



Analysis of the Causes of Air Pollution and Pollution Control Methods

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How to cite this paper: Hongtao Li. (2024) Analysis of the Causes of Air Pollution and Pollution Control Methods. *Climate Change and Meteorology*, 1(1), 12-15.
DOI: 10.26855/ccm.2024.12.003

Received: October 11, 2024

Accepted: November 1, 2024

Published: November 23, 2024

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Abstract

In the new development period, the CPC Central Committee attaches great importance to the construction of ecological civilization, constantly emphasizes strengthening air pollution control and improving the quality of air environment. Air safety is related to the health of thousands of households and the sustainable development of the country. It is of great significance to strengthen air pollution control. This paper combined with the actual, the cause of air pollution and pollution control methods for reference.

Keywords

Air pollution; causes; control measures

The 18th CPC National Congress report first proposed the concept of a beautiful China. The endogenous driving force for achieving the goal of a beautiful China in the new era is to transform the economic development model and adjust the economic structure, change the current situation of environmental pollution through innovation and development of science and technology, improve the ecological environment, and ensure the health of the people and the sustainable development of the social economy [1]. Green mountains and clear waters are as valuable as gold and silver. A good ecological environment is the foundation for the sustainable development of human society and human civilization, and the atmospheric environment is an important part of the ecological environment. In recent years, due to various reasons, the problem of atmospheric pollution has become more serious, and the quality of the atmospheric environment has continued to decline. The following is a detailed analysis of the causes of atmospheric pollution.

1. Causes of air pollution

- (1) Industrial activities lead to air pollution. Although China has stepped up efforts to control industrial waste gas emissions in recent years and has achieved certain results, problems such as large industrial waste gas emissions, complex sources of industrial waste gas, and secret emissions of industrial waste gas that do not meet emission standards still exist. According to surveys and analyses, industrial waste gas is a major source of air pollution. After the reform and opening up, China vigorously developed industry. Local governments focused on developing industry and the economy, ignoring environmental protection issues. After the development of industry, industrial waste gas emissions increased significantly, and the degree of air pollution continued to deepen. Industrial waste gas contains a variety of toxic and harmful substances, such as halides, carbon dioxide, sulfur dioxide, etc. These substances enter the atmospheric system and cause great damage to the atmospheric system [2].
- (2) Automobile exhaust leads to aggravated air pollution. Automobiles are an indispensable means of transportation in modern society. Automobiles speed up people's travel and make people's lives more convenient, but they also

pollute the atmosphere. Especially in today's highly developed economy, the number of private cars is increasing rapidly, and there are more and more cars on the road. Automobile exhaust emissions are also increasing, and the problem of air pollution is becoming more serious. Automobile exhaust contains carbon monoxide, nitrogen oxides, certain heavy metal compounds, black rock, formaldehyde, sulfur dioxide and other pollutants. These pollutants enter the atmosphere in large quantities, resulting in the accumulation of more and more toxic and harmful substances in the atmosphere, the decline of the self-purification capacity of the atmospheric system, and the decline of atmospheric environmental quality.

- (3) Factories and households burn sulfur-containing fuels, which causes air pollution. Winter coal heating exacerbates air pollution. Currently, many regions still rely on coal, a traditional fuel, for winter heating. During the combustion of coal, a large number of harmful substances such as carbon monoxide, sulfur dioxide and dust are released. These substances are the culprits for the decline in air quality.
- (4) Some unscientific and unhealthy lifestyles and production methods also directly or indirectly lead to increased air pollution, such as the burning of crop straw in agricultural production and the direct burning of waste plastics and household garbage in daily life [3].

