The Authoritarian Environmentalism in China

- “air policy” implementation research in Jing-Jin-Ji region as case studies

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Subject: Peace and Development Studies
Level: Bachelor thesis
Course code: 2FU33E
Abstract

The concept of “Environmental authoritarian” becomes the focus of discussion in the academic field of environmental politics since it has limited observations. In the recent years, the severe air pollute issue is considered as a threat by both citizens and authorities in China. Along with the more stricter environmental protection laws being issued, even the measures of the factory closings and coal ban seems to become acceptable as the population have suffered in the heavy smog for years. Does this led to the rise of “environmental authoritarian” in China? Taking this as a heuristic point, I observe the positions of various stakeholders in the environmental governance as well as present the findings from research on the implementation and enforcement of air pollution controls measures in Jing-Jin-Ji region. I offer a critical examination of “environmental authoritarian”, especially the levels of public participation at the policy process. After to do the research, the key funding is that the concept of “Environmental authoritarian” is too simplified, it cannot cover the complex and detailed environmental governance at local empirical cases.

Key words: air pollution prevention and control policy, environmental authoritarianism, environmental politics, environmental governance in China, Coal ban, factory closings
Acknowledgments

I would like to give a special appreciation to my supervisor Heiko Fritz for his great guidance and feedback during the thesis writing. He gave me a lot of support and suggestions for the whole research and writing process.

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List of Abbreviations

PSC -- Party’s Politburo Standing Committee

NPC -- National People’s Congress

EPB -- Environmental Protection Bureau

GDP -- Gross Domestic Product

CCTV -- China Central Television

LNG -- liquefied natural gas
1. Introduction

1.1 Research Problem

In spite of the mainstreaming of democratisation in the worldwide, the discussion topics towards authoritarian regimes has never been stopped. In East Asian, even authoritarian states have been central components of the region’s remarkable economic expansion. On the other hand, Environmental problems become particular severe in these countries that exhibited fast economic growth throughout the last 2 or 3 decades and moved to the stage of mass consumption. Compare with more affluent Europe and North America, populations and governments of the poorer regions might have different developmental priorities and the citizens may also have different expectations about the appropriate role of government (Mahbubani 2008). Therefore, the democracy development and environmental protection are often-neglected by either citizens or the government.

In the research field regarding to environmental politics, one observer stated that one possible consequence of the environmental degradation is the development of consolidation of authoritarian rule due to the regime maintenance always can be the privilege by political elites and internal stability over political liberalization (Mark Beeson 2010) Many observers think that the increasing series of environmental problems will lead to the authoritarian rules becomes more prevailing. Although the mainstream theoretical and empirical studies have shown that the liberal democratic political system should be more effective than the authoritarian political system, the critics of this theory state that the market economy and consumerism bound with the democracy regime, which see it as the root of causing modern environmental crisis. Therefore, they doubt that market-liberal democratic environmental policies have been successful tackling environmental problems. (Ran ran 2018).

China is undoubtedly a good case study referring to environmental issues and authoritarianism. The effectiveness of authoritarian policies have been proven in many areas in China, for example: economy policy (economic growth, poverty reduction, modernisation) and population control (one child policy) in China. In terms of environmental policy, the remarkable short-term improvements of air quality before and during Beijing Olympics 2008 and OPEC China 2014 respectively can be seen as successful examples. There has been a obvious paradox of Chinese environmental governance for long time. On the one hand, the central government has shown a high level of concerns about environmental issues, the relatively complete environmental policies have been formulated
for years by the central government level. But on the other hand, the effectiveness of the implementation and enforcement of environmental policies does not appear to be satisfactory since the air and water quality continues to deteriorate. So seemingly why does not the authoritarian regime has shown an effective environmental implementation? In this context, the new Chinese environmental law being issued in 2015, it been considered as the most stringent environmental law in Chinese history which with more detailed and severe rules. In the new environmental law, it states that it would strength the level of public participation, which included clarifying public participation in the information disclosure, fair supervision and the public welfare litigation system for social organisations (NPC 2015). Does it represent the strengthening of democratic environmental governance, or a more stringent environmental law enforcement would enhance the model of environmental authoritarianism in China.

My research is motivated by a steam of previous studies focusing on the discussion of the environmental authoritarian and its empirical observations in the field of air pollution control polices. Since the concept of environmental authoritarianism is relatively new. It has not been fully examined theoretically and empirically. With the aim to observe the nature of environmental authoritarianism in China, the study will present an overall picture of Chinese environmental governance system from top to down and its implementation performance in reality life. Firstly, I will observe the effects of China's existing political system on environmental governance, like how does the central, local governments and various stakeholders engaged into the environmental governance agenda in China, how does the environmental polices being formulated at the decision-making level. Secondly, I will present the actual implementation performance in practice by using 3 case studies about two different measures, “Coal ban” and “factory closings” in Jing-Jin-Ji region’s local air policy. Lastly, based on the findings above, I will use the two models of authoritarian environmentalism and democratic environmentalism as well as the concept of fragmented authoritarianism as analytical frameworks to analysis its own logic of environmental governance, which contribute a further understanding of the nature of environmental authoritarianism in China and further exam and clarify the concept of authoritarian environmentalism.
1.2 Research objective

The objective of this thesis is to contribute to the understanding of the nature of environmental authoritarianism in China. The thesis will discover the whole environmental governance system in China from up to down to observe its authoritarian characteristics and further exam the concept of authoritarian environmentalism.

1.3 Research questions

1. What environmental policies are implemented regarding to air pollution control in Beijing–Tianjin–Hebei (Jing-Jin-Ji) region? How is the enforcement and implementation of policies at the local level and does it differs between different cities?

3. To what extent is the policy process of environmental policies conforms environmental authoritarianism?

1.4 Limitations, Delimitations and Ethical considerations

In regards to the limitations of the study, the choice of focusing on one region in China will give an understanding of the specific cases. But it might cannot make an accurate generalisations about the whole environmental governance situation since the specific region cannot represent the whole China. China is a country with vast territory, the various regions are differs in the levels of economic development and environmental pollution. The main pollution sources and significant nuances of environmental governance are various as well. Therefore, the outcome of the study might be affected by the choice of cities or regions, as another conclusions might will get from the same study of other regions or cities. As it is a desk-study, I will have to rely on the literatures and informations collected by others, thus this is another possible limitation in the findings of the study. Lastly, It is always not possible to eliminate the subjectivity when doing research, even though that is the ultimate for the outcome of the work. However, with help of the analytical tools, I will do my best effort to not being biased. Due to the importance of subjectivity, the thesis will be as transparent with
1.5 Structure of the thesis

In order to make it easier for the reader to follow it has been divided into several chapters. The first chapter is the introduction which gives an insight to the research problem and it further present the research objective and the two research questions. Next, the limitations, delimitations and ethical considerations for this thesis will be mentioned. The second chapter is literature review, the current research concerning the topic will be presented, as well as the research gap will fill. The third chapter is analytical framework, this chapter introduce the earlier research about the topic and the two concepts, ‘authoritarian environmentalism' and ‘fragile authoritarianism’ will be introduced. The forth chapter is the methodology, where the methods used in the study are introduced; The criteria of data collection and cases choose is further considered in this chapter. The fifth chapter gives an introduction of the background in regard to air pollution in China and the introduction of “Jing-Jin-Ji” region. Lastly, the air quality diagrams in Jing-Jin-Ji region will be present. The fifth chapter consists of the findings, which presents the environmental governance system in China and the 3 case studies. The sixth chapter presents an analysis of the findings and answer the research questions. The final chapter conclude the result of the study.

