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# The Kyoto Protocol and the Future of Carbon Emissions Reduction in China

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## I. Introduction

Since the reforms of the post-Mao era opened up China economically to the rest of the world, China's economy has become one of the world's fastest growing.<sup>1</sup> Along with this rapid economic growth, there has been a significant rise in the amount of airborne pollution, mainly through industrial sources, but household sources have contributed as well. One particularly troubling component of China's rising pollution is its emissions of greenhouse gases, that is, carbon gases which contribute to rising temperatures in the atmosphere. In 1997, the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC or FCCC), was enacted as an international agreement designed to set targets for industrialized nations to reduce carbon emissions.<sup>2</sup> Although China ratified the agreement in 2002, it has yet to meet any of the targets that the agreement set forth for emissions reduction.<sup>3</sup> Negotiations to draw up a successor to the Kyoto Protocol have been ongoing for several years, but have not produced an agreement that has met with widespread approval. This paper will focus on the need for China to look to internal measures to reduce carbon emissions in the event that a

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<sup>1</sup> GDP – Real Growth Rate, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2003rank.html> (last visited Dec. 4, 2011).

<sup>2</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, UN Doc FCCC/CP/1997/7/Add.1, Dec. 10, 1997; 37 ILM 22 (1998).

<sup>3</sup> United Nations Framework Convention on Climate Change: Status of Ratification of the Kyoto Protocol, [http://unfccc.int/kyoto\\_protocol/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php) (last visited Jan. 27, 2013).

replacement for the Kyoto Protocol cannot be found. By doing so, China can set an example for other developing nations to follow as they build their own procedures for regulating carbon emissions. Part II of this paper will explore the background of the Kyoto Protocol and the issues of climate change and global warming. Part III will detail the efforts to produce international agreements to succeed the Kyoto Protocol and the efforts of China and other nations against them. Part IV will describe efforts that China should take on its own and with the cooperation of other countries, particularly the United States, to reduce its carbon emissions.

## II. Background - What is the Kyoto Protocol?

The Kyoto Protocol is the first binding international agreement to address the issue of global warming.<sup>4</sup> Its formation evolved out of an acknowledgment that the industrial growth that has spread across the globe is likely having a severe effect on the climatological and ecological balance of the earth. The first event in the chain of events that led to the discussions creating the Kyoto Protocol was the 1972 UN Conference on the Human Environment in Stockholm.<sup>5</sup> After conferences during the 1980s produced agreements that ended the use of aerosol chemicals which caused depletion of ozone in the upper atmosphere, the UN created the World Commission on Development and Environment (WCDE) to address sustainability issues in the international community, including climate change.<sup>6</sup> In 1992, at the Earth Summit in Rio de Janeiro, UN members first openly made demands for an international agreement on climate change.

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<sup>4</sup> *See id.*

<sup>5</sup> *READING THE KYOTO PROTOCOL: ETHICAL ASPECTS OF THE CONVENTION ON CLIMATE CHANGE* 19 (Etienne Vermeersch ed., Eburon Acad. Publ'g. 2005).

<sup>6</sup> *See id.* at 20.

A. What is Climate Change?

Climate change is the term most frequently used to describe the effects that greenhouse gas emissions have on the earth's atmosphere. Climate change generally refers to any change in weather conditions (such as temperature, precipitation or wind) occurring in a given area over an extended period of time, as in decades.<sup>7</sup> Global warming is one element of the climate change process that has drawn special attention from the scientific community. Global warming describes the process by which the average temperature of the earth's atmosphere is gradually rising due to the addition of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and other gases.<sup>8</sup> While this activity does occur through natural processes, human activities, such as deforestation and fossil fuel combustion, have caused these processes to accelerate at an ever increasing pace.<sup>9</sup> The Intergovernmental Panel on Climate Change (IPCC) of the United Nations has predicted that the global temperature could rise up to 3.5°C by the year 2100.<sup>10</sup> Such an increase would cause sea levels to rise up to three feet, causing massive flooding of coastal areas.<sup>11</sup> Climates would begin to shift, causing wetter forests, drier deserts, and colder polar areas.<sup>12</sup> The world's food supplies would be threatened by changes in rain patterns, resulting in possible famines.<sup>13</sup> The IPCC has recommended that carbon emissions be reduced worldwide in order to try to avoid these effects

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<sup>7</sup> Basic Information, Climate Change – U.S. EPA, <http://epa.gov/climatechange/basicinfo.html> (last visited Dec. 7, 2011).

<sup>8</sup> Deborah E. Cooper, *The Kyoto Protocol and China: Global Warming's Sleeping Giant*, 11 GEO. INT'L ENVTL. L. REV. 401, 402 (1999).

<sup>9</sup> *See id.*

<sup>10</sup> *See id.* at 403.

<sup>11</sup> *See id.*

<sup>12</sup> *See id.*

<sup>13</sup> *See id.*

from occurring.<sup>14</sup> China, in particular, has developed a significant role in the issue of climate change, due to its ever growing rate of carbon emissions. As of 2010, China had more than doubled its carbon emissions in less than twenty years, and was producing one quarter of the world's total carbon emissions.<sup>15</sup> This trend threatens to undermine any progress by other developed countries to reduce their emissions under the Kyoto Protocol.

