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**CHINA: AVOIDING IMPEDIMENTS TO SUCCESSFUL CLIMATE  
CHANGE MITIGATION**

by

**Molly Rose Van Engelenhoven**

**Thesis submitted in partial fulfillment  
of the requirements for the degree**

of

**Departmental Honors in Environmental Studies**

in

**Environmental Studies and Political Science  
in the Department of Environment and Society and Political Science**

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## Abstract

This paper uses the Cultural Topography (CTOPs) methodology, an intelligence community standard which is used to avoid ethnocentric analysis and the dangerous practice of mirror imaging--projecting US culture on to another country rather than viewing the costs and benefits they face through their own cultural lens. CTOPs assess a country's culture by examining four components of culture: identity, values, norms, and perceptual lens of an actor in conjunction with a specific issue of concern. This paper examines the internal culture of China, with the Chinese government as the key actor, to discover how to build effective policy to regulate air pollution in China, to protect against the detrimental effects of climate change, which China is hastening through its massive carbon emissions production. After analyzing China's internal culture using CTOPs, it was found that an effective climate change policy would be a tax incentive based system, and a switch to nuclear power, with the use of natural gas to supplement this shift. This will lead to a significant reduction in carbon emission production, which will increase the health and safety of the Chinese people, and ultimately the world.

Dedicated to the Strategic Culture Class of Spring 2016

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## Key Findings

Cultural analysis of China's population reveals that pollution reduction strategies which are cast as "development" have potential to win support across key constituencies in China and reduce, over the long term, China's pandemic level pollution output. The People's Republic of China (PRC, also referred to as China) has failed, up to this point, to build effective environmental regulation to mitigate the effects of climate change because of the high value the society places on societal development and social stability. These core values originate from China's communist and Confucian identity, and have led to the normalization of China's environmental degradation, lack of enforcement of existing regulations, and the Chinese people's ineffective individual adaptation strategies. However, it has not affected the Chinese people's accurate perceptions of climate change as a manmade problem.

The cultural and economic factors assessed here indicate that the Chinese population and government will cooperate with climate-friendly environmental policies if they do not compromise the societal values of development or social stability. In addition, these policies will be most successful when they capitalize on the existing norm of personal adaptation.

This analysis examines the internal culture of China in order to advise the United States Environmental Protection Agency (EPA) in their existing partnership with China's Ministry of Environmental Protection (MEP) about the most effective way to build policies that will resonate with the Chinese populace to mitigate climate change. Findings indicate that promoting the idea of shifting from coal to natural gas to generate electricity, using carbon capture and sequestration on existing coal-fired power plants, and a long-term plan to switch to nuclear power will be perceived by Chinese as development and will thus be well received and supported by the public and the government.

Although this analysis focuses on specific domestic policies in China, it is in the United States' best interest to be vested in these policies, since China is the number one carbon dioxide (CO<sub>2</sub>) emitter in the world<sup>1</sup> and therefore has the most effect on global climate change. Additionally, it has been estimated that approximately 29 percent of air pollution in San Francisco has migrated across the Pacific Ocean from Beijing.<sup>2</sup> The intense air pollution present in Beijing has been linked to approximately 1.6 million premature deaths per year in China.<sup>3</sup> Although the cause of these deaths is not contagious, the number of deaths caused by air pollution is equivalent to a pandemic. In comparison, the Ebola death toll was at 11,310 in 2016<sup>4</sup>, making these 1.6 million premature deaths a pandemic level death toll. If China continues polluting at their current rate, which will likely increase as their population does, this could potentially cause severe global destabilization, because of the unavailability of water resources, the change in crop regimes, and the complete immersion of land masses from rising sea levels.<sup>5</sup>

Climate change could potentially have disastrous effects on the entire world. The likelihood of these ramifications is increasing as China continues to develop in the same method and rate that they have in the recent past. By using the cultural analysis presented in this paper, the EPA can assess what types of policies will resonate best with the Chinese populace, thus circumventing the failures of previous policies, and securing the world's future against climate change.

