Research on the Causes and Prevention Strategies of Air Environmental Pollution

Xiaotian Liang *
Accounting School, Xijing University, Shaanxi 710123, China

*Corresponding author e-mail: zhangxuhui@sd.sgcc.com.cn

Abstract. In today's era, the process of urbanization is accelerating, which has made the issue of air environmental pollution the focus of people’s attention. Air environmental pollution has seriously damaged people’s lives and health, and the prevention and control of air pollution has become increasingly severe. As a result, the causes of air pollution and the Prevention and control strategies are conducive to protecting the daily environment and providing new ideas for pollution prevention. Based on this, this article focuses on studying the causes of air pollution and pollution protection strategies in order to better protect the environment and promote sustainable development.

Keywords: Air Pollution; Prevention Mechanism; Environmental Pollution.

1. Introduction
In the development of modern society, people’s material life has been greatly improved, and industrialization and urbanization have continued to develop, bringing in many pollutants, such as automobile exhaust, industrial exhaust gas, etc., which greatly harm our physical and mental health and air environmental pollution. It will increase the concentration of pollutants in the air, causing certain harm to people’s respiratory tract, and the increase in pollutants in the environment will cause many carcinogenic factors, which will seriously affect people’s physical and mental health. It can be seen that the prevention and control of air pollution has changed. The importance of getting more and more important is already related to people's normal life and work, and related to the good operation and long-term development of society. The exploration of the causes of air pollution and the analysis of pollution prevention and control strategies can effectively achieve cross-regional, multi-subject compound air pollution control, and effectively promote the improvement of air pollution prevention and control effects.

2. Cause Analysis of Air Pollution
The current situation of air pollution in my country is very serious, mainly coal smoke pollution. In urban pollution, the concentration of total suspended particulates generally exceeds the standard; sulfur dioxide pollution has been at a relatively high level; the total emission of motor vehicle exhaust pollutants is increasing rapidly; nitrogen oxide pollution is increasing.
2.1. Sulfur dioxide pollutants
Due to the increase in coal consumption, the total sulfur dioxide emissions have risen sharply. Among various emission sources, power plants and industrial boilers account for 70% of emissions. The scope of acid rain pollution caused by sulfur dioxide emissions has continued to expand. At present, areas with an average annual precipitation pH value below the critical acid rain value of 5.6 account for about 30% of the country's area.

2.2. Smoke and dust of pollutants
The main sources of smoke and dust are thermal power plants and industrial boilers. Since most local power plants use low-efficiency dust collectors, the smoke and dust emissions are generally 5-10 times that of large-scale national power plants.

2.3. Motor vehicle exhaust pollution of pollutants
Driven by economic growth, the number of motor vehicles in my country has increased rapidly in recent years, especially in some large cities such as Beijing, Shanghai, Guangzhou and other motor vehicles, the growth rate is much higher than the national average. The total emissions of nitrogen oxides, carbon monoxide and hydrocarbons emitted by automobiles are increasing year by year. Due to the dense urban population and relatively large traffic volume, the proportion of motor vehicle exhaust pollution in urban air pollution is also increasing.

**Table 1. Air pollution in some cities in the past three years**

| Statistics date | City name | AQI | Air quality level       | Primary pollutant                  |
|-----------------|-----------|-----|-------------------------|-----------------------------------|
| 2018-06-30      | Beijing   | 186 | moderately polluted     | ozone 8 hours                     |
| 2018-06-30      | Hangzhou  | 46  | Excellent               |                                   |
| 2018-12-31      | Beijing   | 70  | good                    | Nitrogen Dioxide                  |
| 2018-12-31      | Hangzhou  | 64  | good                    | Fine particulate matter (PM2.5)   |
| 2019-06-30      | Beijing   | 47  | Excellent               |                                   |
| 2019-06-30      | Hangzhou  | 51  | good                    | ozone 8 hours                     |
| 2019-12-31      | Beijing   | 48  | Excellent               |                                   |
| 2019-12-31      | Hangzhou  | 50  | Excellent               |                                   |
| 2020-06-30      | Beijing   | 89  | good                    | ozone 8 hours                     |
| 2020-06-30      | Hangzhou  | 94  | good                    | ozone 8 hours                     |

It can be seen from Table 1 that at the end of June 2018, Beijing’s air quality index (AQI) was 186, and the level was higher, indicating that the more serious the air pollution, the main pollutant is ozone 8 hours, and the greater the harm to human health. The quality level is moderately polluted. In contrast, the air condition in Hangzhou is better.

3. Analysis of strategies to prevent and control air pollution

3.1. Increase publicity and establish environmental awareness
Governments at all levels should encourage the public to participate in environmental protection, increase environmental protection propaganda through multiple channels and channels, and through publicity and education, let people build awareness of environmental pollution, especially air pollution, so as to carry out environmental protection work purposefully, and Encourage the public to report environmental pollution.
3.2. Increase the punishment of environmental pollution
The government should clearly formulate relevant basic strategies for environmental protection, ensure that there are rules and regulations to follow penalties for environmental violations, and formulate feasible governance measures to reduce air pollution, such as increasing penalties for arbitrary discharge of pollutants into the atmosphere, requiring companies to follow pollution protection devices.

3.3. Improve the existing energy structure
Pollutants harmful to the atmospheric environment should be gradually replaced, and new energy should be vigorously promoted. For a long time, my country’s energy structure has been dominated by coal, which has caused serious air pollution. If we want to fundamentally reduce the problem of large gas pollution, we must pay attention to electricity and wind energy. Geothermal and other clean energy.

3.4. Intensify the control of motor vehicle exhaust
With the rapid increase in the number of private cars and agricultural vehicles, exhaust emissions have become an important part of air pollution. We should raise our environmental awareness and call on everyone to pay attention to the daily maintenance of motor vehicles, clean the engine regularly, and reduce carbon deposits to achieve emission reduction effects.

3.5. Afforestation
Large-scale planting of plants can effectively purify the air. Plants are natural filters for the air. The green area should be increased in various regions, which is an economical and effective measure to reduce air pollution.

4. Conclusion
Air pollution has caused great damage to people's healthy lives. The construction and improvement of air pollution prevention and control is very important. It is a key mechanism that local governments attach great importance to, participate in, and build together. Therefore, the general public should be called on to actively participate in air pollution prevention and control work, and do their best to prevent air pollution. Do our best to ensure a better and healthier tomorrow.

Acknowledgments
This work was financially supported by the project "Study on the Impact of Regional Environmental Regulations in Shaanxi Province on Economic Growth", project number: XJ190208. The project is a school-level project of Xijing University.

References
[1] Wang Binzhe, Zheng Siqi. Air pollution lowers travel demand in a consumer city [J]. Transportation Research Part D, 2020, 89.
[2] Song Yan, Zhou Aina, Zhang Ming. Exploring the effect of subjective air pollution on happiness in China [J]. Environmental Science and Pollution Research, 2020, 27(34).
[3] Rickenbacker Harold J., Vaden Jessica M., Bilec Melissa M.. Engaging Citizens in Air Pollution Research: Investigating the Built Environment and Indoor Air Quality and Its Impact on Quality of Life [J]. Journal of Architectural Engineering, 2020, 26(4).
[4] Huang Guowen, Brown Patrick E.. Population-weighted exposure to air pollution and COVID-19 incidence in Germany [J]. Spatial Statistics, 2021, 41.