## B. The Kyoto Protocol and its Mechanisms

The groundwork for the Kyoto Protocol began with the creation of the UNFCCC in 1992.<sup>16</sup> The Convention's mission was declared as follows:

In Art. 2: "Stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within the timeframe sufficient to allow ecosystems to adapt to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

In Art. 3: "...common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse thereof."<sup>17</sup>

These principles were not converted into any binding targets for countries to cut greenhouse gas emissions. Instead, they were prepared as a compromise of the goal of returning anthropogenic emissions to 1990 levels.<sup>18</sup> Only parties listed as Annex I nations, mostly

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<sup>14</sup> *See id.*

<sup>15</sup> Simon Rogers, *World Carbon Emissions: the League Table of Every Country*, THE GUARDIAN, June 21, 2012, <http://www.guardian.co.uk/environment/datablog/2012/jun/21/world-carbon-emissions-league-table-country>.

<sup>16</sup> *See Vermeersch, supra* note 5, at 20.

<sup>17</sup> Introducing The United Nations Framework Convention on Climate Change, [http://unfccc.int/essential\\_background/convention/items/6036.php](http://unfccc.int/essential_background/convention/items/6036.php) (last visited Dec. 7, 2011).

<sup>18</sup> *See Vermeersch, supra* note 5, at 29.

industrialized countries, were committed to reducing emissions at that time.<sup>19</sup> Today there are 41 Annex I countries, including the U.S., the European Union, Russia, Canada and Japan.<sup>20</sup> The UNFCCC created the Conference of the Parties (COP), which has met yearly since 1995. It was at the third COP in 1997, where the Kyoto Protocol was adopted.<sup>21</sup>

The Kyoto Protocol itself calls on all Annex I parties to realize “quantified emission limitation and reduction commitments...in order to promote sustainable development.”<sup>22</sup> The Protocol has three different mechanisms for achieving reductions in greenhouse gas emissions, emissions trading, joint implementation, and clean development mechanisms.<sup>23</sup> These mechanisms were devised with the objective of giving both industrialized and developing countries flexibility in finding methods to meet emissions goals. This is realized by authorizing countries to trade emission allowances, and letting countries receive credits for emission-lowering projects in other countries.<sup>24</sup> The reasoning behind these mechanisms is that greenhouse gas emissions are a worldwide problem, so it is less important where emissions reductions are achieved as it is that reductions happen in the first place. These mechanisms also allow emissions reductions to be made where the costs are lowest, at least in the early stages.<sup>25</sup>

Emissions trading (ET) allows countries to sell surplus carbon emissions credits to countries that exceed the targets in the Protocol. Non-compliant countries can then buy credits to

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<sup>19</sup> *See id.*

<sup>20</sup> Parties & Observers, [http://unfccc.int/parties\\_and\\_observers/items/2704.php](http://unfccc.int/parties_and_observers/items/2704.php) (last visited Dec. 7, 2011).

<sup>21</sup> *See Vermeersch, supra* note 5, at 30.

<sup>22</sup> Kyoto Protocol, [http://unfccc.int/essential\\_background/kyoto\\_protocol/items/1678.php](http://unfccc.int/essential_background/kyoto_protocol/items/1678.php) (last visited Dec. 9, 2011).

<sup>23</sup> *See Vermeersch, supra* note 5, at 38.

<sup>24</sup> *See id.*

<sup>25</sup> *See id.*

fulfill the Protocol's targets.<sup>26</sup> As use of the market increases, the price of carbon credits also increases, putting pressure on non-compliant countries to utilize energy more efficiently and to develop energy sources that have less or no carbon emissions.<sup>27</sup>

Joint implementation (JI) allows industrialized countries to meet their targets for emissions reduction by funding projects in other industrialized countries that reduce emissions.<sup>28</sup> Countries that are in transition to a fully industrialized economy, such as Russia, are most often targeted for this program. The countries that sponsor the projects obtain credits to be applied toward emissions requirements, and the receiving countries gain foreign investment and technology, though not additional carbon credits.<sup>29</sup> An advantage of this system is that is usually less costly to implement energy-efficient ventures in transition countries, and so greater reductions in emissions can be produced from these projects.<sup>30</sup>

The clean development mechanism (CDM) works in a similar fashion as joint implementation, by allowing industrialized countries to fund projects that lower emissions abroad, in developing countries, under this program.<sup>31</sup> The industrialized nations receive credits towards their emissions requirements, while the developing countries benefit from technology that allows energy to be used or produced more efficiently.<sup>32</sup> This program can also encourage

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<sup>26</sup> *See id.* at 39.

<sup>27</sup> *See id.*

<sup>28</sup> *See id.*

<sup>29</sup> *See id.* at 40.

<sup>30</sup> *See id.*

<sup>31</sup> *See id.*

<sup>32</sup> *See id.*

investment by private companies, for they can earn profits from energy-efficient projects and gain a good reputation in new markets, which could lead to increased business.<sup>33</sup>

### C. The Influence of China and the Group of 77

Since the earliest rounds of climate change negotiations were undertaken, developing countries have used solidarity as a strategy of persuasion, even though developing nations often have diverse economic positions and often different interests when addressing the effects of climate change.<sup>34</sup> The UNFCCC was designed to be receptive to developing countries' concerns that agreeing to carbon emissions would hinder their industrial and economic growth. However, some developing countries, including China and India, felt their needs were not being addressed adequately. These countries formed the Group of 77 (G-77), so that together they could improve their influence in the climate negotiations.<sup>35</sup> The UNFCCC did state that historically, the bulk of the world's greenhouse gas emissions came from developed countries, and the share of total emissions from these countries would increase to fulfill growing social and economic needs.<sup>36</sup> This admission demonstrated that the burden of reducing greenhouse gas emissions should first fall on Annex I countries.