## Scope Note

This analysis was conducted using the Cultural Topography Analysis (CTOPs) methodology, a standard analytical technique used by the intelligence community. The objective of a CTOPs approach is to analyze the culturally encoded decision-making of an international actor in order to better anticipate their actions and policies. It is designed to avoid ethnocentric analysis and the dangerous practice of mirror imaging--projecting US culture on to another country rather than viewing the costs and benefits they face through their own cultural lens. The basic approach of the CTOPs method is to assess four key areas of the culture – identity, values, norms, and perceptual lens of an actor in conjunction with a specific issue of concern. This specific analysis examines the internal culture of China, with the Chinese populace and government as the main actor.

This analysis uses a variety of source types. The majority of the information is taken from pre-existing academic work, specifically, dissertations that address cultural areas of interest, the specific science of climate change and alternative fuel usage, and important historical events and philosophies. Additionally, news sources, including, but not limited to articles from Reuters, The Guardian and China Daily were frequently used to get a clearer understand of current events in China. These events were then analyzed to better understand cultural attitudes, values and beliefs. Some news sources included interviews with some citizens, providing a primary source of information. Xinhau, China's state run news source was also used, despite its censorship and subsequent bias, in order to gain a better understanding of how the government is specifically responding to events and how they would like them to be perceived. Additionally, speeches from government officials, specifically the President, were also examined to gain more details about the public image the government wants to project. Although the analyst did not speak Chinese,

most resources were available with English translations, curbing the limitations of these resources due to the language barrier.

It should be noted that there were fewer primary resources used in this analysis than is standard for the CTOPs analysis. This was primarily due to the amount of news sources and academic work available that were well rounded and provided the necessary information. Also, many of these academic sources originated from academics with a Chinese background or from schools in Beijing, giving them a more culturally based perspective and thus strengthening their cultural activity.

#### [Chinese Government Accepts Responsibility for the Problem of Air Quality and Pollution](#)

China's public statements regarding air pollution imply that their government correctly perceives that air quality and pollution is a major problem in China, and that the government is willing to be held accountable for action on air pollution.

The government's actions imply that they are willing to take real steps to fix their air pollution problems. At the COP21 conference in Paris in November 2015, which focused specifically on international cooperation to protect the world against climate change, President Xi Jinping announced the China would be cutting their carbon emissions by 60 percent by 2020.<sup>6</sup> Such a public statement tethers government legitimacy to measurable reductions in emissions over the near term.

China has recently established new regulations on clean air that are a step in the right direction, indicating that they are willing to take the necessary action to implement effective regulations on pollution. The new law links air quality to public health, expands the list of regulated pollutants to volatile organic compounds, particulate matter, and greenhouse gasses. This specifically targets the air quality problem in Beijing, authorizes certain non-governmental organizations

(NGOs) to litigate regarding environmental policy enforcement, and establishes a framework for coordination of regional air quality management.<sup>7</sup> The clarity and specificity of China's new law indicates to US EPA advisors, that the responsible Chinese agencies may be open to US help to achieve results about an issue that they find significant and serious.

### Chinese Value Development Over Environment

Chinese society highly values total societal development and social stability, both of which have repeatedly trumped their value of the environment, thus explaining why China has failed to implement effective policies to regulate pollution. If unchecked, China's pollution output may increase the entire planet's exposure to, and further accelerate the effects of, climate change. It is important for the EPA to understand that when they collaborate with the Chinese, environmental policies that directly conflict with development will stand a low chance of being implemented, and that environmental policies that include development will resonate well with the Chinese.

The communist philosophy emphasizes development at any cost, including resource exploitation, which explains China's continual push to exploit their natural resources and their repeated prioritization of development over environmental preservation. The roots of this philosophy are tied to Chinese identity and gives historical legitimacy to cultural attitudes that will be difficult to change. An economics professor notes that Karl Max, the original developer of communist ideology, promoted self-realization through economic development. Many critics of Marxist philosophy note that this makes his ideology very anti-ecological.<sup>8</sup> Mao Zedong, the original communist party leader and national hero, perpetuated the specific idea of exploiting the environment in the creation of communist China. He famously coined the phrase "Make the high mountain bow its head; make the river yield its way,"<sup>9</sup> thus explaining this value of development over the environment. Mao's role in shaping the value orientation of the PRC is especially

evident in his initiative known as The Great Leap Forward. This policy made clear the state's valuing of development over the environment; it encouraged individuals to smelt iron in their backyards to increase steel production, despite the effects it had on health or the environment.<sup>10</sup> The Great Leap Forward also orchestrated the eradication of several animal species in China.<sup>11</sup> These were all pursued in the name of development with a complete disregard for their environmental ramifications. Because this happened when the PRC was still forming its identity, these events created a traditional valuation of development over the environment, which has thus become very ingrained in modern Chinese culture.

