate Policy and Corresponding Activities on a City-Level." *Hamburg Institute of International Economics (HWWA)* June (2004): 1-40. <http://ageconsearch.umn.edu/bitstream/26247/1/dp040280.pdf> (accessed January 10, 2012).
- "Sixth Community Environment Action Programme." *Official Journal of the European Communities* 242 (2002): 1-15.
- Tizon, Tomas Alex. "Mayor Is on a Mission to Warm U.S. Cities to the Kyoto Protocol." *Los Angeles Times*, February 22, 2005. <http://articles.latimes.com/2005/feb/22/nation/na-greenteam22> (accessed October 31, 2011).
- ICLEI - Local Governments for Sustainability. "Turning pollution into profit: the Bandeirantes Landfill Gas to Energy Project." ICLEI Case Studies. [local-renewables.org/fileadmin/sites/local-renewables/files/04\\_Local\\_Practice/01\\_Case\\_studies\\_and\\_Descriptions/Sao%20Paulo%20107%20High%20Res.pdf](http://local-renewables.org/fileadmin/sites/local-renewables/files/04_Local_Practice/01_Case_studies_and_Descriptions/Sao%20Paulo%20107%20High%20Res.pdf) (accessed January 13, 2012).
- "U.S. Conference of Mayors Climate Protection Agreement." The United States Conference of Mayors Climate Protection Center. <http://www.usmayors.org/climateprotection/agreement.htm> (accessed January 17, 2012).
- Weidner, Helmut, and Lutz Mez. "German Climate Change Policy : A Success Story With Some Flaws." *The Journal of Environment & Development* 17, no. 4 (2008): 356-378. <http://jed.sagepub.com/content/17/4/356> (accessed November 26, 2011).
- Winchester, N. Brian. "Emerging Global Environmental Governance." *Indiana Journal of Global Legal Studies* 16, no. 1 (2009): 7-23. <http://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1382&context>

t=ijgls (accessed November 25, 2011).

"Generating the Funding Needed for Mitigation and Adaptation." In *World development report 2010: development and climate change*, 257-285. Washington, DC: World Bank, 2010.