2. Methods of air pollution control

2.1 Strengthen air pollution monitoring

2.1.1 Traditional air pollution monitoring methods

In recent years, the situation of atmospheric environmental safety in China is not optimistic. Atmospheric environmental pollution accidents occur from time to time. These pollution accidents have affected the natural ecology and the safety of the masses. Research and practice have proved that atmospheric environmental pollution accidents will seriously pollute the regional environment, reduce air quality, endanger the health of people and animals and plants, and affect the sustainable development of the region. Therefore, in the current context, it is necessary to attach importance to and do a good job in atmospheric environmental pollution monitoring. By carrying out atmospheric environmental pollution monitoring, pollution phenomena can be discovered and dealt with in advance, and the occurrence of medium and large pollution accidents can be effectively prevented. At the same time, by carrying out atmospheric environmental monitoring, the pollution situation can be understood, and more precious time can be gained for the governance of pollution accidents, so that environmental monitoring personnel can find out the cause of pollution, determine the scope and type of pollution, the degree of pollution, etc. in the shortest time, and then quickly formulate a governance plan and take effective measures to govern the accident, so as to minimize the impact of the accident and the losses caused by the accident [4].

Atmospheric environmental pollution accidents are special. Such accidents occur suddenly, in various forms, with serious harm and difficult to deal with. Therefore, general monitoring methods are not applicable to such accidents, and general point distribution methods are not applicable to this situation. When laying out atmospheric environmental pollution monitoring points, the following principles must be strictly followed: the layout of monitoring points must be representative, the monitoring points must be conducive to collecting atmospheric environmental pollution information, and the specific location of each section should be able to reflect the pollution characteristics of the regional environment. The layout of monitoring points needs to take into account the actual situation, such as the flow direction of pollutants at the accident site, distribution characteristics, flow speed, meteorological conditions, pollutant diffusion pathways and diffusion methods, etc. Scientifically arrange points on the basis of mastering various real information to ensure the rationality of the points. When laying out monitoring sampling points, it is necessary to pay attention to the fact that the points are too far away from each other, which is not conducive to the collection of information. When laying out points, it is necessary to first investigate whether there are villages, residential areas, drinking water sources, etc. within the scope of the point layout, and pay more attention when laying out monitoring points in these sensitive areas. When laying out monitoring points, it is necessary to query, collect and understand basic information, such as types of pollutants, sources of pollutants, atmospheric data at the accident site, and environmental sensitive points. After finding this information, we can select the corresponding diffusion model based on this information, determine the scope of atmospheric monitoring, and then scientifically arrange the points to ensure the rationality of the point arrangement. In addition, when arranging atmospheric environmental monitoring points, we must ensure the density of the monitoring points to ensure the final and overall monitoring effect. In order to ensure the quality of atmospheric environmental monitoring, the environmental monitoring point

arrangement plan should be analyzed, discussed and reviewed many times, and should be improved through multiple reviews and revisions to ensure the scientificity and effectiveness of the point arrangement, and provide guarantees for the accuracy and authenticity of the atmospheric environmental monitoring results.

2.1.2 Automatic monitoring system for pollution sources

Under the current technical background, the online automatic monitoring system of pollution sources can also be used to realize automation and digital control, improve the efficiency of data collection, transmission and analysis, so as to obtain more reliable monitoring results and provide reliable environmental data reference for relevant units. The online automatic monitoring system of pollution sources consists of four parts, namely the business application layer, the data storage layer, the data communication layer and the terminal acquisition layer. The main functions of these four business layers are: the terminal acquisition layer collects pollutant emission data, system operation status data, and operation parameter data of instruments and equipment in the system. The data collected by the terminal acquisition layer belongs to basic monitoring data and is an indispensable reference data for pollution source control and governance. The data communication layer provides support for data communication between the business application layer and the terminal acquisition layer. When the online monitoring system is in operation, the terminal acquisition layer in the system will send data packets to the data communication layer (via wireless transmission or wired transmission). The data communication layer will perform data parsing and filtering on the received data packets, and send the processed data to the data storage layer. The data storage layer implements unified storage and management of the received data. The storage and management steps are: receiving data, storing data in the original database, reviewing the data in the database, and storing the reviewed data in the review database. The business application layer calls the required data information from the audit database and analyzes and displays the data. The business application layer uses the data in the audit database to carry out statistical analysis, total volume analysis, remote reverse control, map monitoring and other services [5].