Development trumping the environment is found in many modern examples, such as the development of the Three Gorges Dam, the ecotourism industry, the black-market animal trade, as well as in President Xi's rhetoric.

- The 1994 construction of the Three Gorges Dam, which supplies power to many areas of China decimated the land around it and has put many species of plants and fish in jeopardy of extinction.<sup>12</sup>
- The ecotourism industry has rapidly grown in China through the designation of many national parks (208 in total). However, this has actually caused severe environmental degradation to many natural areas included in the parks, but is viewed as a success because of the economic development.<sup>13</sup>
- President Xi has repeatedly called for “Green Development,”<sup>14</sup> rather than “sustainability” or efforts to be “environmentally conscious.”

Modern examples of attempts at environmental policy demonstrate that economic advancement continues to be valued over preservation of the environment. This basic tradeoff continues to come at a high cost to China's landscape, exemplified by the construction of the Three Gorges

Dam and ecotourism industry, which have both had disastrous environmental consequences. Xi's rhetoric shows his emphasis on development, even when coupled with the environment, and implies that his regime will focus more on development. These examples show that policies that resonates the best with the Chinese will incorporate development. However, it is essential that a new policy should not be valued only for development, but to avoid disastrous environmental consequences as shown by previous examples.

### Chinese Value of Social Stability is Held Above Environmental Values

The Chinese place a high value on social stability, which, like the value of development, has deep roots and therefore will override environmental concerns. In order to be effective, proposed environmental policy must act in harmony with social stability. Capitalizing on widely understood Confucian philosophies of humans being in harmony with their environment may be one way to craft an environmental narrative that will resonate with the Chinese population.

Social stability is generally valued by most societies, but is important specifically to the Chinese because of Confucianism philosophy that China was founded on, long before the Communist Revolution. This value explains why Chinese people are very committed to fulfilling their societal role through their work. Confucian philosophy states that society is only stable when all members completely fulfil their societal role, and is the ideal state for a society.<sup>15</sup>

After the Communist Party built the PRC in the 1950s, the Communist Party reintroduced parts of the Confucian narrative to create a sense of nationalism and popular support for their new regime. Although they selectively adopted parts of the Confucian narrative that were more desirable, they specifically emphasized Confucius's value of stability, and subsequently built a modern value for social stability.<sup>16</sup> A narrative of stability resonated well with the people, due to the recent unrest instigated by the Chinese revolution. Because both the narratives of

communism and Confucianism promotes the value of social stability, it has become very deeply ingrained in modern Chinese culture. This also explains why policies which are environmentally-friendly but threaten to disrupt the ability of Chinese persons to fulfill their social obligations fail.

For instance, a high regard for social stability explains why the current Road Rationing System used to reduce automobile emissions is not working now, but why it did when first introduced in 2008. In 2008, to reduce pollution in Beijing during the summer Olympics, Beijing implemented a license plate rotation policy, which allowed certain cars to drive based on whether their license plate ended in an even or odd number. This was consistently enforced from July 20 to September 20, 2008.<sup>17</sup> Today, this policy exists in a different capacity, where there is a 13 week rotation system, where individuals allowed to drive one week may not allowed to drive the next.<sup>18</sup> The main difference between these two systems is simply that in 2008 the system was consistently enforced every day for 60 consecutive days, thus giving people time to plan alternative transportation, allowing them to fill their societal role and maintain overall stability. However, because the system now rotates more often to give more people the opportunity to drive, it is more difficult for individuals to make arrangements in advance. Therefore, when someone is required to not drive, it violates the value of social stability.<sup>19</sup>

The value for social stability also explains China's preference for using coal in power generation. Coal is cheap, in good supply, and will provide a consistent power source for the large population.<sup>20</sup> Suggesting a switch to a completely renewable source, such as solar or wind power is simply not feasible because it cannot reliably support the large populations need for electricity and would infringe on the societal need for social stability, due to its fickle nature.<sup>21</sup> Any suggested alternative fuels must provide a consistent, reliable source of energy to meet China's



value of stability. This suggests that, although renewables will not be well received due to their natural inconsistency, nuclear power would likely be accepted because of its consistency and ability to operate on a large scale.