2. Literature review

There is a significant number of studies have been done on the wide range of issues related to Chinese climate change policy for years. The international aspects of climate change policy in China has been researched a lot by many authors. China’s strategy and position in international climate negotiations as well as its committed targets are considered to be the obvious "focus" in international negotiations(Thomas Immervoll, 2015). The ways and possibilities for China to partici-
pate in the formulation of the international climate regime effects the policy formulation of other world’s biggest emitters and the direction and speed of the development of international climate regime. At present, China has made voluntary commitment in the Copenhagen accord, by 2020, it aims to reduce the carbon intensity per unit of GDP by 40% to 45% on the basis of the carbon intensity in 2005; On the other hand, Aim to increase the proportion of non-fossil energy to 15% by 2020 (Qiang liu et al., 2017). Regarding to the goal, the authors have been hold different views at the international level. Furthermore, there was a lot of discussion about whom should be held accountable for the frustrating outcome of the climate talks in Copenhagen. As the United States and China were being considered to the largest impact on the negotiations, many authors blamed that at least one of them as they did not pass the legally binding Copenhagen accord (Thomas Immervoll, 2015). In another research about the China’s Role in Reducing Carbon Emissions, it discusses the prospects for China, the author concludes that China may be set to reduce its carbon emissions by approximately two-thirds by 2050 (David Toke, 2017).

Regarding to the China’s climate change response strategies, which is particularly under Xi Jinping’s leadership, it has been went through superficial changes in recent years. The discourse, clear goals and ambitions from the central government has all escalated. This has led many people think that China is about to become a global leader in solving climate change problems. Undoubtedly, the large-scale, ambitious environmental policy innovations are the signs of positive change, but the political institutions remain stable and old environmental governance mode is difficult to shake (ohshita, 2017). In enacting environmental policy innovations and experiments, China has been striving to follow its most familiar and familiar system design: experiments under the Hierarchy system (Heelmann, 2008). What is more, as a country with economic growth as its primary goal, despite the environmental awareness has been increased rapidly among domestic policy makers and the populations, it is still not enough to offset concerns about the high cost of reducing emissions. In addition, since the policy formulation process is dominated by economic and diplomatic bureaucrats, rather than by climate scientists and officials in the environmental sector, the goal of protecting economic interests has been reinforced from time to time in the process of policies formulation.

Regarding to the research of theoretical models towards climate polices, the prevailing perception is that the environmental governance of China is a case exemplar of “authoritarian environmentalism” or “environmental authoritarianism”. The concept of environmental authoritarianism is being proposed by Mark Beeson, used to describe a new model of formulating and implementing environ-
mental policies in the absence of public participation which is distinct from the environmentalism of Western countries. According to Bruce Gilley, Authoritarian environmentalism is a non-participatory approach to public policy-making and implementation in the face of severe environmental challenges (Gilley 2012). Gilley thinks that the concept is perfect for describing the model of China's climate policy formulation. In the China's case, he concluded that authoritarian environmentalism is more effective in producing policy outputs than outcomes (Gilley 2012). In another research, the author Anna and Yongdong argued Gilley’s finding which is authoritarian environmentalism emphasises the policy outputs than outcomes (Gilley 2012). Instead, they found that authoritarian environmentalism in China pays more attention to the "outcomes" of policy implementation.

According another research about China's authoritarian system, the author Danny Marks stressed that an important problem of China's climate change policy is the police formulation process is too fragmented to meet its energy-saving and emission reduction targets (especially energy intensity targets). This is manifested in the following, first, the too broad and complicated environmental policies in China, making the laws difficult to be enforced by regulators. Second, local officials attach more importance to economic development than environmental problems, due to the current incentive structures of promotion and salary. Third, the environmental regulatory system, such as the judiciary and environmental agencies remain weak and hampered by law enforcement barriers (Marks 2010).

Where is the gap?

Firstly, In the research area of Chinese climate change policy, the other policy areas than CO2 emission reductions have not been studied much. More studies are focused on the Chinese climate change policy from an international perspective and the research on Chinese air policy from a national and local perspective are still have a lot of room to develop. The case studies in the area of air pollution are still lacking, instead most case studies are about Chinese environmental policies combating global warming.

Secondly, since the concept of environmental authoritarianism is relatively new. It has not been fully examined theoretically and empirically. The thesis aims to contribute a further clarification of the concept and refining some of the key aspects of Chinese environmental authoritarianism presented in the existing literature. It exists limited empirical research on the significant nuances of Chinese authoritarian environmentalism at the local level. The concept of environmental authoritarianism
implies the almost complete exclusion of public participation in the policy process, the relevant parties are expected to participate in state-led mobilisation for the effective final policy implementation and the individual freedoms are restricted on the policy output side. The study of how this works in practice and the complexity at the local state perspective has not been examined enough. Especially, the conditions on the ground of new environmental policies implementation which is issued in 2015 are not been updated.

3. Analytical framework

3.1 The concept of ‘Authoritarian environmentalism’

Authoritarian environmentalism and democratic environmentalism are one pair of opposing theoretical models, and it is an alternative theoretical scheme developed on the base of criticising democratic environmentalism. Its core view is that authoritarianism might be more effective than the democracy and an authoritarianism model might be needed when tackling with the climate change challenges within the sovereign states.

The concept of authoritarian environmentalism was originally articulated by Heilbroner (1974, p. 38) who believed that ‘an absence of inhibitions with respect to the exercise of power’ and limits on the freedom of speech would be needed to control population growth. More recently, Beeson (2010) predicted that in East and South-East Asia, one possible consequence of the environmental degradation is the development of consolidation of authoritarian rule due to the regime maintenance always can be the privilege by political elites and internal stability over political liberalization. The efforts to address environmental challenges may involve a decrease in individual liberty and policy process that is dominated by a relatively autonomous central state, affording little or no role for social actors or their representatives, as governments seek to transform environmentally destructive behaviour (Beeson 2010). In Bruce Gilley’s research, he concluded that the authoritarian environmentalism is more effective in producing policy outputs than outcomes. He stated that the advantage of authori-
tarian environmentalism is its ability to produce a rapid, comprehensive response to severe environmental issues, and to mobilise the state and social actors (Gilley 2012). However, the exclusion of social actors and the representatives makes the implementation of environmental policies which being formulated by central government more difficult at local level (Gilley 2012). In the words of Bruce Gilley,

(...) authoritarian environmentalism can be provisionally defined as a public policy model that concentrates authority in a few executive agencies manned by capable and uncorrupt elites seeking to improve environmental outcomes. Public participation is limited to a narrow cadre of scientific and technocratic elites while others are expected to participate in state-led mobilization for the purposes of implementation. The policy outputs that result include a rapid and comprehensive response to the issue and usually some limits on individual freedoms.

According to the contents above, I conclude the main characteristics of authoritarian environmentalism.

1. The limits on individual freedoms, particularly those behaviors that may have negative impact on the environment;

2. The scope and depth of public participation is limited to a narrow cadre of scientific and technocratic elites and others are expected to participate in state-led mobilization for the purposes of implementation.

3. The implementation of centralisation being emphasised more, the role of local, corporates and social society being restricted in the environmental governance.

4. Instead of the measures of economic and market incentive mechanism, the government regulations being used more in the environmental governance.

3.2 The concept of ‘Fragmented authoritarianism’

China has been perceived as one of the most decentralized nations in the world even though it maintains an authoritarian structure (Zhe Jie 2013). "Fragmented authoritarianism" is a concept which be used to describe Chinese political system, which has been seen that the current Chinese authoritarianism system has created space for autonomy, reforms and hopes for democratization. Under the system, Power and responsibility are delegated downward to provincial and local levels of govern-
ment, as well as horizontally between state ministries with different, often competing functional responsibilities (Paul 2017). The positive side of the fragmentation of authority is that it prevents over centralisation of power; and the negative side is that it makes achieving consensus more difficult (Mario Gillia,Yuan 2014) Besides, some research has revealed that one of the outcomes of this “fragmented authoritarianism” is that environmental policies are often framed in non-specific and unclear language, and conflicts between different environmental policies sometimes lead to a system lacking internal consistency.

