

Analysis on the Reasons and Countermeasures of the Problems Existing in the Prevention and Control of Hazy Weather in the Beijing-Tianjin-Hebei Region

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Abstract—In recent years, the Beijing Tianjin Hebei region's economy has been rapid development, but also brought the frequent fog and haze. Has caused more and more serious influence to people haze in Beijing Tianjin Hebei region's daily production and life, all levels of government departments issued a series of policies and measures to control haze, but the effect is not very ideal. This article through the literature analysis method and comparative research, summed up the causes of haze prevention in Beijing Tianjin Hebei region problems of policies and regulations system is not perfect, the extensive mode of economic development, performance evaluation system of GDP oriented, lack of haze joint prevention and control mechanism, give full play to the citizens no haze prevention role; and according to the above reasons are the perfection of the legal system of governance haze, the development of low carbon economy, performance evaluation system reform of GDP first, establishing haze joint prevention and control mechanism, give full play to the role of citizen haze prevention countermeasures such as Beijing and Tianjin haze prevention. In order to provide some help for the prevention and control of haze in Beijing Tianjin Hebei region smoothly.

Keywords-component; haze in Beijing Tianjin Hebei region; prevention; causes and Countermeasures

I. INTRODUCTION

With the frequent fog and haze in the Beijing-Tianjin-Hebei region, people pay more and more attention to the reasons for the problems existing in its prevention and control and the solutions for it and many experts and scholars have made some exploratory research in this. For example, Zhang Liya and Peng Wenying^[1] think that simple and extensive mode of economic development is one reason for the problems existing in the haze prevention and control of the Beijing-Tianjin-Hebei region; Li Zheng^[2] thinks that lack of regionally joint prevention and control mechanism is one of the main reasons for the problems existing in Beijing's haze prevention and control; Wang Yanjie^[3] thinks that an important measure for the haze prevention and control of the Beijing-Tianjin-Hebei region is to develop a low-carbon economy; Zhao Xinfeng and Yuan Zongwei^[4] believe that the important measures for the haze prevention and control of the Beijing-Tianjin-Hebei region are to establish a regional intergovernmental policy coordination mechanism and so on. At present, experts and scholars are focusing on several aspects when studying the reasons and solutions for the problems existing in the haze prevention and control of the Beijing-Tianjin-Hebei region and they have not made systematic research.

II. THE FOG AND HAZE STATUS OF THE BEIJING-TIANJIN-HEBEI REGION

TABLE 1 2014 AIR QUALITY OF MAJOR CITIES OF THE BEIJING-TIANJIN-HEBEI REGION.

	Beijing	Tianjin	Shijiazhuang
The first quarter of 2014	142.315789	258.7435897	147.8205
The second	117.835164	135.2747253	106.2308

quarter of 2014			
The third quarter of 2014	122.1086957	111.5652174	94.72826
The fourth quarter of 2014	123.181818	170.5888889	136.9

The Beijing-Tianjin-Hebei region includes Beijing City, Tianjin City and Hebei Province. The hazy weather in the Beijing-Tianjin-Hebei region was quite serious in 2013 and 2014 and many cities repeatedly warned a moderately smoggy weather. The air quality of its major cities in 2014 is as shown in Table 1 (note: poor air quality is mainly due to the impact of fog and haze): in the first quarter of 2014, the average air quality index of Tianjin reached 258, which is historically the most serious, and the average air quality index of Beijing and Shijiazhuang City also exceeded 140 in the first quarter of 2014, which has seriously affected the local people's daily life and health.

III. ANALYSIS ON THE REASONS FOR THE PROBLEMS EXISTING IN THE HAZE PREVENTION AND CONTROL OF THE BEIJING-TIANJIN-HEBEI REGION

The main reasons for the problems existing in the haze prevention and control of the Beijing-Tianjin-Hebei region include:

A. Unsound policies and regulations

At the legislative level, China promulgated the "Environmental Protection Law" in 1989, but there were no major modifications and additions to its main content over the past twenty years and it has been difficult for it to meet the needs of social and economic development. Many problems still exist in the "Law on the Prevention and Control of Atmospheric Pollution", which was released in

2015, in the responsibilities and penalties of stakeholders and other aspects of haze prevention and control. Additionally, different local governments in the Beijing-Tianjin-Hebei region have different local laws, between which great differences exist, but haze pollution has large range, great mobility and other characteristics, so it is likely that governments at all levels of the Beijing-Tianjin-Hebei region have difficulties in taking unified action to prevent and control haze.

B. Extensive mode of economic development

The Beijing-Tianjin-Hebei region has been vigorously developing economy since the reform and opening up, but it is mostly iron and steel, cement and other extensive mode of economic development based. Although economic output has grown much, under the extensive mode of economic development, the damage to the environment will be greater if the economy is more developed. Although the Beijing-Tianjin-Hebei region is one of the regions with the highest level of economic development in China, most areas take extensive heavy industry as main industry to develop except that some areas of Beijing and Tianjin focus on high-tech industry.

C. GDP-oriented performance evaluation mechanism

Since the reform and opening up, the GDP-oriented philosophy has become the main idea that has been thoroughly implemented by central and local governments, thus promoting the nationwide establishment of GDP-oriented performance evaluation mechanism in China. The establishment of the mechanism has seriously influenced haze prevention and control and it is also one of the important reasons for the hazy weather in the Beijing-Tianjin-Hebei region. Local governments bear the responsibility to promote local economic development and the main content of the GDP-oriented performance evaluation mechanism is the close relation between the performance of local government leaders and local GDP growth, which has resulted in that many local government leaders in the Beijing-Tianjin-Hebei region seek for their achievements at the expense of environment.