The pollution source online automatic monitoring system adopts real-time remote monitoring technology, which can realize remote monitoring. The pollution source online automatic monitoring system also adopts Internet of Things monitoring technology. A wireless sensor network is deployed in the system, and positioning technology, video recognition technology, etc. are used to capture and record the on-site situation, monitor and record the emission and development trend of pollution sources.

2.2 Improve and perfect the pollution control mechanism

Under the current background, it is necessary to accelerate the promotion of air pollution control work. In order to ensure the systematic, complete, standardized and scientific nature of air pollution control work, it is necessary to combine national laws and local regulations, formulate relevant normative documents such as special action plans for air pollution control and air pollution responsibility investigation methods according to specific circumstances, and use normative documents to promote and guide the standardization and orderly development of atmospheric environmental protection and governance work. Secondly, in order to ensure the smoothness and efficiency of various tasks, relevant departments should establish and improve the air pollution control work team, strengthen the organization and leadership of air pollution control work, and provide comprehensive guarantees for air pollution control work. The local government actively plays its leading role, and jointly with the safety supervision, land, environmental protection and other departments to form a complete environmental governance guarantee system, forming a governance pattern of each doing its own job and working together. While strengthening organizational leadership, it also increases capital investment according to actual conditions and needs, makes full use of various resources and means, broadens capital investment channels, provides stable and reliable financial guarantees for air pollution control work, and lays a good foundation for the development of various environmental governance work. In addition, it is also necessary to actively seek support from special financial funds from higher authorities, formulate laws, regulations and preferential policies, and promote the standardization and efficient development of air pollution control work from all aspects.

Air pollution prevention and control plans based on local actual conditions, use information technology and digital means to build a multi-governance structure. When carrying out air pollution control work, conduct comprehensive and systematic investigations and analyses, investigate and analyze the population density, industrial structure, factory distribution, pollution source distribution and pollution discharge in the area under its jurisdiction, and grasp the focus and requirements of air pollution control. On the basis of doing a good job in environmental investigation and

analysis, sort out the responsibilities of relevant functional departments and personnel, and redivide work responsibilities according to the characteristics and requirements of air pollution control in industrial parks, and formulate and improve work rules.

2.3 Advocate a green and environmentally friendly lifestyle

Today, we should advocate a greener and more environmentally friendly lifestyle. For example, we should reduce the use of cars. When the travel distance is short or it will not delay work, we should walk, take the bus or ride a bicycle as much as possible to reduce automobile exhaust emissions and reduce the burden on the atmospheric environment. At present, the government has also introduced some measures to deal with automobile exhaust pollution, such as limiting the number of cars on the road. These measures have achieved some governance effects. On this basis, it is recommended that government departments increase environmental protection publicity efforts to guide the public to establish a high level of environmental awareness and consciously contribute to the health and safety of the atmospheric environment. At the same time, it is also recommended that relevant departments increase the promotion of electric vehicles and new energy vehicles, actively create a good use environment, strengthen industry monitoring, encourage local governments and regions with conditions to introduce high-value consumption promotion policies, organize and implement pilot cities for the full electrification of public facilities, accelerate the construction of charging and swapping facilities, create a better environment for the development and use of new energy vehicles, and lay the foundation for a clean and healthy atmospheric environment [6].

3. Conclusion

In summary, with the continuous improvement of the level of industrialization and the rapid development of economic construction, China's atmospheric pollution problem has become more serious. Nowadays, the problem of atmospheric environmental safety has become a basic issue related to the survival, development and reproduction of a region or even a country and nation, and has become a problem that must be solved at present. Under this circumstance, it is necessary to further increase the attention paid to the problem of atmospheric pollution, and according to China's actual situation, continuously improve the atmospheric pollution prevention and control plan, build a multi-governance subject co-governance pattern, and use information technology and digital means to comprehensively improve the level of atmospheric pollution control.

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