4. Methodology

The study will be an abductive study as it is an analytical process where the nature of environmental authoritarianism in China will be discover with the use of existing frameworks, with the aim to bring forth new explanations and understandings of environmental authoritarianism through own interpretations of the phenomenon. The core of the abduction is that we have an empirical phenomenon/event (the result) and we relate it to a rule, which gives us new supposition about the phenomenon/event. In social science research, the rule is often a frame of interpretation or a theory, and the conclusion provides new insight as an outcome of our interpreting or explaining a specific phenomenon which makes sense to assume that the framework for interpretation is reasonable (Danemark et al., 2005:90-91). The method is not meant to provide a new theory or prove if the theory is right or wrong, It is about using an existing framework and apply it on the research to bring forth new explanations.

The thesis will be done as a desk study. Field study might be the more appropriate than desk study if do case study for environmental governance in China. Because the reliable firsthand resources regarding to the local actual conditions will be collected since the author is more tend to being biased by the selected secondary resources. However, doing the research as field study also has limitations, such as financial support problem. Besides, if I want to conduct the interviews for the research, the local and central officials, the EPA( Environmental Protection Agency) staffs, business leaders should be the considered interviewees that I need. But these interviewees are not that reachable for me as a normal student if I don't have special permit. To do the research as a desk study, I
think it is reasonable. Desk research is aim to gain a broad understanding of the field by reviewing
previous research findings (Bryman, 2012). There has numbers of existing academic literatures on
the issues of Chinese climate change policy in which already supplied sufficient data for the whole
Chinese environmental governance system, such as the researches on central-local relation, power
relations at local level. As for the local case studies, I can selected complete and comprehensive
data close to the ground situation by accessing media reports, online forums and official govern-
ment website.

Qualitative methods will be implemented for the study and it will be done as multiple case study,
which will be useful as it enables a understanding of the case chosen. Doing the study as case study
will be useful as it enables an understanding of implementation and enforcement conditions of envi-
ronmental polices in specific region in China and capture the authoritarian environmentalism char-
acteristics at local level. The theory-testing study will be applied, where the different theories re-
garding Chinese environmental governance will be used in order to explore whether they can cover
the whole research. The purpose of a theory testing study can be to strengthen or reduce the support
for the theory, to increase or to diminish the extent of limitations of a theory or to decide if the one
or more theories can be the provide the best interpretation for the case studies (George and Bennett,
2005). What is more, the method of content analysis (Bryman, 2012) will also be used, content
analysis is an approach to analysis the documents and texts, and it attempts to quantify content in
terms of predetermined categories and in a systematic manner (Bryman, 2012). Thus when using
the method, as the aim of the analysis made of public participation in the policy process is to fur-
ther observe the authoritarian environmentalism characteristics in China.

Concerning the data used for the study it will be based on both primary and secondary
sources: Primary sources such as official government communication; laws; regulations;
secondary sources such as academic papers and empirical studies of the subject matter; me-
dia reports. Regarding to the criteria that I applied to select these sources, the data for the
research have been collected from trustworthy and authoritative electronic databases such as
Google Scholar, One Research, Research Gate, ScienceDirect, Chinese official government
sites and Chinese mainstream media websites.

In terms of the criteria I used to select the cases, I tend to choose the representative region or cities
which are suffering severe air pollute challenges. The Jing-Jin-Ji region is the most focused target
for air pollution control in China compare with other air polluted regions or cities in China, because of its special political position and geographical location. As the capital of China, Beijing’s haze problem attracts a lot of attention whether in national or international level, thus the Chinese central government expects to solve its serious haze problem urgently, as it is the political and economic heart of the country. Beijing, Tianjin and Hebei province are in the same region, cooperating with each other is needed for pollution control since the air pollution effects each other in the region. What is more, the economic situation, political and social background of the three cities is very different. Therefore, I would also want to make a comparison with the two regions between Beijing and Tianjin, Hebei to distinguish the different reactions and performance of regional governance when faced similar challenges with respect to environmental quality.

5. Background

5.1. Air pollution in China

Due to the industrial and economic development in recent decades in China, air pollution has emerged as a serious problem and is alarming the country. The expansion of the industrial sector, together with low regulation in the past regarding environmental regulation have led to factory’s being able to dump pollutants into the air and water (Jeffrey Hays 2015).

Over time, this development has made China one of the most polluted country’s in the world, with two Chinese cities, Tianying and Linfen in the top 10 list for worst polluted cities in the 2006. (Greecross 2013). With the country’s reliance on the energy-production from coal, which is estimated to be used between 60-70 % for its energy in 2017, the air pollution is considered the most critical environmental problem in China (Min Shao, Xiao.2006).

The air pollution is measured in microscopic airborne particles (PM2,5) which is small enough to go deep in the lungs of people and cause harm (Ernest Kao 2018). The cities in China have on average a concentration of PM2.5 of 48 micrograms per cubic meters, which can be compared to the world average of 19 mpg (Ernest Kao 2018).
The severe air pollution in China is causing a major health risk to its population and has been linked to increasing incidences of cancer, heart disease, stroke and respiratory illness (Greenpeace 2017). Due to the particles released it is believed to kill more people worldwide than AIDS, malaria, breast cancer or tuberculosis. For China it is estimated that roughly 17% of all the deaths in China are connected to air pollution (Greenpeace 2017).

Study published in the Proceedings of the National Academy of Sciences have reported that the life expectancy of people living in the northern parts of China is 5.5 years lower than people living in the southern parts due to the problem with polluted air from coal (Jeffrey Hays 2015) The northern region of China has the largest concentration in the world of power plants using coal.

To deal with the environmental problem China have started to take serious action to lower its pollution. Recently releasing its new action-plan to battle the environmental problem with stretches over 3 years, from 2018 to 2020. This action-plan aims to lower the major air pollution and greenhouse gases and lower the density of PM 2.5. In the cities with low air quality estimates to see a fall of PM2.5 density by at least 18% by the year 2020 (English.gov.cn 2018). In order to achieve it, the government have started to enforce strict regulations in companies, decrees fossil fuels vehicles in the city, implement better cleaning and filter technology for its powerplants (no ref) and made a big shift from reliance on the energy production from coal to more renewable energy (Greecross 2013).

5.2 The introduction of Jing-Jin-Ji region

As the capital city of China, it is widely known that Beijing has a significant and central role in many aspects of modern day China. Tianjin and the Hebei province is less to be known, which make up the region surrounding Beijing and are somewhat overshadowed by the capital. However, this is set to change, Tianjin and Hebei province are being included in a grand project which aim to create a world-class city cluster centred ed around Beijing. This project is known as the “Beijing-
Tianjin-Hebei Integration Plan”, as well as “Jing-Jin-Ji” and the “capital economy circle”. (Li Si 2017).