D. Lack of a regionally joint haze prevention and control mechanism

Currently, the hazy weather of China mainly occurs in several regions and the it is the worst in the Beijing-Tianjin-Hebei region. It is hard to achieve the goal of comprehensive haze prevention and control without local intergovernmental cooperation. Let's take the Beijing-Tianjin-Hebei region as an example. Beijing area has well controlled local air pollution emissions. However, the air is flowing over the entire region and Hebei's air pollutants will quickly flow into the Beijing area, so it is necessary to establish a local intergovernmental cooperation mechanism within a certain region to prevent and control haze, but now cooperation between local governments of the Beijing-Tianjin-Hebei region has not yet been established.

E. Having not given full play to the role of the public in haze prevention and control

Haze problem is more a social problem than a government's problem. From the perspective of social production, the haze pollution and human life are closely linked. However, from the public's perspective, they are also one of the haze producers. If most of the public of the Beijing-Tianjin-Hebei region have not been involved in haze prevention and control, haze prevention and control will become more and more difficult. In addition, from the perspective of building a harmonious society, if we blindly seek the subject of haze pollution, not only the real problem cannot be solved, but also the influence of haze on social life in the Beijing-Tianjin-Hebei region will be increased to some extent.

IV. COUNTERMEASURES AGAINST THE PROBLEMS EXISTING IN THE HAZE PREVENTION AND CONTROL OF THE BEIJING-TIANJIN-HEBEI REGION

The Beijing-Tianjin-Hebei region can take effective countermeasures for haze prevention and control based on the causes, specifically:

A. Improving the relevant legal system of haze prevention and control

The Beijing-Tianjin-Hebei region should improve its relevant legal system for haze prevention and control. At present, China should properly modify the two basic laws on haze control, i.e. The "Environmental Protection Law of the People's Republic of China" and the "Law on the Prevention and Control of Atmospheric Pollution". The local governments of the Beijing-Tianjin-Hebei region should formulate cooperative and unified local laws and regulations so that there will be a legal basis for cooperation between the three governments and intergovernmental cooperation can be institutionalized, which will be helpful for unifying haze prevention and control actions.

B. Transforming economic development mode and developing low-carbon economy

Low-carbon economy refers to an economic development mode which tries to minimize coal, oil and other high-carbon energy consumption to achieve economic and social development as well as environmental protection by technological innovation, system innovation, industrial restructuring, new energy development and other means under the guidance of the sustainable development concept. The Beijing-Tianjin-Hebei region can only transform the economic development mode and vigorously develop low-carbon economy in order to achieve the desired results during haze prevention and control. Compared with other regions, the Beijing-Tianjin-Hebei region can rely on its advantage of location, meet the needs of market development, adjust the development pattern of the economic market, properly eliminate some low-efficiency

industries, force high-consumption and high-pollution enterprises to move or adjust industrial structure, etc.

C. *Reforming the GDP-oriented performance evaluation mechanism*

The Beijing-Tianjin-Hebei region should reform the performance evaluation mechanism that closely links local government leaders' performance with local GDP. It can introduce a green GDP evaluation system at a proper time, let local government leaders pay attention to the ecological environment protection of the region and make them aware that the blind pursuit of economic development no longer meets the development trend of the market economy and only actively innovating and deepening reform and adhering to the road of sustainable development can promote the comprehensive development of regional economy. Green GDP means a new concept of development and it requires local governments to understand the continuity, consistency, etc of regional economic development besides the economic benefits of the region in the process of regional haze prevention and control.

D. *Establishing a regionally joint haze prevention and control mechanism*

Transboundary pollution refers to that the pollution of a region is affected by nearby cities, so external regions should bear some responsibilities for pollution treatment. With the gradually deepened industrialization development, transboundary pollution becomes more and more obvious. The Beijing-Tianjin-Hebei region has unique advantages in the process of economic development, but it is unable to carry out effective supervision of transboundary pollution due to the impact of fiscal decentralization system. Now, in order to alleviate the haze pollution, the Beijing-Tianjin-Hebei region needs to start from the external world and establish a sound behavior supervision system. During supervision, in addition to coordination between governments at all levels, we also need to grasp the links between governments at all levels and improve the governmental coordination mechanism.

E. *Giving full play to the role of the public in haze prevention and control*

In the haze prevention and control theory, the diversification of governing subjects is an important content of it, but the public is the most important governing subject and plays an irreplaceable role. Haze prevention and control is not only a government's problem because public participation is essential. The public is the beneficiary as well as a subject of haze prevention and control. Giving full play to the role of the public in haze prevention and control in the Beijing-Tianjin-Hebei region is mainly shown in the following aspects: always adhering to the development

principles of "healthy development, strengthened management and active guidance", encouraging the public to actively participate in joint prevention and control of air pollution, innovating channels for public participation in haze control and establishing a platform for public participation; establishing a sound information disclosure mechanism and giving full play to the role of public opinion; increasing the efforts in publicizing environmental protection, enhancing the public's sense of responsibility and encouraging the public to actively participate in environmental protection activities. As for haze prevention and control, the governments at all levels of the Beijing-Tianjin-Hebei region can communicate with the public in time and listen to their voice by setting up a networking platform. They may establish a prize mechanism for reporting. Anybody, if finding behaviors of atmospheric pollution, can get prizes and governmental protection, etc. if the behaviors are verified true.

V. CONCLUSIONS

The causes of the problems existing in the haze prevention and control of the Beijing-Tianjin-Hebei region are complex. How to find its causes and take targeted measures to scientifically solve haze pollution? The article systematically analyzes the causes of the problems existing in the haze prevention and control of the Beijing-Tianjin-Hebei region and it gives targeted solutions. It is hoped that it can provide some references for the haze prevention and control of the Beijing-Tianjin-Hebei region.

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