Study on Rural Ecological Environment Pollution and Environmental Protection Countermeasures Based on Air Pollution Index

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Abstract. At present, China's rural economy is developing rapidly, followed by environmental issues that are of common concern to all. Reform and opening-up have brought vitality to rural township enterprises. At the same time, the development of township enterprises has also brought greater pressure to the rural ecological environment. The pollution load borne by the rural ecological environment has increased dramatically, resulting in increasingly prominent rural environmental problems. It not only seriously affects the health of the broad masses of peasants, but also affects social stability and restricts the sustainable development of the country. The increasingly prominent problems of rural ecological environment restrict the further development of China's rural economy. In the construction of a new socialist countryside today, to solve the problem of rural environmental pollution has become a top priority. With the rapid development of rural economy and society, the process of agricultural industrialization and urban-rural integration is accelerating. Based on the air pollution index, this paper analyzes the characteristics and causes of environmental pollution in the development of township enterprises and the Countermeasures for environmental protection.

1. Introduction
Since the reform and opening up, China's rural economy and industrial economy have made great strides. However, with the rapid development of rural economy, many environmental problems have gradually emerged and a worrying situation has emerged [1]. The pollution load borne by the rural ecological environment has increased dramatically, resulting in increasingly prominent rural environmental problems, which not only seriously affect the health of the broad masses of farmers, but also affect social stability and restrict the sustainable development of the country [2]. At present, material affluence cannot meet people's needs, but more people pay attention to the living environment and air freshness around them. Economy has promoted the rapid development of industry and brought pollution to the environment [3]. Pollution from rural wastes, livestock and poultry farming, chemical fertilizers and pesticides, pollution from small enterprises in rural villages and towns, and irrational exploitation of mineral resources have all affected the ecological environment in rural areas to some extent, and the ecological quality has also declined. Environmental monitoring mainly uses advanced technology and equipment to monitor various factors of environmental pollution in a timely manner, reflect the current environmental quality of the environment, collect various factors of environmental
pollution, and carry out analysis and treatment to effectively control air pollution [4]. The increasingly prominent rural ecological and environmental problems are restricting the further development of China's rural economy. Therefore, it is very urgent to take active and effective measures to strengthen rural ecological environmental protection.

With the rapid development of the economy, the quality of people's lives is constantly improving. The emergence and development of township and village enterprises has promoted the prosperity of the rural economy and social progress, and at the same time it has put some pressure on the rural ecological environment [5]. With the development of urbanization and industrialization, it is not difficult to see that the focus of environmental protection work and capital investment tend to cover the urban environment and industrial fields, while rural areas and agricultural environmental protection, which account for a larger proportion of area and population, often ignored [6]. In order to solve this problem, relevant departments have improved the monitoring of the environment, and then adopted effective monitoring measures to carry out key monitoring on the implementation of heavy industry to alleviate the problem of air pollution. Rural environmental pollution has seriously hindered rural social development and affected farmers' physical health. With the rapid development of China's rural economy and society, the process of agricultural industrialization and urban-rural integration continues to accelerate [7]. With the construction of a new socialist countryside today, solving the problem of rural environmental pollution has become a top priority. Regarding the current situation, publicity and education should be carried out on policies, increasing the comprehensive improvement of rural environment, improving the supervision mechanism of rural ecological construction, and building beautiful villages [8]. Based on the air pollution index, this article analyzes the characteristics and causes of environmental pollution and the countermeasures during the development of township and village enterprises.

2. Current Situation of Rural Environmental Pollution

The section headings are in boldface capital and lowercase letters. Second level headings are typified as: *Rural environmental pollution consists of three major pollutants: life, production and industry. It is characterized by wide area, dispersion and randomness. With the progress of science and technology, great changes have taken place in China's agricultural ecological mode. The original farmyard manure has been widely replaced by chemical fertilizers and pesticides. These chemical fertilizer and pesticide pollutants enter the surface water through farmland drainage and surface runoff, causing eutrophication of the surface water. With the development of urban and rural areas in recent years, the scale of industrial production in China's rural areas is continuously expanding, and the living standards of farmers are improving, China's rural ecological environment is facing very severe forms. Rural water environment refers to the water ecosystem of rivers, lakes, reservoirs, ponds, ditches and other surface water, soil water and groundwater distributed in rural areas. The use of chemical fertilizers results in soil hardening, poor cultivation quality, easy loss of fertilizer nutrients in the soil, entering rivers, lakes, reservoirs and other polluted water bodies, eutrophication of water bodies and deterioration of water quality. The air pollution index is mainly a value that evaluates the air quality, so as to determine the cleanliness of the air and the health conditions that should be paid attention to. The air pollution index is mainly concerned about the degree to which people's health is affected after inhaling polluted air. With the progress of science and technology, China's agriculture has developed rapidly, but this development mainly depends on the substantial increase in chemical inputs such as chemical fertilizers, pesticides and agricultural films. Once air pollution forms, it will affect the health of every resident in the countryside. No one can avoid this kind of influence or pay a high price. The core value of ecology is to construct new values and order of harmony between man and nature, man and man, man and society. Figure 1 shows the types of mutual aid in environmental ecological construction.*
The emergence and development of township enterprises are fully in line with China's national conditions and economic laws, thus having strong vitality. The layout of township enterprises is unreasonable, the pollutant treatment rate is also significantly lower than the average treatment rate of industrial pollutants, and the pollution points are intertwined with farmland and rural residential areas. Judging from the development of the world economy, the economic structure has changed from agriculture to industry, while the labor force structure and population structure have changed from rural to urban. This is the road that developed countries in the world have gone through and is also the general law of social development. Air pollution index mainly determines the level of air pollution according to the air environmental quality, the ecological effects of pollutants and the harm to people's health [9]. The pollution of agricultural film is also a problem that cannot be ignored. Agricultural film is mainly used to cover crops. If the crops are not cleaned in time after harvest, they will be buried in the soil to make the permeability of the soil worse. The water movement in the soil is blocked, which is not conducive to the circulation of soil air and causes soil hardening. Because most of the agricultural films use non-degradable plastic film, the yield of crops is reduced. With the strengthening of urban pollution control, the industrial enterprises with serious pollution transfer to rural areas and become a new source of pollution in rural areas. The decomposition process of agricultural film in soil is very long. At the same time, it volatilizes harmful substances, reduces the activity of soil and destroys the ecological environment of soil.