By uniting into the G-77, developing countries attempted to build common positions and increase their negotiating power jointly. The G-77 nations were then given concessions that they were only obliged to establish emissions inventories, report on emissions programs and “promote

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<sup>33</sup> *See id.*

<sup>34</sup> Joanna I. Lewis, *China's Strategic Priorities in International Climate Change Negotiations*, WASH. Q., Winter 2007-08, at 156.

<sup>35</sup> *See id.*

<sup>36</sup> *See Cooper, supra* note 8, at 409.

cooperation, sustainable development, and information exchange.”<sup>37</sup> Essentially, the UNFCCC only requested voluntary efforts by the G-77 nations to curb carbon emissions.

China has chosen to align itself with the G-77, even though it carries enough weight on its own to influence policies affecting the developing world. As part of the G-77 group, China can use the total influence of the group as a defense against being singled out.<sup>38</sup> However, China’s size lets it take a controlling role in forming the opinions of the G-77. The position of the G-77 has regularly been an emphasis on the blame that the industrialized world historically carries for the climate change problem and the disparity of emissions per capita between the industrialized and developing world.<sup>39</sup>

In recent times, China has strengthened its bonds with the G-77, as it has feared being singled out due to its rising economic development and energy usage.<sup>40</sup> In June 2005, Xie Zhenhua, the former director of the State Environmental Protection Administration (SEPA), expressed hope “that some countries would, according to the obligations which are provided for in the Kyoto Protocol, implement in a substantive way their obligations and take up their commitments.” He also wished that “on the Chinese side, the Chinese government would make its own decision after making some assessments of the implementation by other countries.”<sup>41</sup> This statement was a signal that China was looking for developed countries to come through on

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<sup>37</sup> *See id.*

<sup>38</sup> *See Lewis, supra* note 34, at 163.

<sup>39</sup> *See id.*

<sup>40</sup> *See id.*

<sup>41</sup> *See id.*

their UNFCCC obligations before China took on commitments for climate change mitigation.<sup>42</sup>

The position of the G-77 itself is beginning to shift as countries within the group are beginning to take diverging positions, which could isolate China as far as positions in negotiation.<sup>43</sup> Some countries which have significant tropical rain forests, including Brazil and a coalition of thirty-two other countries, are willing to accept voluntary targets of conserved forest acreage in exchange for compensation.<sup>44</sup> This is in contrast to the traditional position of the G-77 where voluntary international targets of any kind have not been accepted.<sup>45</sup>

### III. Post-Kyoto Protocol International Agreements

#### A. Pre-Copenhagen

On February 16, 2007, leaders from the G8+5 nations reached an agreement to create a global market to cap and trade carbon dioxide emissions.<sup>46</sup> The G8+5 nations consist of eight of the world's most powerful industrialized economies (Canada, France, Germany, Italy, Japan, Russia, the United Kingdom and the U.S.) plus five of the largest currently developing nations (Brazil, China, India, Mexico and South Africa).<sup>47</sup> The agreement, which was non-binding, was intended as an initial step towards building a successor to the Kyoto Protocol, which was set to

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<sup>42</sup> *See id.*

<sup>43</sup> *See id.*

<sup>44</sup> *See id.*

<sup>45</sup> *See id.*

<sup>46</sup> *Politicians Sign New Climate Pact*, BBC News, Feb. 16, 2007, <http://news.bbc.co.uk/2/hi/science/nature/6364663.stm>.

<sup>47</sup> *G8+5 Academies Joint Statement: Climate Change and the Transformation of Energy Technologies for a Low Carbon Future*, <http://www.nationalacademies.org/includes/G8+5energy-climate09.pdf> (last visited Jan. 27, 2013).

expire in 2012.<sup>48</sup> The fact that China was a part of the agreement was important as recognition that its emissions were having an effect on climate change.

China has often had a shaky relationship with Annex I countries in negotiations for emissions agreements. Before the Copenhagen summit in 2009 to create a possible successor to the Kyoto Protocol, a Chinese ambassador accused developed nations of sabotaging efforts to create future emissions agreements.<sup>49</sup> He also singled out the U.S. in particular for asking to “move away from a legally binding world agreement to one where individual countries pledged cuts in their national emissions without binding timetables and targets.”<sup>50</sup> The tension during this period is notable, for it foreshadowed the failure of the negotiations at Copenhagen to come up with an agreement to replace the Kyoto Protocol.

At the United Nations Climate Change Conference in December 2009, an agreement named the Copenhagen Accord was reached between the U.S., Brazil, China, India and South Africa, recognizing the need to reduce industrial carbon emissions and asking other countries to pledge to reduce carbon emissions by 2020. However, the agreement was non-binding and did not specify any penalties for nations that did not meet their pledges for reducing emissions.<sup>51</sup> As a result, environmentalists saw the Copenhagen Accord as having failed to continue the mission of Kyoto. One observed reason for the failure of Copenhagen was China’s stubbornness during the accord’s negotiations. It was noted that the Chinese delegates had caused talks to be

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<sup>48</sup> See *Politicians Sign New Climate Pact*, *supra* note 46.

<sup>49</sup> John Vidal, *China leads accusations that rich nations are trying to sabotage climate treaty*, *The Guardian*, Oct. 5, 2009, <http://www.guardian.co.uk/environment/2009/oct/05/climate-change-kyoto>.