These values are very important to keep in mind in the partnership between the EPA and MEP, because they explain where pushback from government agencies in regulating policies, and the populace originate from. It is also essential to keep in mind that these values have repeatedly trumped the value for the environment in Chinese society, and has set a deep seated precedent in the society. These values will likely encompass any type of public resistance seen in implementing environmental policy, and should therefore be given significant consideration to avoid failure. There is some disconnect between the current Confucian ideas perpetuated in Chinese society and the original ideas. For example, Confucius discusses the value of harmony, specifically between humans and the environment.<sup>22</sup> When building environmental policies, the EPA could bring up this point of Confucian philosophy, since it is already an important existing narrative and will therefore resonate well the people and the government.

[Air Quality Regulations Will Not Be Enforced Because Of Historical Government Corruption](#)  
Due to corruption in the Chinese government, which has become a norm, policies are often not effectively enforced. This could create problems when building new pollution regulation policies, since corruption could eliminate the efficiency of any implemented environmental policy, as it has in the past with water and endangered species policies.

In general, the behavior of bribing officials to bypass the enforcement of regulations has been normalized in Chinese society. This has major ramifications for policies; it is likely to both diminish effectiveness and reduce the power of the central government. This problem has been

especially relevant in environmental policies, which have been circumvented to maintain the value of social and economic stability in China.<sup>23</sup>

In the past, environmental regulation policies in China have, thus far, not been enforced well because of corruption, implying that future policies will not be enforced without a significant attitude and strategic shift. In 2008, a clean water policy was passed that was very similar to these new air regulations. However, Professor Jingyun Li of Jiangxi Normal Law University notes that this law is very vague regarding the specifics of who will regulate and enforce this law and it has yielded few results up to this point.<sup>24</sup>

China signed on to the Convention on International Trade in Endangered Species (CITES) in 1981, but as noted by University of Hong Kong professor Charu Sharma, this is not enforced. China is home to a large illegal trade industry in endangered species. Thus far, CITES has not been well-enforced.<sup>25</sup> Both of these policy enforcement failures imply that the same will happen with the new air quality regulations.

However, President Xi has recently made it a priority to crackdown on corruption, and punished approximately 300,000 government officials for corruption in 2015, which also demonstrates how widespread the problem of corruption is.<sup>26</sup> There have been many attempts to fight corruption in China, dating back to the 1970s, which have not yielded any major results. This implies that the current crackdown may not have long-term effects, but it may last long enough to build an effective air pollution policy.<sup>27</sup>

The EPA must understand that corruption is a normal practice in China, and therefore build specific policies that can avoid corruption as much as possible, to make an effective policy that regulates air pollution.

### Adaptation rather than Mitigation has become a Cultural Norm

Unregulated air pollution in China has become so commonplace that individuals are expected to personally deal with the air pollution, which discourages the government from implementing large-scale pollution regulations to mitigate climate change. This norm stems from the high value of social stability. Although personal adaptations allow individuals to function under harsh air pollution, but this is not a viable solution for the entire nation, since it does nothing to reduce the volume of emissions produced. The EPA should keep these norms in mind when working with China to improve their air quality, because overcoming the norm of personal adaptation will require an attitude switch from individual adaptation to collective mitigation.

Severe air pollution has also been normalized and institutionalized as demonstrated by the Chinese government's severe air quality designation threshold. The EPA considers anything above 51 on the air quality index (AQI) to be unhealthy, especially for individuals with preexisting respiratory conditions.<sup>28</sup> However, in China, air must be rated at above 300 AQI for three consecutive days to be designated as a “red air day,”<sup>29</sup> where schools are closed to protect the health of children. In contrast, in the United States, red air days can be designated if the AQI is above 200 any day. In China, the AQI must be significantly higher than the standard for unhealthy air in the US to be considered a hazard and constitute any type of action, indicating that people deal with a higher baseline of pollution present, thus justifying a higher standard for a red air day.