Because of the air is flowing, the air quality of the Jing-Jin-Ji region effects each other, the mutual cooperation is important for the air governance of the regions. (Sou Hu News 2017) In March, 2017, the State Environmental Protection Administration, together with other ministries and six provinces (municipalities) jointly issued the 2017-2018 Autumn and winter air pollution Comprehensive control action plan in Beijing, Tianjin, Hebei and the surrounding areas. The range of governance involves 26 cities which in the air pollution transmission channel of Beijing, Tianjin and Hebei Province (Sou Hu News 2017)

Primary and secondary industries are accounted for a relatively large proportion of GDP in TianJin and Hebei province. (Li Si 2017). The demanding of Coal, oil, and other high pollution energy is very high for primary and secondary industries. The largest source of pollution of “Jing-Jin-Ji” is from Hebei province, which is the most important industrial province in China. China is largest steel producer in the world currently, while Hebei province's steel production has been ranked top one in the country for 13 years (Sou Hu News 2017)

5.3 Data Analysis for the Levels of Air Quality in Jing-Jin-Ji region
Table 5.3.1 Proportion diagram of Beijing air quality levels

Beijing in 2015

- Hazardous: 25.77%
- Very unhealthy: 19.38%
- Unhealthy: 22.58%
- Unhealthy for sensitive groups: 12.89%
- Moderate: 9.69%
- Good: 9.69%

(Sources from Zhengqi website)
Table 5.3.2 Proportion diagram of Beijing air quality levels

Beijing in 2018

- Hazardous: 82.61%
- Very unhealthy: 4.31%
- Unhealthy for sensitive groups: 4.31%
- Unhealthy: 8.76%
- Moderate: 21%

(Sources from Zhengqi website)
Table 5.3.3 Proportion diagram of Tianjin air quality levels

(Tianjin in 2015)

- Hazardous: 25.77%
- Very unhealthy: 19.38%
- Unhealthy: 9.69%
- Unhealthy for sensitive groups: 6.49%
- MODERATE: 28.97%
- GOOD: 9.69%

(Sources from Zhengqi website)
Table 5.3.4 Proportion diagram of Tianjin air quality levels

Tianjin in 2018

- Hazardous: 75.85%
- Very unhealthy: 3.42%
- Unhealthy: 6.94%
- Unhealthy for sensitive groups: 13.78%
- Moderate: 23%

(Sources from Zhengqi website)
Table 5.3.5 Proportion diagram of Shi Jiazhuang (Hebei province) air quality levels

Shi Jiazhuang (Hebei province) in 2015

- Good: 29%
- Moderate: 19.40%
- Unhealthy: 12.90%
- Unhealthy for sensitive groups: 12.90%
- Very unhealthy: 16.10%
- Hazardous: 9.70%

Legend:
- Blue: Hazardous
- Orange: Very unhealthy
- Gray: Unhealthy
- Yellow: Unhealthy for sensitive groups
- Blue: Moderate
- Green: Good
Table 5.3.6 Proportion diagram of Shi Jiazhuang (Hebei province) air quality levels

(Sources from Zhengqi website)
5.4 Data Analysis

According to Proportion diagrams of air quality levels for each city, Beijing, Tianjin and Shi Jiazhuang (Hebei province), I compared the diagrams of each city in 2015 and 2018 respectively to observe air quality changes of the corresponding city. Each diagram presents the proportions of the number of days that correspond to the air quality in one year. While, I use the different colours to present the different air quality level, there has 6 levels of air quality from good to hazardous. As diagrams show, all of the 3 cities’ air quality has achieved an obvious improvement, there has none hazardous pollution days for the three cities in 2018, especially for Shijiazhuang (Hebei province), where the hazardous pollution days has decreases from 29% to 0. In addition, there has been an increase in the numbers of moderate pollution days among all the cities, the data of Beijing from 12.89% to 25.80%, Tianjin from 28.97% to 70.93% and Hebei, from 16.1% to 32.27% in the year of 2015 and year of 2018 respectively. On the other hand, Beijing's good air days have been increased from 12.89% to 25.8%, the numbers of Tianjin’s good weather day have not changed, but the numbers of Shijiazhuang's good weather day have deceased from 6.49% to 0. It can be seen that Shijiazhuang (Hebei province) is the city with the worst air polluted situation and Beijing has relatively a big air quality improvement from 2015 to 2018.

6. Findings

6.1 Decentralization and local officials

There is a clear division of power between central government and provincial departments in China. Foreign affairs, National Defense, population control and other areas are in the charge of the central government. Provincial governments are not responsible for them. (Zen Yongnian 2009). The local governments are responsible for the local public security, infrastructure construction and most economic affairs. Also, environmental policy implementation is assigned to local governments and their agencies. (Zen Yongnian 2009). The central government often consult from local governments when formulating policies. Therefore, the decentralization system had strengthened the capacity of local governments that made them being more capable to meet local socio-economic development needs. In principle, the central government still has power, but it has to work with local govern-
ments on a regular basis. Local governments can formulate and implement policies within their own jurisdictions. (Christopher Stamford 2015).

Since lower-level governments are closer to the people and environmental issues are considered more legitimate than the national government, decentralized environmental governance theory claims that decentralization can produce better environmental performance. On the other hand, the local governments enjoy a certain degree of autonomy, the interests they are gradually develop will inconsistent with the interests of centre. (Zen Yongnian 2009). In this situation, the centre has been maintained the dominated position by series centralization measures, rotations system is one of them. The assumption is that if local leaders hold office in areas where they have no ties or origin and are frequently rotated, are less likely to favour local interests and to deviate from the goals set by the centre. The core aim of the system is to monitor and to control local officials and to discourage them to engage in localism. And the turnover has increased in recent years. (Christopher Stamford 2015).

Furthermore, the degree of institutionalisation at the provincial and local levels fluctuate considerably, for instance different provincial and local environmental protection institutions has different systems on how to assess the environmental performance on their respective local cadres. In most of them, environmental performance only included a small percentage of the total performance evaluation. (Christopher Stamford 2015). Therefore I conclude that the rotation system which aim to restrain the local power and avoid localism also hinders incentives of local cadres to engage themselves into the environmental protection issues. (Christopher Stamford 2015).
6.2 The formulation of environmental policies at the central level:

Table 6.2.1: Architecture of China’s Environmental Policies Making System

<table>
<thead>
<tr>
<th>State Organs</th>
<th>Functions</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communist Party / Politburo</td>
<td>Political discourse</td>
<td>‘Sustainable Development’ ‘The Scientific Outlook on Development’ ‘Ecological Civilization’ ‘Beautiful China’</td>
</tr>
<tr>
<td>National People's Congress / NPC Standing Committee</td>
<td>Environmental laws</td>
<td>China's New Environmental Protection Law’ and other 20 environmental laws. International environmental conventions</td>
</tr>
<tr>
<td>State Department / Department committees</td>
<td>Environmental policy instruments</td>
<td>The environmental policies and regulations, enforcement regulations, etc. being issued by State department and department committees For example: The institution of environment impact assessment Energy conservation and emissions reduction projects Limited approval on regional new projects Create model cities for environmental protection Energy-saving and environmental protection targets.</td>
</tr>
</tbody>
</table>

( resources from Ran Ran 2017)
As the table shows above, the environmental policy formulation system consists of three parts: (1) The environmental political discourse at macro level which refers to the abstract ideas, discourse, goals, strategies of the environmental issues shaped by the Chinese Communist Party (2) The environmental law at mid-level which being formulated by the NPC and its Standing Committee (3) The policy tools at the micro-level, It refers to the implementation rules and regulations, environmental laws and polices that are formulated by the State Council etc (Ran Ran 2017).

Even though a decentralized system of environmental governance being established in China, the power to formulate environmental policy is still highly centralized within the central Party-state in Beijing, including the Party’s Politburo Standing Committee (PSC), National People’s Congress (NPC), State Council and its more than ten ministries. PSC produces abstract political ideas and discourse, and the NPC and State Council are responsible for translating them into specific environmental laws and policies. (Ran Ran 2017). Meanwhile, under the supervision of the NPC, the different ministries of the State Councils supposed to make the most of concrete environmental policies.