<sup>50</sup> *See id.*

<sup>51</sup> *Copenhagen deal: Key points*, *BBC News*, Dec. 19, 2009, <http://news.bbc.co.uk/2/hi/science/nature/8422307.stm>.

suspended several times, stating that their needs were being disregarded.<sup>52</sup> The Climate Change Secretary for the United Kingdom accused China of “hijacking” efforts to meet a binding agreement. After the summit, the Environment Minister of India even admitted that he worked with the Chinese delegation to keep legally binding reductions of carbon emissions out of any agreement at Copenhagen.<sup>53</sup> China’s foreign ministry denied the accusations, stating that the world’s richer nations were not doing enough to help developing countries meet the carbon reduction goals that they were setting.<sup>54</sup>

## B. Post-Copenhagen Progress

In 2010, another climate change conference took place in Cancun, Mexico, again with the hope of reaching a new agreement to replace the Kyoto Protocol.<sup>55</sup> The summit produced an agreement adopted by the parties that would establish a “Green Climate Fund” to assist poorer countries in financing emission reductions and adaptation, and a “Climate Technology Centre” and network. It anticipated a second commitment period for the Kyoto Protocol, although no agreement was reached on how to extend it, or how the \$100 billion a year for the Green Climate Fund would be produced, or whether developing countries should have binding emissions reductions or whether rich countries would have to reduce emissions first.<sup>56</sup> The agreement

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<sup>52</sup> *Key powers reach compromise at climate summit*, BBC News, Dec. 19, 2009, <http://news.bbc.co.uk/2/hi/europe/8421935.stm>.

<sup>53</sup> Sally Sara, *India, China cooperated to torpedo climate deal*, Australian Broadcasting Corporation News, Dec. 23, 2009, <http://www.abc.net.au/news/2009-12-23/india-china-cooperated-to-torpedo-climate-deal/1188486>.

<sup>54</sup> *China rejects claims it hindered Copenhagen talks*, BBC News, Dec. 22, 2009, <http://news.bbc.co.uk/2/hi/asia-pacific/8425720.stm>.

<sup>55</sup> Cancun Climate Change Conference – November 2010, [http://unfccc.int/meetings/cancun\\_nov\\_2010/meeting/6266.php](http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php) (last visited Dec. 4, 2011).

<sup>56</sup> Russell Blinch and Chris Buckley, *Climate talks end with modest steps, no Kyoto deal*, Reuters, Dec. 12, 2010, <http://www.reuters.com/article/2010/12/12/us-climate-idUSTRE6AR1OI20101212>.

called on rich countries to reduce their greenhouse gas emissions as pledged in the Copenhagen Accord, and for developing countries to plan to reduce their emissions.<sup>57</sup> Although the new agreement was seen as a step forward, many delegates, particularly climate scientists, felt that the agreement should have had more drastic measures.<sup>58</sup>

In November 2011, new negotiations for a successor to the Kyoto Protocol were held at the UN Climate Change Conference in Durban, South Africa. There was also an expectation to focus on finalizing at least some of the agreements reached at the 2010 conference in Cancun, such as collaboration on clean technology, as well as promises of the Green Climate Fund to transfer money from rich countries to poorer ones in order to help them protect forests, adapt to climate impacts, and develop environmentally responsible practices within their economies.<sup>59</sup>

Russia had made a proposal that would require the UNFCCC to carry out a periodic assessment of which countries have become wealthy enough that they should no longer be considered developing and thus be obligated to take on more stringent carbon reduction goals.<sup>60</sup> This was seen as a potentially explosive issue, if Russia tried to push it. Countries like China and Brazil that had been rapidly industrializing would likely make counterarguments against this plan by saying it is still the obligation of the traditionally rich countries, which industrialized first, to take the first actions.<sup>61</sup> India had made separate statements that it did not want any new

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<sup>57</sup> *See id.*

<sup>58</sup> Alister Doyle, *Analysis: Climate talks: 18 years, too little action?*, Reuters, Dec. 12, 2010, <http://www.reuters.com/article/2010/12/12/us-climate-analysis-idUSTRE6BB0DS20101212>.

<sup>59</sup> Richard Black, *Durban: A summit of small steps?*, BBC News, Oct. 31, 2011, <http://www.bbc.co.uk/news/science-environment-15518421>.

<sup>60</sup> *See id.*

<sup>61</sup> *See id.*

agreement that specified that it was legally binding.<sup>62</sup> In the end, Russia's proposal was not implemented.

Xie Zhenhua, head of the Chinese delegation to the conference and currently Vice Chairman of the Chinese National Development and Reform Commission, stated that China was willing to make binding commitments to limiting greenhouse gases in 2020 if such commitments appropriately took into account historical contributions of greenhouse gases by developed countries such as the United States and sustainable economic needs of developing countries such as China and India.<sup>63</sup> Xie also stated that there should be a comprehensive and scientific assessment of the Kyoto Protocol's first commitment period, before the formal negotiations of China's obligation in 2020.<sup>64</sup>

At the end of the conference, an agreement was made to continue talks on a successor to the Kyoto Protocol ending by 2015, with a new binding agreement coming into effect by 2020, reflecting China's position that commitments on carbon reduction not take place until then.<sup>65</sup>

The European Union agreed to make its current emission-cutting pledges legally binding within the Kyoto Protocol, which was one of the core demands from developing countries.<sup>66</sup>

Management of the Green Climate Fund was also agreed upon, though how the money would be

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<sup>62</sup> *See id.*

<sup>63</sup> *China open to talks on binding emission cut*, China Daily, Dec. 5, 2011, [http://usa.chinadaily.com.cn/china/2011-12/05/content\\_14213729.htm](http://usa.chinadaily.com.cn/china/2011-12/05/content_14213729.htm).