3. Main Countermeasures to Improve the Efficiency of Environmental Protection in New Countryside

3.1. Establish a system of public participation

China's rural environmental protection work started late, so we should encourage the majority of counties, villages and towns, village cadres to actively participate in the new rural environmental protection construction. Environmental protection knowledge and skills training activities should be
carried out to cultivate farmers' ability to participate in rural environmental protection, and farmers' opinions on development planning and construction projects involving their own environmental rights and interests should be widely heard. At present, China has formulated a unified monitoring principle, and has set up environmental monitoring stations in different places so as to give full play to and utilize technical personnel and equipment. The weak consciousness of protecting the ecological environment of the masses is an important reason for the serious destruction of the rural ecological environment. Therefore, we should make great efforts in publicity and education and take the rural ecological environment as an important matter. At present, most large-scale livestock and poultry farms have not undergone environmental impact assessment, and most of them do not have pollution prevention and control facilities and storage sites or do not meet the standards. Excrement and sewage discharge bring great pressure to the environment [10]. This will not only lead to organic pollution and eutrophication pollution of surface water, as well as malodorous pollution of the atmosphere and even groundwater pollution, but also pathogens contained in livestock and poultry feces pose a great threat to the health of the population.

The government or the village committee can organize and carry out environmental science popularization knowledge experience activities, so that farmers can personally participate in and experience advanced ecological models, so that farmers can personally realize the importance of spontaneous environmental protection in production and life. Air pollution affects the health of every resident, and increasing the number of residents does not reduce the pollution level of everyone. We should strengthen the control of air pollution to promote the development of ecological system. The structural relationship between the independent perceptual familiarity of local samples and non-local samples and the scores is shown in Figure 2.

![Figure 2](image)

**Figure 2** Relationship between local samples and non-local samples

### 3.2. Overall planning of rural environmental protection

In order to strengthen the comprehensive improvement of the rural environment, a leading group for comprehensive improvement should be set up first, with a gradual division of labor in place and everything reaching people. The current situation in rural areas shows that the most critical reason for the increasingly serious environmental problems in rural areas is the lack of infrastructure, which is basically the lack of capital investment. Only when funds are in place can grass-roots governments really and effectively carry out environmental protection work. The social benefits mainly show that the society resorts to force to maximize profits and requires that the output be determined according to this, which is different from the private benefits of manufacturers in a fully competitive market that determine the output according to the principle of profit maximization. No resource can function independently as a factor of production. Only when natural resources are combined with social resources can they be transformed into productive forces with use value and value. Figure 3 shows the contribution of different resources at different stages of environmental development.
To improve the management mechanism of rural ecological construction, it is important to formulate laws and policies, and it is even more important to improve the rural environmental supervision system. In order to explore the on-site treatment mode for areas with inconvenient transportation, rural domestic garbage should be guided to realize source classification, on-site reduction and resource utilization [11]. The state should increase financial support for rural environmental protection, set aside funds in the budget and make it clear in the planning. Environmental supervision can effectively prevent and control the pollution of rural ecological environment. In this process, the whole process should be supervised and the whole society should participate together [12]. Environmental impact assessment should be carried out for reconstruction, expansion and new-built enterprises to prevent high-polluting enterprises in cities from transferring to rural areas. At the same time, special funds should be set up for the management of rural ecological environment. It is necessary to decompose the objectives and tasks into relevant departments, and form a new mechanism for rural environmental protection with each department taking responsibility, cooperating closely, and jointly managing.

4. Conclusion
China's rural ecological environment is facing an increasingly serious situation. It is a long-term, arduous and complicated work that requires the unremitting efforts of several generations. The management of the rural ecological environment is an important guarantee for the realization of a new socialist countryside. The increasingly prominent rural ecological environment problems not only affect the health and quality of life of farmers, but also restrict the further development of rural economy. Great progress has been made in the construction of new countryside in our country, but the environmental situation in the countryside is very severe, which seriously restricts the sustainable development of rural economy and society. As our country pays more and more attention to the quality of air environment, in order to better control this problem, it is very necessary to do a good job of air pollution detection. Strengthening the protection of the rural ecological environment is an inevitable requirement for the implementation of the scientific concept of development and the construction of a harmonious society. It is also a major task to promote the sustainable development of the rural economy and society and to build a new socialist countryside. Air pollution monitoring is an important basis for protecting a good environment. Only by analyzing the monitoring data more accurately can we formulate a better solution to environmental pollution. In the work of protecting the rural environment, we should actively explore new methods and new ways of environmental protection in rural areas, and strive to solve rural environmental problems.

Figure 3 Contributions of different resources at different stages of environmental development
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