Paradoxically, while the Party’s top leadership dominates the discourse in an authoritarian manner, almost all of the environmental laws, regulations, policies and policy instruments are formulated by more than ten administrative ministries (agencies) in a highly disjointed and fragmented way. (Ran Ran 2017). According to the environmental polices, the traditional, development-oriented state departments, for example, the State Marine Administrative department, fishing and port supervision, military environmental protection departments and all levels of public security, transportation, railways, civil aviation management departments, are all carries out its function of supervision and control of environmental pollution, which might lead to functional conflicts within the bureaucracies.
6.3 Power relations at local level

Table 6.3.1 The Hierarchical Power Structure Of Local Actors

As the table 6.3.1 shows above, the party secretary is at the top and the EPB (Environmental Protection Bureau) is at the bottom of the hierarchical power structure (Ran Ran 2017). The environmental protection departments are subordinate to the executive branch of the government, and the environmental department funds are allocated by local policies. Hence, the local Environmental Protection Bureau’s power is being limited by local government. All of their acts for engaging into environmental issues should in accordance with local government’s intentions (Ran Ran 2017).
In practice, a lot of places in China adhered to "GDP first" doctrine since the various provincial governments are highly compete in economy development, they sacrificed the environment in exchange for temporary economic gain (Christopher Stamford 2015). High energy consumption and high pollution projects were being introduced that had damaged the local environment seriously. If the local EPB crack down on environmental damage behaviors, the personnel promotion of local officials must being influenced.

As the most powerful person in the local political system, the Party secretary is well protected from being blamed for local environmental issues (Ran Ran 2017). Under current environmental law, the Party secretary is assigned zero concrete legal responsibilities for environmental policy implementation, but the Party secretary’s vision, interests and preferences dominate which policy areas are prioritized under “selective implementation.” More crucially, the Party secretary controls local cadres’ performance evaluations, promotions and demotions, including that of the head of the local EPB, and other relevant agencies (Ran Ran 2013).

From the analysis of Hierarchical Power Structure above, the weak position of EPB in China being show. They are most likely to be blamed for an environmental issue due to they are assumed to have the highest responsibility for environmental policy implementation. However, The policy makers, local officials (like, the party secretary) and EPBs do not have the same opportunity to make or take blame when the environmental polices implementation fails. EPB only maintain limited authority and resources, and the existed interests conflicts between higher local officials and local EPBs makes the environmental policy implementation more difficult.

6.4 Case study 1: Beijing vs Coal ban

In the 2011, the poor air quality and the smog in winter have brought continuous public opinion pressure to Beijing, which has pushed the coal-to-gas/air program in there. For example, in the Jiancheng area of Beijing, all the coal are replaced by clean energy. In the meanwhile, Municipal environmental protection inspectors strengthen supervision, led to the multiple industries continue to limit or stop production (Zan Ting 2017). In order to encourage clean energy transformation, both of the Municipal Finance Bureau and the Municipal Environmental Protection Bureau raised the subsidy standard. The provision <Boiler renovation subsidy and fund management measures> in
2002 in Beijing points out that when the coal is below 20 tons, the subsidy is 55,000 RNB for per ton, and if the coal is up to 20 tons, the subsidy will be 100,000 RNB for per ton. Moreover, in 2014, on the base of this provision of 2002, the government has increased the intensity of the coal-to-gas program. Hence, the policies and measures have effectively promoted the ‘coal-to-gas’ programme in Beijing (Sou Hu News 2017).

In 2012, coal consumption in the sixth districts of Beijing accounted for about 50% of the city's total. As of 2016, the total number of “coal-to-electricity” users in Beijing has reached 384,500, the sixth districts of Beijing have basically achieved non-combustion coal boilers (Zan Ting 2017)

Furthermore, in 2017, the focus of coal-fired transformation shifted from urban to urban-rural integration, 663 villages were completed in actual transformation, covering 227,000 households, exceeding the task.

In the fact, it is equally difficult to fully implement coal to gas in Beijing. However, Beijing still became the first region in China to successfully convert coal into gas, and there was no large-scale, long-term gas shortage. The reason is attributed to the special political power and economic resources, which enabled Beijing to get a blessing of various policies, and finally implemented (Zen Yongnian 2009).

The calculation of the former deputy mayor of Beijing, Huang Wei in 2011 points out that if all the thermal power plants are changed to gas-fired power generation in the future, according to the current gas price, electricity price and heat price level, the power generation loss will exceed 15 billion, and the heat loss will reach 3.5 billion. But Beijing can afford the money (Zen Yongnian 2009).

In addition to subsidies, Beijing has also received protection in the supply of natural gas. The completion of the Shanxi-Beijing Natural Gas System in 1997 was an important enabling condition for Beijing to replace natural gas-fired power generation with natural gas. After that, the second and third lines of Shanxi-Beijing Natural Gas were successively connected, and the fourth line of Shaanxi and Beijing was also completed in November this year. In 2010, Zhang Guobao, the director of the National Energy Administration, said that the four lines of Shaanxi and Beijing add up enough to ensure the future needs of Beijing. It can be seen that the allocation of energy resources is inclined to Beijing (Sou Hu News 2017).
Although, the Beijing coal reforms seems to have a satisfied result. The publics look forward to achieve the goal of “no coalification” in the area of Beijing in 2020. Tao Guangyuan, the representative of the German Energy Agency and the director of the Sino-German Renewable Energy Cooperation Center, stated that Beijing's coal-to-electricity and coal-to-gas projects are also have challenges to go through (Zen Yongnian 2009). First, in terms of funds, the government's support policies have covered a wide range and it is a heavy financial burden for the government. Also, the large scale coal ban project in Beijing does not suitable to promote to other regions in China. In the case of coal to gas, how to meet the supply of gas also needs to be considered due to the shortage of natural gas itself.

6.5 Case study 2: Tianjin city and Hebei province vs coal ban

From the beginning of 2017, Beijing-Tianjin-Hebei are been settled as "coal ban zone”. The measures of coal to electricity, and coal to gas were start to implement. The aim of the measures is to complete the “falling to zero” of burning coal except use of the thermal coal, central heating and raw coal. The series of subsidy and price-support policies being issued in Tianjin and Hebei as well. For example, the subsidy for electricity use in heating period, the subsidy for equipment purchasing, etc.

However, many problems have been encountered in the process of upgrading coal to gas and upgrading coal to electricity. From the program of "Economic Half-hour” in CCTV's financial channel, it spent two episodes at 3.27 and 3.28 to discuss the problems in the promotion process of the project. The two main questions are been discussed below:

1. “Coal to electricity” is a good policy clearly, why do people do not appreciate it? How long time the current electricity subsidy policy of “coal to electricity” will be last ? Once the subsidy is stopped, will the people continue use it or not?

2. To what extent the “coal to gas” play an important role in improving environmental governance? Can “coal to gas” solve the problem of NOX emission well, which is beneficial to the reduction of PM2.5? If the cost of "coal to gas" is high or not, can the people afford it? (Sina News 2017).
Here I summaries the two main contents of the discussion in the program below.