<sup>64</sup> *See id.*

<sup>65</sup> Richard Black, *Climate talks end with late deal*, BBC News, Dec. 11, 2011, <http://www.bbc.co.uk/news/science-environment-16124670>.

<sup>66</sup> *See id.*

raised for the fund had not.<sup>67</sup> Reaction to the outcome of the conference was mixed.

Environmental groups were divided, with some seeing it as a significant step forward and others saying nothing had occurred to change the course of climate change.<sup>68</sup> While getting the process moving on a global agreement to replace the Kyoto Protocol was the main achievement of the conference, the fact that any such agreement would not take effect for almost a decade left some wondering if it come too late to stave off predicted catastrophic effects of global warming. In any event, the fact that China showed willingness to participate in such an agreement is significant in itself, given that it had expressed resistance to a binding carbon emissions agreement for many years.

### C. Future Role of the United States

Although the 2011 Climate Change Conference produced the potential for a long-term global agreement on carbon emissions, there still may be uncertainty over who will ultimately follow through on their commitment to participate. The role of the United States in any future international climate change agreement may depend on who is leading the country. Among the current group of candidates running for the Republican nomination for the 2012 presidential election, almost all of them have made public statements denying the legitimacy of scientific theories regarding global warming.<sup>69</sup> Many of the Republican candidates have tied the science of global warming predictions to policies of the Environmental Protection Agency (EPA), which

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<sup>67</sup> *See id.*

<sup>68</sup> *See id.*

<sup>69</sup> John M. Broder, *Bashing E.P.A. Is New Theme In G.O.P. Race.*, N.Y. Times, August 18, 2011, at A1.

they state are preventing job growth and hurting the U.S. economy.<sup>70</sup> If one of these candidates were to be elected President in 2012, it stands to reason that he or she could possibly pull out of any future global climate change agreement, possibly reversing the progress toward a new agreement that has made through years of negotiations. It should be noted that in 2001, the Bush administration pulled out of supporting the Kyoto Protocol, stating that it would harm the economy of the U.S.<sup>71</sup> The Obama administration has publicly promoted the engagement of “the international community to promote sustainable economic growth and to meet the climate change challenge.”<sup>72</sup> However, before the 2011 Climate Change Conference, the Obama administration expressed opposition to global talks for a new climate change agreement by 2015, unless all large greenhouse-gas emitters, including China and India, were required to take rigid emissions reduction measures.<sup>73</sup> Regardless of who is leading the U.S., the success of any future international climate change agreement will be reliant on its full participation.

#### IV. Alternatives to the Kyoto Protocol

If China were to ever decide not to fully implement the provisions of the Kyoto Protocol, alternative strategies would certainly need to be explored to help curb China’s carbon emissions. Internally, the Chinese government has been paying closer attention to environmental issues in

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<sup>70</sup> See *id.* Rep. Michele Bachmann has stated that the EPA should be renamed the “job-killing organization of America.” She has also said global-warming science was a “hoax”. Texas Governor Rick Perry has said that “E.P.A. regulations are killing jobs all across America.” Former Massachusetts governor Mitt Romney has expressed support for the EPA, but he is still opposed to proposed regulation of gases that contribute to global warming.

<sup>71</sup> *Bush Firm Over Kyoto Stance*, CNN, Mar. 29, 2001, <http://edition.cnn.com/2001/US/03/29/schroeder.bush/index.html>.

<sup>72</sup> The White House: Climate Change, <http://www.whitehouse.gov/energy/climate-change> (last visited Dec. 5, 2011).

<sup>73</sup> Kim Chipman, *U.S. Takes Center Stage in Kyoto Fight as Climate Talks Teeter*, Businessweek, Nov. 30, 2011, <http://www.businessweek.com/news/2011-11-30/u-s-takes-center-stage-in-kyoto-fight-as-climate-talks-teeter.html>.

recent years. China also has the opportunity to make its own international agreements on reducing greenhouse gases, which could do wonders towards making a new global climate change agreement come to pass.

A. Internal Measures by China

China has made significant improvements in recent years in building up environmental protection within its vast administrative bureaucracy.<sup>74</sup> A continuation of such efforts could prove beneficial towards addressing the problem of carbon emissions, along with other forms of pollution. Since 1975, when the Environmental Protection Bureau was created, China has been building up administrative bodies with increasing capacity to deal with national environmental issues.<sup>75</sup> Today, the Ministry of Environmental Protection of the People's Republic of China, which replaced SEPA, is a full ministry which has the authority to make its own environmental laws and regulations.<sup>76</sup>

Environmental statutes in China have themselves been undergoing recent improvements. In 1995, pressure from environmentalists helped lead to the passage of a detailed statute that addressed "clean production technology, coal washing, acid rain controls, and a phase-out of leaded gasoline."<sup>77</sup> The statute was revised in 2000 to allow cities to wield greater power in environmental affairs, to give incentives for decreasing the use of coal, and increasing penalties for violators.<sup>78</sup> These responses show that the central government is starting to become willing

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<sup>74</sup> Eric W. Orts, *Environmental Law with Chinese Characteristics*, 11 WM. & MARY BILL RTS. J. 545, 561 (2003).