Many Chinese citizens have adapted to the severe air pollution by wearing facemasks to filter the particulates out of the air they breathe. Several health blogs and travel resource websites provide in-depth analysis of which masks are most effective and individuals often have their masks personalized.<sup>30</sup> In an interview with a news source focused on climate change, a Beijing citizen

admitted that she, and many others, are aware that facemasks are often ineffective against bad air quality, but they are worn anyway.<sup>31</sup>

- The use of facemasks has become so imbedded into urban life, that, in 2015, many models on China's fashion week catwalk wore a coordinating facemask, because the designers were aware of the general need for facemasks.<sup>32</sup>
- Air purifiers are commonly used in private houses to make indoor air breathable. The US-China Business Council has given details on how rapidly this market is growing.<sup>33</sup>
- On "red air" days schools are closed in order to protect children's health. However, students are still expected to learn from home,<sup>34</sup> further demonstrating the high regard of social stability.

To reduce air pollution during the Beijing Olympics, the government orchestrated a Road Space Rationing Policy, where only cars with certain even or odd license plate numbers were allowed to drive on given days. This policy had some success during the Olympics and is still required, on a 13-week rotation system.<sup>35</sup> However, this policy has not been effective enough to significantly reduce the air pollution, because of the rotation, which changes how the policy is enforced from week to week, and is at odds with the value of social stability.<sup>36</sup> It is also very easy to break this rule, by covering up a license plate or buying another car.<sup>37</sup> Circumventing this system has been normalized, and has incentivized families buying two cars to maintain their stability<sup>38</sup>, thus increasing their individual contribution to overall pollution.

Pollution protests are a clear indication of the populace's discontent with the pollution problem in Beijing. There were protests in 2015 to stop the expansion of coal-fired power plants in Guangdong, where 200 people joined in and 10,000 signatures were collected.<sup>39</sup> Due to the pre-existing value of social stability, which has created the repeated behavior of citizens filling their

societal roles, the Beijing pollution protests carry more weight than protests in other countries do. This shows that citizens will respond to regulations on the air pollution, since they are willing to violate the existing norm and value of social stability to draw attention to it. This implies that the people will respond well to increased regulations on emissions, due to their preexisting discontent with the current situation of normalized air pollution.

The EPA should be aware that when aiding China in its pollution reduction efforts, adaptation to pollution is more than just a preference, it is a societal norm. Individual adaptation has become an accepted and expected behavior of the populace by the government and has subsequently discouraged them from implementing any national policies to regulate and reduce pollution. This has created a self-fulfilling prophecy where the people are willing to use these ineffective adaptations to protect their individual health from the dangers of climate change, which then discourages the government from implementing national policies, since they know that the people will do what they need to do survive.

#### [Chinese Perceive Climate Change as a Threat and Individual Mitigation as a Solution](#)

The Chinese people believe climate change is human-caused, happening now, and scientifically backed. However, they do not have faith in the government to implement an effective solution, implying that the populace would respond well to national mitigation, but the government may resist, due to the norms of individual adaptation and governmental corruption, which demotivates them from policing pollution and enforcing regulations. This is important for the EPA to understand, because it shows that they do not need to focus their efforts on education about climate change, but instead must target the Chinese government, and demonstrate that collective solutions are more viable than individual efforts.

The following examples demonstrate that the Chinese populace correctly perceives that climate change is a serious threat.

- A statistically significant survey conducted by the Beijing Institute of Technology in 2013, shows that most participants (approximately 70%) marked that they were concerned about climate change and the effects it would have on their society.<sup>40</sup> Additionally, participants were also asked what they thought was the cause of climate change. Most responded with “human causes,” indicating a correct perception of climate change.<sup>41</sup>
- In a 2012 survey in China, conducted by American researchers at the University of Wisconsin, the same results were found.<sup>42</sup> This survey also showed that Chinese college students correctly perceive that scientists agree that climate change is both happening and is human caused. This view was shared by 70% of participants, significantly larger than America’s 40%.<sup>43</sup>
- To further reiterate this point, the Pew Research Center, when assessing Chinese perceptions of problems in 2015, found that survey respondents ranked water and air pollution as the third and second most significant problems in their society. Immediately following these concerns is food security, which is a potential future effect of climate change, further implying that the people understand climate change and its ramifications well.<sup>44</sup>

This is important to note because it implies that the population will be receptive to climate change policies instigated at a national level. It also shows that climate change education is not a necessary component of policies.