1. **The scale of “coal to gas” project is larger than expected.** According to the plan, before the end of October 2017, the "2+26" city will complete more than 3 million households for “coal to electricity” and “coal to gas” project. At the end of November, People’s Daily Newspaper published an article stated that “the task is completed ahead of the schedule.” In fact, according to the Caixin News report, Lei Yu, the deputy director of department of atmospheric environmental planning, mentioned that “4 million households will be completed actually this year, far exceeding the state’s expectation and it also will exceed the gas supply capacity seriously”. (Sina News 2017). Why did the task been increased? From Lei Yu's analysis, first, the central government delegated the tasks to the provinces, the provinces delegated the tasks to the cities, and the cities to counties; Under pressure, the executive departments added of tasks at every lower level. Taking Hebei province as an example, the Hebei Provincial Development and Reform Commission previously claimed that “the city’s promotion of “coal to gas” is enthusiastic, the reported numbers of planned renovations from various cities is 1 million more than its planning. Second, all localities want to step up to promote the project while central government allocated the financial subsidies; Third, for the local officials, do more, higher achievement assessment. Do less, more criticised from upper superior. It seems that administrative orders and financial subsidies led to a large-scale coal-to-gas (electricity) war in a vert limited period of time (Sina News 2017).

2. **The large-scale “coal to gas” lead to gas shortage which was unexpected.** The planning mentioned that the "2+26" city should complete more than 3 million households for coal-to-gas (electricity) project, in which 1.8 million households from Hebei Province, accounted for 60% of the total amount.

According to the "guarantee supply plan" which is being issued by Development and Reform Commission of Hebei province. It estimated that Hebei's new "coal-to-gas" users will be measured as 2.2 million households, 6.5 billion cubic meters of natural gas will be needed during the peak winter season. Hebei Province had expectations for a large increase in gas consumption. Since April, in 2017. Hebei Province has begun to coordinate natural gas supply with “three barrels of oil”, and has basically implemented 6.5 billion cubic meters of gas during the heating season.
However, the plan still can't keep up with the changes. As mentioned above, the scale of “coal to gas” is larger than its expected and gas supply is seriously exceeded. Automatically, gas shortages and gas prices increase would happen. The price of liquefied natural gas (LNG) in North China has risen by 3,000-4,000 yuan/ton, the price has been doubled for the last three months. A lot of local people complained that they cannot afford increasing paying for the new heating.

According to the circular of the Hebei Provincial Environmental Protection Department at the end of October in 2017, Hebei Province has held 1563 people accountable for their bad performance on air pollution control, 697 of them are the leading officials above the department level. Subsequently, in November, the Tianjin Environmental Protection Agency reported that Tianjin has held 1414 people accountable for their bad performance on air pollution control, among them, there are 27 people at the bureau level and 636 at the department level. Therefore, for the environmental officials, “coal to gas” is a “political task”.

Although some Chinese environmentalists are taking the lead in promoting more use of natural gas and less use of coal, now they believe that what is the government doing may be a bit too aggressive. “There is no problem with them doing this, but the problem is whether it can be effective in a very short term.” said Ma Jun, the director of the Institute of Public and Environmental Affairs, a Beijing non-profit organization which working for monitoring pollution. "They are not ready, and there was not enough to discuss how to implement the policy.” (Sina News 2017).

On 9th of Decemberther, 2017, Ministry of Environmental Protection issued an urgent document of "Please do a good job in comprehensive management of bulk coal to ensure the warmth of the people for the winter", requesting Beijing-Tianjin-Hebei and the surrounding "2+26" cities to enter into the heating season. It is proposed that “the project or place which are not completed (coal to gas, coal to electricity project) will continue to use the past coal heating method or other alternatives.” Therefore, the project of coal-to-gas (electricity) being suspended urgently suspension which due to the expectations of previous gas heating are too optimistic (Yang yang 2017).
in January of 2018, the Hebei Development and Reform Commission issued the a documentary stated that: in addition to the rural coal-to-gas task which carried over in 2017, no new rural coal-to-gas task will be the added in 2018 in principle. Eventually, the project of coal-to-gas (electricity) being suspended urgently (Yang yang 2017).

6.6 CASE 3: TianJin and Hebei vs factory closings

According to the “Implementation Rules of Beijing-Tianjin-Hebei Air Pollution Prevention Action Plan”, it state that accelerating pollution control in key industries. The electricity, steel, cement, nonferrous metals enterprises must speed up the pollution control, complete construction and renovation work for facilities reasonably, which ensure that standards emissions would met the schedule by the end of 2017. Strict pollution governance of the “scattering and polluted” enterprises is one of the key contents of the intensive supervision, and all enterprises which cannot be upgraded and upgraded to meet the standards to emission will be closed (So Hu News 2018).

At the end of June in 2017, there have identified 176,000 “scattered and polluted” enterprises from 28 cities in Beijing, Tianjin and Hebei and surrounding areas. The Chinese environmental protection agency take “scattered and polluted” enterprises as example, it is necessary to fulfil “two cut offs and three clears” to the enterprises that need to be shut down. “Two cut offs and three clears” means, water cut-off, power cut-off and clear raw materials, clear the equipment, and clear the sites. Enterprises that are unable to upgrade and renovate their standards will be shut down by the end of September in 2017. and they will being cut off electricity, water and clear the site (So Hu News 2017).

Most large and medium-sized state-owned chemical plants, thermal power plants, and steel mills that are seriously polluted are not being affected by the environmental protection storm. On the contrary, private textiles, dyeing factories and so on have become the focus of supervision and closure. The iron and steel, non-ferrous and chemical industries have stopped production or a limited period of production (So Hu News 2017).
From Xinhua News, it reported that, due to the coverage of the environment protection supervision was too large in Jing-Jin-Ji region, the saying of environment protection supervision has affected the local economy” has sparked widespread concern. In response, Tian Weiyong, the director of the Environmental Supervision Bureau of the Ministry of Ecology and Environment stated that, exerting high-pressure on environmental- illegal enterprises will not effect the normal development of the social economy. But the ‘scattered and pollute’ enterprises should not be there. In February of 2018, the the Ministry of Environmental Protection stressed that “at the moment, the inspection time is only 2 months left, the environmental violation enterprises will have no retreat without finishing rectification and the local government will hold accountable for not imposing penalties on the environmental violation enterprises in time or failed to the correction work (Tengxun News 2017).

Let’s see the exact enforcement situation at the local level next. I summaries 3 features of the trend of factory Closings in Jing-Jin-Ji region since 2017.

1. The first feature is the “nature of policy”, the so-called “nature of policy” means, it does not distinguish the scopes of land use, the different operating industries, even does not distinguish whether the enterprises have the harmful impact on the regional environment of the land or the area in which they are located. If it is, so to what extent? This questions are being ignored by the local enforcement officers. Many local environmental departments are worried about being held accountable. In order to pursue political achievements, their enforcement methods are too strict and demanding, not detailed enough. In practice, I have found a lot cases of “one size fits all” for factory closings. For example, many poultry enterprises, which raising chickens, pigs, ducks, peacocks, gooses etc. were also included into the list of factory closings in TianJin. Combine with the above-mentioned factors, it has led to a lot amount of SMEs might struggling to survive or sustain the business operation.

2. The second feature is “the nature of movement”, the so-called “movement” represent that the factory closings is very urgent and the degree of shut down is very intense. The enforcement officials are all under the high pressure of tight schedule and heavy tasks. The higher-up superiors only specify the due time for the lower level official, all of the tasks are time-specific. For example, the relevant departments being required by the higher-level government that which day should completed the 60% of the tasks, and the last time should completed the 100% of the tasks. In reality, we can also see it from various news. As a news from Tianjin reported that, 300 farms must be shut down before August 25 (Zhihu 2018).