<sup>75</sup> *See id.*

<sup>76</sup> *See id.*

<sup>77</sup> *See id.*

<sup>78</sup> *See id.* at 562.

to reform laws to address specific environmental problems. In July 2011, China made a commitment to reduce its use of hydrochlorofluorocarbons (HCFCs), which were previously found to cause harm to the ozone layer as well as exacerbate the effects of global warming in the atmosphere.<sup>79</sup>

At the UN Climate Change Summit in 2009, Chinese President Hu Jin Tao announced four targets for China to reach to address climate change: 1) to significantly reduce CO<sub>2</sub> emissions from 2005 levels by 2020; 2) to expand the use of non-fossil fuels in energy consumption to 15%; 3) to increase forested land by 40 million km<sup>2</sup> by 2020; and 4) to pursue a low carbon economy, and promote technological development.<sup>80</sup> Prior to this statement, the Chinese Government had not announced any concrete figures for reduction of CO<sub>2</sub> emissions.<sup>81</sup> These targets are considered part of China's Nationally Appropriate Mitigation Action (NAMA). China and other developing countries are using NAMA to develop voluntary targets for CO<sub>2</sub> reduction.<sup>82</sup>

#### B. Possible Cooperative Measures between the U.S. and China

The U.S. and China have been under increasing pressure to take measures to lower their carbon emissions. However, both countries have refused to take significant steps to reduce emissions unless the other nation acts first. This has been referred to as a “mutual suicide pact”

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<sup>79</sup> UNEP - China Commits to Landmark Agreement With Dual Ozone and Climate Benefits, <http://www.unep.org/newscentre/default.aspx?DocumentID=2649&ArticleID=8824> (last visited Nov. 27, 2011).

<sup>80</sup> Jusen Asuka, Lu Xiang Chun & Li Zhi Dong, *What Constitutes a Meaningful Participation of China*, in NEGOTIATING A LOW CARBON TRANSITION IN ASIA: NAMAS AND MRV 20, 21 (Inst. for Global Env'tl. Strategies, 2011).

<sup>81</sup> *See id.*

<sup>82</sup> *See id.*

because each nation refuses to act, at the expense of harmful impacts from climate change to itself.<sup>83</sup>

The ways in which the U.S. and China contribute carbon emissions helps explain the policies that are suggested that each nation adopt to help stave off the effects of global warming. In China, more than two-thirds of the national energy supply is devoted to industry, while in the U.S., it is only one-third.<sup>84</sup> As of 2008, Americans used three times as much energy for transportation as the Chinese, as there were twenty times as many automobile owners per capita in the U.S. than in China, though the number of automobile owners in China has been rapidly rising.<sup>85</sup> Within the home, Americans use much more energy than the Chinese, largely due to the fact that the average American home is two and a half times larger than those in China.<sup>86</sup> These facts demonstrate that policies geared toward curbing personal energy consumption in the U.S. would be more effective in reducing overall carbon emissions than similar policies in China. While the annual total carbon emissions from China has surpassed the U.S. total, emissions per capita in the U.S. still far exceeds that of China.<sup>87</sup> As of 2006, annual carbon dioxide emissions per person in the U.S. were four times higher than the Chinese.

The best excuse for China not to implement any international commitments on emissions reduction is the lack of such commitments by the United States, by far the largest emitter among

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<sup>83</sup> William Chandler, *Breaking the Suicide Pact: U.S.–China Cooperation on Climate Change*, CARNEGIE ENDOWMENT FOR INT’L PEACE, POL’Y BRIEF NO. 57, March 2008 at 1.

<sup>84</sup> *See id.* at 2.

<sup>85</sup> *See id.* at 3.

<sup>86</sup> *See id.*

<sup>87</sup> *See id.*

industrialized nations.<sup>88</sup> Although China's annual emissions have surpassed those of the U.S., it will be decades before Chinese cumulative emissions equal the historic contribution of emissions from the U.S.<sup>89</sup> Per capita, China's greenhouse gas emissions are only one-fifth of those of the United States.<sup>90</sup> From a scientific viewpoint, the buildup of greenhouse gases in the atmosphere is a more important measure, since these gases remain airborne for up to a century.<sup>91</sup> However, if the U.S. were to accept legitimate international climate change commitments, pressure would fall on China to reconsider its delay strategies.<sup>92</sup>

Between 1980 and 2000, China's economy had quadrupled following the implementation of economic reforms.<sup>93</sup> However, during this same period, China's energy consumption only doubled, causing a decline in China's energy intensity, a measure of energy used per unit of GDP produced.<sup>94</sup> While China's total energy usage, along with its carbon emissions, during this period increased dramatically, the fact that its energy intensity had dropped raised less of an alarm about its increase in emissions.<sup>95</sup> Since 2000, however, China's energy intensity has been increasing, along with its total energy usage, sending up red flags among climate change watchdogs.<sup>96</sup> China presently discharges 35 percent more carbon dioxide per unit of GDP than

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<sup>88</sup> See Lewis, *supra* note 34, at 163.

<sup>89</sup> See *id.*

<sup>90</sup> See *id.*

<sup>91</sup> See *id.*

<sup>92</sup> See *id.*

<sup>93</sup> See *id.* at 156.

<sup>94</sup> See *id.*

<sup>95</sup> See *id.*

<sup>96</sup> See *id.*

the US and twice as much as the European Union nations.<sup>97</sup> China's increasing emissions have been mainly due to industrial usage, driven by an increased usage of coal as a portion of energy sources. Over two-thirds of China's energy use is due to industry, and coal supplies two-thirds of China's total energy.<sup>98</sup>

The Brookings Institution has made several recommendations on measures that the U.S. and China can take towards cooperation on climate change mitigation.<sup>99</sup> In both countries, the bulk of greenhouse gas emissions are produced from energy usage, mostly from power generation, transportation, manufacturing and residential/commercial real estate.<sup>100</sup> An effort to convert these sectors to a clean energy economy would be crucial to their efforts to fight global warming.