However, when assessing Chinese public opinion regarding the best way to solve this problem, the majority of the population believes that mitigation is an individual responsibility.

- In the Beijing survey, 93% of respondents said that the government should take action against climate change. However, in the same survey, only 36% trusted the government to do so, and 80% felt it was their responsibility to mitigate for climate change.<sup>45</sup>
- The University of Wisconsin survey reiterates this, in which 60% of surveyed college students favored government regulation on climate change.<sup>46</sup>

These results imply that, although people realize climate change is dangerous and happening, they do not believe that their government will effectively protect against climate change and thus they must take action into their own hands. The Beijing survey also found that the people would prefer and be receptive to a tax-based solution instigated by the government.<sup>47</sup> This response also indicates the reason many citizens continue to use ineffective personal adaptation strategies is that they do not have faith in their government to protect them and therefore must take matters into their own hands.

It is necessary for the EPA to keep these perceptions in mind to build the most effective pollution and climate change mitigation policy possible. Because the Chinese populace has a correct perception of climate change, educating the population does not need to be emphasized in this policy. Based on majority opinion from the survey, it would be best if this policy involved a national tax instituted by the government. This policy must be well designed and effectively implemented, to eliminate the perception that the federal government is powerless to protect them against pollution and the effects of climate change.

## Outlook

To create effective environmental policy in China, it is important to emphasize the Confucian idea of harmony between man and nature. It should be noted that, because this area of the cultural narrative has not been specifically emphasized in post-revolutionary China, it may not resonate as deeply as other cultural factors. However, the respect that already exists for Confucian ideas and the narrative may allow this specific point to act as motivation for creating an effective environmental policy.

Before building any policy, the EPA must keep in mind that, unlike the US, the Chinese have correct perceptions of climate change, in that they perceive it as a threat, happening now, human caused, and scientifically supported. Therefore, policies do not need to emphasize education. This existing level of understanding, plus the general discontent with the state of current environmental issues and the desire for there to be more government action, implies that the populace will be responsive to environmental regulations and policy. However, because of the pre-existing perception that the Chinese government does not have the skill or ability to mitigate pollution, any policy must be fast-acting and effective to restore the populace's faith in the government.

It is in the EPA's best interest to use the norm of personal adaptation that is already in place. Although much of the pollution comes from power generation, it would be foolish to ignore this already built-in attitude. A key component of government instigated policy for the Chinese people is consistent enforcement. Therefore, a government wide tax, or tax incentive, for civilians who reduce their driving would be well received. It must be consistently enforced and could be tailored to fit individual's needs, therefore not violating the value of social stability. This policy plays on the already existing norm of personal adaptation to pollution, but



incentivizes and reinforces this strategy. It also may help to eliminate some of the resentment the populace has toward the government for their lack of ability to regulate pollution.

However, it is important not to use this norm in the same way the Chinese government has, where they rely on the people's personal adaptations to solve the greater problem of pollution regulation. Relying too much on personal adaptation will only dissuade the Chinese government from instigating a large-scale solution, which explains their current reluctance to actively regulate pollution.

To create an effective pollution reducing policy in China, it must be consistent with Chinese values of economic development and social stability by providing a reliable source of power. Nuclear power or natural gas could provide a consistent source of power and will support China's high demand for power. A short-term transition to natural gas could be very beneficial because it will meet the high demand for power, maintain social stability, and is cleaner and more efficient than coal.<sup>48</sup> There is also a large domestic supply of natural gas.<sup>49</sup> Transition to any fuel will cause some initial instability. To ease this instability, carbon capture and sequestration technologies could be used on current coal plants, while new natural gas plants are being phased in. Carbon capture and sequestration has two components. First removing the CO<sub>2</sub> from coal plant emissions and then safely storing the CO<sub>2</sub> in the ground, thereby removing the pollutants from the air.<sup>50</sup> There are some potential negative environmental ramifications of using carbon sequestration, including ground water contamination,<sup>51</sup> which is why it is not recommended to use carbon sequestration technology on a national level. Additionally, the Huaneng Institute for Clean Energy Research has done extensive research on carbon sequestration, and it would be advisable to use their research when implementing this technology.<sup>52</sup> This system would also satisfy the need for development, since carbon

sequestration has not been used in many other places, and therefore could be seen as green development that President Xi is a proponent of.<sup>53</sup> The captured CO<sub>2</sub> can also be injected into the ground and used to enhance oil and natural gas recovery from depleted oil fields, thus it could be presented as enhancing economic development. On that note, it is important to avoid promoting development over the environment to avoid the severe environmental degradation seen with the Three Gorges Dam.