3. The third feature is the “rigorous enforcement”. Since the local enforcement officials are under the pressure of “time-critical tasks” while implement the factory closings, the means of implementation normally is rigorous. Under normal circumstances, if the enterprises were not shutdown on
the expired day, the relevant departments will disconnected the water and electricity or will be force to shut down. A private business owners said that in an internet forum: “We are afraid of when the sun rises every morning, police cars outside the factory, law enforcement vehicles, even plainclothesman and even drones.” As a news for example, many factories in Tianjin have been closed by the local government due to the industrial lands can not be used. Several entrepreneurs appealed to the higher authorities for help jointly, they asked several questions and the local relevant department gave the responses (So Hu News 2018). The dialogues shows as below:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 We also support the environmental protection. The local government wants us to move away in a very short time. Will the government guide us to move out, whether it has planned places or not?</td>
<td>We can consider the time problem and it is indeed having the actual situation. What we can do for guiding the factories to move away is maintain order and keep the peace. The government have no ideas and opinions about where you going to move, because everywhere is under the environmental inspection. You can find good industrial lands by yourself.</td>
</tr>
<tr>
<td>2 The industrial Parks in Tianjin is obviously not enough now, most staffs and workers do not know where to go and what to do now?</td>
<td>We don't consider your resettlement problem, we cannot help with it. We are just implementing the policies from central government.</td>
</tr>
<tr>
<td>3 We have been live here for so many years with family. Now we are being told that must move away in a very short time, my kids will start their new semester soon, we do not know how to deal with it now.</td>
<td>Find the solutions by yourself! We are talking about implementation issue, not people's livelihoods!</td>
</tr>
<tr>
<td>4 We start our business in the city this year, and it only has been started for two months. We invested few millions for our factory. What should we do with the transformation? The savings of our life are all in the factory!</td>
<td>Any investments have risk, should be cautious like in the stock market. Now the central government take the enforcement of environmental polices very seriously. We feel sorry for you. But you are doing business and you must bear the risk of losing money!</td>
</tr>
</tbody>
</table>
In the past years, due to following the central government’s command “give the blue sky back to Beijing”, hundreds of industrial factories have moved away from Beijing to other surrounding areas, which included the state-owned industrial enterprises. Thus Hebei province has being the destination that most Beijing polluted factories move to. Since the central government started to get serious about environmental issues again after Beijing Olympic games in 2008, Hebei is under the huge pressure from Beijing (So Hu News 2018).

Compare with Beijing, the capital of China which has the best economy, education and medical resources in China, Hebei province has the most amount of industries in the country, but its per capital GDP is still quite low. In 2017, the per capital GDP of Beijing is 18787.4 US Dollars and the per capital GDP of Hebei is 6612 US Dollars. Economic development and environmental protection are often very contradictory, especially for the un-developed places, like Hebei province. Economy or environment? This is a headache problem for Hebei provincial government every day. Huge funds is demanding for the promotion of environmental policies, no matter for the upgrading and adjustment of industrial structure or the placement and use of energy-saving emission reduction equipments and so on. As for the normal farmers in Hebei who need to support the whole family financially, their livelihood issues might be more crucial than the disappointed pm 2.5 data. For a long time, the environmental management system of Hebei Province has been relatively backward, and it still stays in the situation of “the government is fighting alone and the enterprises is barely maintained.” Compare with other provinces with better economy, Hebei provincial government appears to be “small and weak” in the process of environmental governance. Under the government’s coercive measures, the companies chose to temporarily stop the production, reduce the pollution. On the other hand, it means many local people lost their jobs. The tug-of-war between the government and enterprises has led to slow progress in environmental governance and public complaints everywhere.

| 5 | Can your future clarify the exact time to move out? |
|-----------------------------------------------|
| The implementation rules from the Central government stated the “two cut-offs and three clears” policies. We enforce the policy is quite humanly, there are around 1,000 small and micro enterprises in this area, we implementing the policy for only 100 of them. They are really too polluted and some factories are difficult to move away in a short time. On August 20, we will implement “two cut-offs”, we will implement “three clears” on September 10. This is the maximum available time. |

Table 6.6.1 Resource from Sina news
The latest news is, in September of 2018, the Hebei Provincial Atmospheric Office issued “Guidelines for strictly prohibiting “one size fits all” policy in the environmental protection in Hebei Province”, in which clarified that it is forbidden to “one size fits all” enforcement behaviours in 10 areas, such as peak production, heavy pollution, construction, people's livelihood, and clean heating. Among them, high-pollution emission industries such as steel, coking, foundry, building materials, carbon, chemical raw materials (pesticide), non-ferrous metals, chemical manufacturing, etc. The companies who comply with the current industrial policy, and pollutants can achieve stable emission standards and can obtain sewage emission permits according to law, should adopt differentiated peak production in autumn and winter, according to the evaluation of emission performance. For the “leaders” enterprises who have advanced technology, can achieve ultra-low emission, they are not included in the peak production list; The other enterprises that are not involve in smoke dust, sulfur dioxide, nitrogen oxides, carbon monoxide and other pollutants (or process, production line), not included in the peak production list, it is strictly forbidden to "one size fits all" to stop the production (So Hu News 2018).

7. Analysis

The concept of authoritarian environmentalism have emphasised either non-existent or 'downstream and low-level' public participation. Based on the evidences from 3 case studies, I am going to analysis the public participation by the participation matrix to observe the levels of public participation at different stages of policy process, to further examine the concept of authoritarian environmentalism in regarding to the public participation. In word of Gilley, Participation involves two dimensions.

One is the stage of public participation in the policy process, from the upstream stage (problem identification, research and knowledge formation, measurement and assessment, policy options identification and assessment) to the midstream stage (police selection and formulation) to the downstream stage (policy implementation, reporting, leadership, monitoring, assessment, and revision). The second dimension is the level of participation, from low levels (being targets of state propaganda, and attending informational meetings, reporting policy violations), to medium levels (policy activism and protest, informal consultations), to high levels (legislative sovereignty, legally-binding deliberative forums, outright citizen autonomy). Participants may include individual citizens, civil society, the media, issue experts, business leaders and corporations, elected representatives, and social spaces such as internet sites and schools (Gilley 2012).

Here are the Participation matrix respectively below for each case that I concluded according to the two participation dimensions, in order to analysis the public participation at different policy process for the cases to answer the second research question.
Table 7.1: Participation matrix: Beijing vs coal ban

<table>
<thead>
<tr>
<th>Level of participation</th>
<th>Stage of policy process</th>
<th>upstream</th>
<th>midstream</th>
<th>downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td></td>
<td>Vertical (Beijing Environmental Protection Bureaus attended informational meetings for the discussion of environmental governance plan)</td>
<td>Horizontal (Beijing citizens involved in the coal ban project, the relevant coal ban news reported by media)</td>
<td>Vertical (Beijing Environmental Protection Bureau and other relevant public departments are responsible for the implementation and monitoring and reporting of the project)</td>
</tr>
<tr>
<td>medium</td>
<td></td>
<td>Horizontal (central government acted upon pressure from citizens)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high</td>
<td></td>
<td>Vertical (Beijing Environmental Protection Bureau participate in forming and issuing the relevant policies such as: implementation plan, subsidy policy, etc)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7.2: Participation matrix: TianJin and Hebei vs coal ban

<table>
<thead>
<tr>
<th>Level of participation</th>
<th>upstream</th>
<th>midstream</th>
<th>downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>low</strong></td>
<td>Horizontal and Vertical (TianJin and Hebei Environmental Protection Bureaus, selected elected representatives attending informational meetings for the discussion of environmental governance.)</td>
<td>Vertical (the Environmental Protection Bureaus and other relevant public departments at local levels are responsible for the implementation and monitoring and reporting of the project)</td>
<td></td>
</tr>
<tr>
<td><strong>medium</strong></td>
<td></td>
<td></td>
<td>Horizontal (local governments stopped the project that acted upon pressure from citizens and media)</td>
</tr>
<tr>
<td><strong>high</strong></td>
<td>Vertical (TianJin and Hebei Environmental Protection Bureaus participated in forming and issuing the relevant policies such as: implementation plan, etc)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7.3: Participation matrix: TianJin and Hebei vs factory closings