Cooperation on clean energy efforts could focus on multiple areas, such as energy efficiency, renewable energy, urban planning, transportation design, and carbon sequestration, among others.<sup>101</sup> From these areas, one major initiative could be chosen to bring public attention to the need to reduce carbon emissions, and to establish public support for reduction measures.<sup>102</sup> By introducing a few major initiatives to reduce energy use to the public, such as increasing energy efficiency in vehicles and buildings, or ventures to capture and store carbon dioxide from coal plants, it is hoped that the citizens of both the U.S. and China will gradually realize the

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<sup>97</sup> *See id.*

<sup>98</sup> *See id.* at 157.

<sup>99</sup> Kenneth Lieberthal & David Sandalow, *Overcoming Obstacles to U.S.-China Cooperation on Climate Change*, BROOKINGS INST., Jan. 2009, at 46.

<sup>100</sup> *See id.* at 48.

<sup>101</sup> *See id.*

<sup>102</sup> *See id.* at 49.

importance of carbon emissions reduction and become more willing to embrace stricter laws on energy use.<sup>103</sup>

In both China and the U.S., initiatives that are implemented on a national level often start out as local programs.<sup>104</sup> Particularly in the U.S., there are thousands of local initiatives that focus on clean energy and emissions reduction.<sup>105</sup> By fostering projects where local governments in China and the U.S. can exchange information on clean energy proposals, the proliferation of such projects can increase greatly without having to wait for government action at the national level to facilitate coordination.<sup>106</sup>

Neither China nor the U.S. has yet made a full effort toward implementing an international agreement to control carbon emissions, like the Kyoto Protocol. Bilateral talks between the China and the U.S. cannot, by themselves, lead to each nation making such a commitment; an effective international agreement can only develop with negotiations by all nations potentially affected by climate change.<sup>107</sup> However, if these nations address the positions that they are willing to take before the actual negotiations take place, it would help establish a framework for finding common ground on carbon reduction proposals.

If the leaders of the U.S. and China can agree on what the position of each nation will be, it would be a large step in molding multilateral agreements to limit carbon emissions.<sup>108</sup> Since it

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<sup>103</sup> *See id.*

<sup>104</sup> *See id.* at 51.

<sup>105</sup> *See id.*

<sup>106</sup> *See id.* at 52.

<sup>107</sup> *See id.* at 53.

<sup>108</sup> *See id.* at 54.

is a fully industrialized nation, the U.S. should be capable of pledging to agree to a ceiling on emissions, then accepting gradual decreases over time. Though still a developing country, China must prepare to make pledges on reducing emissions as well.<sup>109</sup>

Brookings recommends that these agreements be effective for a minimum of five years, and that future commitments be extended based on changes in predictions of the effects of climate change by the scientific community and economic changes in the U.S. and China.<sup>110</sup> These factors may change in unpredictable ways in future years, but they will shape the boundaries of future pledges for carbon reduction.<sup>111</sup> These commitments should embrace the economic potential from developing new technology to mitigate climate change.

There are problems that need to be overcome in order for a cooperative program between China and the U.S. to be truly effective. There is mistrust that has developed between the two nations because there is a perception in each country that the other is using global warming as a plot to gain an economic advantage.<sup>112</sup> The Chinese want access to American clean energy technology to assist their own clean energy developments, but the lack of security for intellectual property in China hinders efforts of cooperation.<sup>113</sup> Still there is a great potential for businesses in each country to engage in co-development projects. Financing for cooperative projects may be difficult, at least in the U.S., where there would likely be political resistance to any plan that

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<sup>109</sup> *See id.*

<sup>110</sup> *See id.* at 54.

<sup>111</sup> *See id.*

<sup>112</sup> *See id.* at 69.

<sup>113</sup> *See id.*

would spend taxpayers' money in China.<sup>114</sup> There is also a general perception that reducing carbon emissions would be extremely costly, even though the development of clean energy technology could bring about countless lucrative opportunities, such as producing electric vehicles and sources of solar power.<sup>115</sup>

The National Resources Defense Council (NRDC) has stated its own set of recommendations that the U.S. and China should implement in their cooperative efforts to mitigate climate change. The U.S. and China have already established the Ten Year Energy and Environment Cooperation Framework, which includes several priorities that the two countries will address, including energy issues.<sup>116</sup>

### C. Climate Change Policies in China

A review of China's past policies to deal with climate change may help to understand the issues that China faces in making future policies. China began to address climate change in the 1980s as a scientific question for the State Meteorological Administration to handle, letting them counsel the government on options in working with the UNFCCC.<sup>117</sup> In the 1990s, as the issues around climate change became more politically sensitive, the State Development and Planning Commission, now the National Development and Reform Commission (NDRC), took over the role of advising on climate change concerns, signaling a shift towards treating climate change as

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<sup>114</sup> *See id.*

<sup>115</sup> *See id.* at 70.

<sup>116</sup> Natural Resources Defense Council: Strengthening U.S. - China Climate Change and Energy Engagement, [http://docs.nrdc.org/international/files/int\\_09021801a.pdf](http://docs.nrdc.org/international/files/int_09021801a.pdf). The Framework has five priority areas for cooperative projects: electricity generation, transportation, clean water, clean air, and wetlands protection, and is launching a sixth goal of energy efficiency.