A long-term transition to nuclear power is also advisable, since nuclear power has zero carbon emissions and is very efficient and will thereby fit the needs of the growing population.<sup>54</sup> Nuclear power has also not been used on the scale that it would need to be in China, and therefore could be perceived as development.<sup>55</sup> An immediate transition to nuclear power is not recommended, because it requires space for storing hazardous nuclear waste,<sup>56</sup> which needs to be accounted for very carefully. For this fuel switch to be accepted by the Chinese, a balance must be maintained between development, stability and the environment, and the hierarchy of these values in society. The EPA should keep these values in mind when working with the MEP, to understand the potential pitfalls in building effective policy.

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**Author's Bio:**

Molly Van Engelenhoven has received a dual bachelor's degree from Utah State University (USU) in Environmental Studies and Political Science, with a minor in Geographic Information Systems (GIS). Molly has also participated in USUSA student government during her undergraduate career. In the upcoming year, she will be attending the Middlebury Institute of International Studies and working towards a Master's of Arts in Nonproliferation and Terrorism Studies. In the future, Molly hopes to have a career working as an intelligence analyst with a specialization in GIS. In her free time, Molly enjoys painting and listening to music.



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## Appendix 1

### Intro:

- China: avoiding impediments to successful climate change mitigation
- EPA and Ministry of Environmental Protection (China) Partnership
- Why they haven't worked, current strategies, policy recommendations
- Why you care – global security – destabilizing the world b/c climate change. The best way to fix this is target air pollution. 29% of emissions in San Fran come from Beijing

### Why Current Strategies Have Not Been Effective

#### **Identity**

- Confucian
  - Founded on Confucian identity- selectively reinstated by Mao
  - Ideal society: all members fulfill their societal role
  - Eliminated: Confucian idea of harmony between society and the environment
    - This may or may not resonate now
- Communism
  - Marxism is anti-ecological
  - Mao “make the mountain bow and the river yield”
  - Created value for development

#### **Values**

- Development
  - Important in the communist Identity
    - Mao and the Great Leap Forward – species extermination, pig iron smelting
  - Valuation of land through nationalization
  - Three Gorges Dam – migration, sediment, biodiversity
  - Xi Jinping and development – speeches UN September “Green development”
- Social Stability
  - Confucian philosophy – stability through fulfillment of social roles is the end goal
  - License Plate Rotation System failure
    - 2008 vs. now

### Current Strategies

- No clean air or water act like in the US
- Land preservation is not specific to agencies like it is in the US – it's a part of a larger agency

#### **Norms**

- 
- Created to maintain social stability
  - Personal adaptation to pollution
    - Face masks
    - Air purifiers
    - School policies
  - Pollution Protests
    - Deviation from norms
    - Shows people will respond well to air pollution regulation above all else

### Building Effective Policies

#### **Perceptual Lens**

- Surveys
- People have the correct perceptions of climate change
  - do not have faith in the government
  - Education is not an issue
- Favor tax-based solutions

#### **Opportunities**

- Encourage incentivizing personal driving reduction through consistent tax breaks
- Specific vehicles vs. power plant emissions
  - 80-85 from industrial
  - 20 from vehicles
  - Must target power plant emission
- Encourage switching to natural gas
  - Domestic supply
  - Cleaner and more efficient than coal
  - May require initial expenses
  - Carbon sequestration
    - carbon removed from the atmosphere and held in solid or liquid form – often piped into the ground
    - may not be effective on a national level, potential environmental ramifications (there is not a lot of current research on this)
    - Huaneng Clean Energy Research Institute
    - Exemplified scientific development
- Long-term switch to nuclear energy
  - Zero carbon emissions
  - Can support a large population
  - Scientific development

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## Appendix 2



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