<table>
<thead>
<tr>
<th>Stage of policy process</th>
<th>upstream</th>
<th>midstream</th>
<th>downstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td>Horizontal and Vertical (TianJin and Hebei Environmental Protection Bureaus, selected elected representatives attended informational meetings for the discussion of environmental governance.)</td>
<td>Vertical (the Environmental Protection Bureaus and other relevant public departments at local levels are responsible for the implementation and monitoring and reporting of the project)</td>
<td></td>
</tr>
<tr>
<td>medium</td>
<td>Horizontal (the business leaders and corporations had dialogues with local government)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>Vertical (TianJin and Hebei Environmental Protection Bureaus participate in forming and issued the relevant policies)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.5. Concluding analysis

1. What environmental policies are implemented regarding to air pollution control in Beijing–Tianjin–Hebei (Jing-Jin-Ji) region? How is the enforcement and implementation of policies at the local level and does it differs between different cities?
In the case studies, I used the case of ‘coal ban’ and case of ‘factory closings’ respectively, to show the enforcement and implementation situation of the two policies in Jing-Jin-Ji region. Judging from the data of Pm2.5 and Pm10, it appears the obvious improvement of air quality since the new environmental policies has been initiated in 2015. But behind the data it seems like the environmental policies are being implemented strictly and environmental governance in China has the features of fast campaign. The old model of environmental governance seems to has changed, instead of the environment protection was being neglected in the process of the economic development for decades, the local governments seem more incline to environmental protection now as the case study shows. Local governments and environmental protection agencies are often being considered as the most responsible stockholders, therefore, the local governments are facing the huge pressure towards the enforcement of policy and they put the pressure on all stakeholders in environmental governance system, from high to low, from strong to weak. Because of the different economic and political background in different areas as well as the different levels of environmental awareness in Jing-Jin-Ji region, we can see that there also have different responses on environmental governance. Beijing has the strongest financial, technical resources and political power compare with Tianjin and Hebei, also the citizens in Beijing have higher levels of environmental awareness, which leads to environmental governance in Beijing more successful. On contrary, in Hebei province, the poor economic conditions and weak environmental awareness that makes the environmental governance progress more difficult. Besides, the secondary sector industry is the pillar industry of Hebei province, large-scale factory shutdowns can have a serious impact on the local economy. As a province with low GDP, the local people's livelihood cannot being neglected. At present, more economic support are needed for environmental governance in Hebei Province and have a more long way to go.

2. To what extent is the policy process of environmental policies conforms environmental authoritarianism?

Based to the evidences of findings above, I will exam each characteristic of the concept authoritarian environmentalism one by one and get a conclusion.
1. The limits on individual freedoms, particularly those behaviors that may have negative impact on the environment;

In the case studies, it can be seen that the executive power from local government is strong whether in the case of Coal ban or factoring closings. Regarding to citizens who have involved in the cases, their individual appeals and interests are often being neglected. Even though the citizens' interests being infringed sometimes in the cases, the in time follow-up measures for cushioning effect did not show in the case study. Therefore, the observation results support the characteristic above.

2. The scope and depth of public participation is limited to a narrow cadre of scientific and technocratic elites and others are expected to participate in state-led mobilization for the purposes of implementation.

This characteristic is related to public participation which is one debate in the field of authoritarian environmentalism study. As the participation matrixes table demonstrate, the public participation can be divided into vertical participation and horizontal participation at different stages, such as upstream, midstream and downstream respectively, and the participation level can be divided as low, medium and high. In the participation matrixes table of the cases shows, the vertical participation is high at the midstream of policy process for the each cases due to the local public sectors participated in forming and issuing the relevant policies and regulations.

In the table 1, the coal ban policy is initiated with a medium level of participation of citizens since the central government got large pressure from citizens and hence be characterised non-authoritarian at the medium level. In the table 2,3 the horizontal participation is medium at the downstream of the policy process because the complaint and critique from citizens and social medias lead to the project of coal ban being suspend to a large extent. Besides, the business leaders lodge a protest against the local officials and they had informal consultations.

Therefore, A policy may appear highly authoritarian on the upstream stage but the level of vertical or horizontal participation may be high on the downstream stage of implementation and enforcement. Likewise, the level of authoritarianism may differ regionally as well as with respect to the specific environmental policy under consideration. As a conclusion, the observation results does not
fully support the characteristic above. Because the public participants are not totally limited to a narrow cadre of scientific and technocratic elites, in the empratical cases, the significant nuance of public participation are existed in the police process in different regions and cases, instead, the public participation are not being totally excluded from policy process.

3. The implementation of centralisation being emphasised more, the role of local, corporations and social society being restricted in the environmental governance.

China has been widely considered as one of most decentralized nations in the world, even though it also maintains an authoritarian power structure. Therefore the concept of ‘fragmented authoritarianism’ is being used to describe the Chinese regime in academic regime. The decentralisation system in China strength the power of local governments to a large extent, while the central government still has power, but it has to negotiate and cooperate with local governments on a regular basis.

In practice, we see that the local governments, especially the provincial governments have a certain degree of autonomy in environmental governance. Local governments can issue local policies, regulations and measures for environmental governance within their own jurisdictions. There are few ways for central government to use in order to maintain a dominant position among the provinces, such as an official rotation system which is used to avoid the long term tenure for the local officials that lead to the expansion of localism. Besides, throughout the requirements for assessment indicators for specific local environmental governance projects, and the use of performance appraisal system for local cadres, the central government can ensure output of environmental governance. Therefore, we see the blindly chase high indicators by local cadres and their way of stringent enforcement in the cases. Because of China's authoritarian system, corporations and social society still being restricted in the environmental governance. So as a conclusion, the observation results partly support the characteristic above.

4. Instead of the measures of economic and market incentive mechanism, the government regulations being used more in the environmental governance.
In the case study, we also see the top to down pressure in the entire environmental governance system. In order to reach the specific indicators that the central government required for the local governments, the policies, regulations seem to have been enforced seriously by local government due to the huge pressure from their higher level. But most of the stakeholders in the government system who participated in environmental governance are initiated from political pressure, besides for the normal citizens in the case, a lot of them even have more grievance towards the environmental projects due to they lost their jobs or they have to pay more money for their heating facilities. As the factory closing cases for example, if with the aim to help the enterprises to take better participate in market competition in the future, the small and medium-sized enterprises can get proper financial subsidies from local government, the guidance and help from the environmental protection technical personnels, as well as the environmental protection knowledge education. Perhaps environmental governance will do better. However, due to the lack of financial allocations and the lacking of corresponding human resources, it will not easy to be achieved in China in a short period of time. Therefore, my observation supported this feature above since the measures of economic and market incentive mechanism are still very lacking.

8. Conclusion

Throughout the findings above, I conclude that China conforms environmental authoritarianism characteristics to some extant. But the concept of authoritarian is too simplified and it is far from the complexity and controversy of the empirical cases. According to the data from Proportion diagrams of air quality levels, The improved air quality shows the good ‘outcomes’ which argued Gilley’s finding that the authoritarian environmentalism is more effective in producing policy outputs than outcomes. On the another hand, according to the participation matrix analysis, I see the high and medium participation level in the policy process that is not correspond to pure environmental authoritarianism, in which the public participation excludes both any level of the public sector below the central government (lack of vertical participation) and any non-state actor (lack of horizontal participation). Another finding is that, the large scale of middle and small enterprises closings will lead to the more resources and fundings flow to the stated owned companies which would help the centralization of the state power, this findings might support Beeson’s theory that the environmental degradation will strength the authoritarian rule.
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