<sup>117</sup> *See Lewis, supra* note 34, at 158.

a problem of development.<sup>118</sup> The NDRC also oversees energy policy, so climate issues can be better accounted for in energy plans.<sup>119</sup> The National Coordination Committee on Climate Change is part of the NDRC, and it watches over actions by the Ministry of Foreign Affairs, the Ministry of Science and Technology, the State Environmental Protection Administration, along with the NDRC.<sup>120</sup>

In June 2007, China released the National Climate Program report, which gives a thorough record of the policies that are in place to control greenhouse gas emissions and to relieve impacts of climate change.<sup>121</sup> Most of the policies referenced in the report are not ones that address climate change directly, but that have the effect of reducing carbon emissions, especially with respect to energy.<sup>122</sup> If executed efficiently, many policies have the purpose of meeting larger economic development goals that will also operate to limit carbon emissions through energy efficiency, renewable energy, and industrial policy.<sup>123</sup> As far as energy efficiency, China has set a goal by 2020 of realizing the same improvement in energy intensity over a twenty year period that it had in the previous twenty years, when it had quadrupled GDP, while only doubling energy consumption.<sup>124</sup>

The Five-Year Plans of the People's Republic of China are a series of economic development initiatives shaped by the Communist Party of China establishing the foundations

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<sup>118</sup> *See id.*

<sup>119</sup> *See id.*

<sup>120</sup> *See id.*

<sup>121</sup> *See id.* at 159.

<sup>122</sup> *See id.*

<sup>123</sup> *See id.*

<sup>124</sup> *See id.* at 160.

and principles of Chinese communism, mapping strategies for economic development, setting growth targets, and launching reforms. The Eleventh Five-Year Plan, for 2007 – 2012, contained a goal of lowering energy intensity 20 percent below 2005 levels by 2010.<sup>125</sup>

The Twelfth Five-Year Plan, which was released in March of 2011, also had goals of lowering energy intensity.<sup>126</sup> Specifically, it aimed for a 17% reduction in carbon intensity from 2010 levels by 2015.<sup>127</sup> The Plan also had a goal of “establishing a carbon trade market,” though without any specific details.<sup>128</sup> Such plans have been used in China where domestic cities which have more industrialization and pollution would buy credits for emissions from cities that pollute less.<sup>129</sup> Carbon emissions trading specifically targets carbon dioxide, which currently constitutes the bulk of emissions trading.<sup>130</sup> To improve accountability at the local level, the NDRC has added increases in energy efficiency as a criterion for assessing the total performance of local officials.<sup>131</sup>

Additional programs target specific parties to decrease energy intensity, such as closing inefficient power plants, as well as inefficient manufacturing plants.<sup>132</sup> In 1997, the Energy Conservation Law implemented programs to increase efficiency in building construction and in

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<sup>125</sup> *See id.*

<sup>126</sup> Joanna Lewis, Pew Center on Global Climate Change, *Energy and Climate Goals of China's 12th Five-Year Plan*, <http://www.pewclimate.org/docUploads/energy-climate-goals-china-twelfth-five-year-plan.pdf>

<sup>127</sup> *See id.*

<sup>128</sup> *See id.*

<sup>129</sup> *See id.*

<sup>130</sup> *See id.*

<sup>131</sup> *See id.*

<sup>132</sup> *See Lewis, supra note 34, at 160.*

consumer products.<sup>133</sup> In the area of transportation, the average fuel economy of new vehicles was estimated to be 36.7 miles per gallon in 2008, a higher standard than in Australia, Canada and the U.S.<sup>134</sup>

China has set specific goals of increasing its use of renewable energy to decrease its carbon emissions from burning coal and other fossil fuels. In 2005, the National Renewable Energy Law was implemented, which had a goal of producing 16 percent of China's primary energy from renewable sources by 2020.<sup>135</sup> To achieve this goal, substantial expansion in the use of wind power, biomass power, solar power, and hydropower will be necessary.<sup>136</sup> The law also includes funding to promote renewable energy projects and tax preferences for such projects.<sup>137</sup> Hydropower especially, is expected to expand rapidly in the near future. The use of hydropower is projected to double from 2005 levels by 2020, the equivalent of building a new Three Gorges Dam every two years.<sup>138</sup>

Policies that support renewable energy also have encouraged the growth of domestic technology by mandating the use of domestically produced components.<sup>139</sup> After a requirement was instituted that new wind turbines contain 70 percent domestic parts, 40 percent of the new turbines used in China and 3 percent of new turbines globally were manufactured in China.<sup>140</sup>

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<sup>133</sup> *See id.*

<sup>134</sup> *See id.*

<sup>135</sup> *See id.*

<sup>136</sup> *See id.*

<sup>137</sup> *See id.* at 161.

<sup>138</sup> *See id.*

<sup>139</sup> *See id.*

<sup>140</sup> *See id.*

## V. Conclusion

The climate change crisis is drawing increasing international attention, as its predicted effects are beginning to be felt in various places across the globe. This is causing an urgency for the major economic powers to address their energy security issues and their role in climate change. Engaging China in such efforts will only be possible if the major developed nations take the lead, particularly the U.S. Even though China ratified the Kyoto Protocol in 2002, it is just now starting to express interest in fully implementing its provisions. While this may be seen as an important step forward towards curbing carbon emissions, one can only hope it is not coming too late.