

**Prevention and Control of Environmental Pollution in Rural Areas through
Strengthening Environmental Impact Assessment**

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Abstract: In this article, the status quo of environmental pollution in China's rural areas were introduced, the main reasons were analyzed, and measures to prevent and control the environmental pollution were put forward, which include formulating or improving relevant laws, regulations and standards on rural environmental protection, raising the approval level of Environmental Impact Statements of rural construction projects in China's tiered approval system, and strictly implementing the environmental impact assessment system for construction projects in rural areas.

Key words: Rural areas, Environmental protection, Environmental impact assessment

Rural environment is the combination of various natural and artificial factors in the scope of rural areas centered around rural residents, which include land, air, water, plant, animals, roads, and structures etc. ^[1] With the economic development in rural areas, the environmental pollution there is getting more and more serious. Thus, the prevention and control of rural environmental pollution has become a key and difficult task for the environmental protection in China.

Environmental impact assessment (EIA) is methods and a system that analyzes, predicts, and evaluates the environmental impact that the implementation of development plans and construction projects might cause, proposes countermeasures and measures to prevent or mitigate adverse environmental impact, and conducts follow-up monitoring of the impact. It has great significance to the prevention of the adverse environmental impact the development plans and construction projects might have caused and to the coordinated development of the economy, the society and the environment.

This paper explores the prevention and control of environmental protection through strengthening EIA in rural areas from three aspects: the laws, regulations and standards on rural environmental protection; the approval level of environmental impact statements of rural construction projects, and EIA enforcement. It seeks to improve the environment in rural areas, guarantee food safety and to explore a new road for rural environmental protection.

1. The environmental status quo of China

With the rapid economic and social development in rural areas, accelerating agricultural industrialization and integration of urban and rural areas, the discharge of pollutants in rural areas increases as residential pollution and non-point source pollution is aggravating and industrial and urban pollution is transferring to rural areas with ever-increasing paces.

The environmental pollution in rural areas can be divided into three categories: agricultural pollution, residential pollution, and industrial pollution. Agricultural pollution (non-point source pollution) refers to the pollution caused by fertilizers, pesticides, and mulches used in modern agricultural production. Residential pollution means pollution caused by infrastructure construction and backward environmental management in small towns and rural settlements. The industrial pollution (point-source pollution) is caused by improper distribution of rural enterprises and inadequate pollution control ^[2].

According to the first national census of polluting sources ^[3], about half amount of the major pollutants come from agricultural sources (see fig. 1).

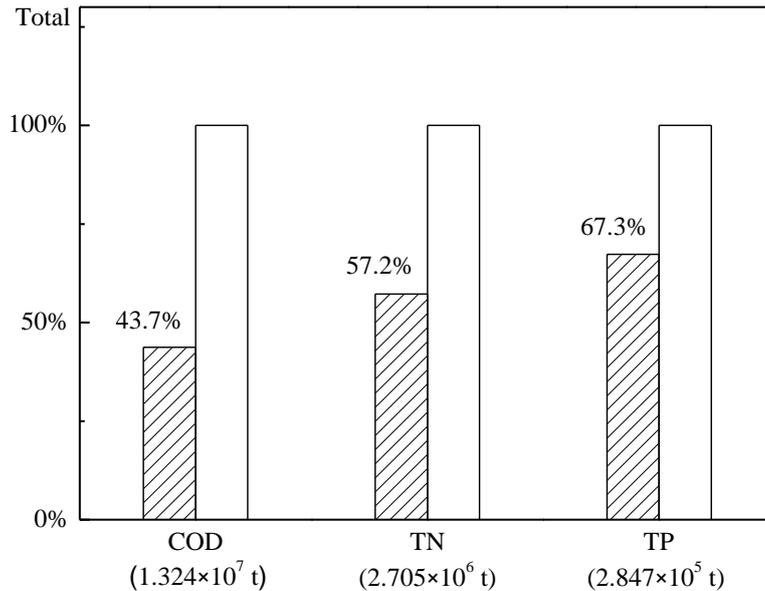


Fig. 1 The amount of COD, total nitrogen (TN), total phosphorus (TP) coming from agricultural sources annually

2. Analysis of reasons for rural environmental pollution

The rural environmental pollution resulted mainly from farming, livestock husbandry, township enterprises operation, and residential pollution.

2.1 Pollution by farming

China is the world's biggest user of fertilizers, pesticides, and mulches. The amount of fertilizers and pesticides used is 47 million tons and 1.4 million tons per year respectively, while utilization ratio is only 30% -35% ^[4]. China uses the world's largest amount of mulches. In the year 2005 alone, it used 960 thousand tons of mulches while the annual residual ratio is above 20% ^[5]. The fertilizers and pesticides washed away and residual mulch will lead to severe water and soil pollution.

Besides, large amount of straw burning also causes serious air pollution. China produces 700 million tons of straws per year, among which 15% is burned for no useful purposes. The toxic and harmful air caused by its incomplete combustion, e.g. dioxin and CO, severely pollutes the rural atmospheric environment and brings great harm to the health of nearby villagers ^[6].

2.2 Pollution by livestock husbandry

The livestock husbandry develops rapidly in China, but they are scattered and disordered. In some areas, its scale far exceeds the environmental capacity, and most of animal wastes are discharged with no pre-treatment.

According to statistics, the animal wastes produced each year is about 2.7 billion tons with COD over 69 million tons, more than four times the total amount of COD discharged by industries and cities nationwide^[7]. According to the 23-province investigation by Former State Administration of Environmental Protection, 60% of livestock farm lack necessary pollution control measures, which renders them main sources of rural environmental pollution^[8].

2.3 Pollution by township enterprises

As enterprises with high energy consumption and high pollution are moving into the rural areas, their improper distribution and extensive operation are also damaging the rural environment.

The waste water, waste gas and waste residue discharged by township enterprises is accounting for 21%, 67% and 89% respectively of the total amount of “three wastes” nationwide, which renders it a pressing concern for environmental protection and main factors affecting people’s health^[7].

2.4 Residential pollution

With improved living standard in rural areas, new life style and products spread rapidly to villages, which resulted in surging amount of sewage and rubbish. Most of the wastes are more complex and discharged with no pre-treatment.

The waste treatment facilities in rural areas lacks far behind as the majority of 40 thousand towns nationwide are not equipped with basic environmental protection facilities, and there are no pollution control measures in most of the 600 thousand villages nationwide^[4]. All the villages nationwide produce over 9 billion tons of sewages, 280 million tons of rubbish, most of which are discharged randomly with no pre-treatment.

3. Prevention and control of environmental pollution through strengthening EIA

Besides technical methods targeted at non-point polluting sources, policy and management aspects should also be strengthened to prevent and control the environmental pollution in rural areas.

3.1 formulate or improve relevant laws, regulations and standards on rural environmental protection

The existing environmental protection laws, regulations and standards are mainly targeted at urban and industrial point sources. Although there are some principles on that of rural areas, they are not specific and lack practicability and relevant implementing standards, falling far behind the increasing complex requirements for rural environmental protection. Therefore, relevant laws, regulations and standards should be formulated and improved to lay the foundations for carrying out EIA for agricultural construction projects.

3.2 raise the approval level of environmental impact statements of construction projects for farming, livestock husbandry and by township enterprise in China's tiered approval system

According to our existing tiered approval system for environmental impact statements of construction projects, the tiered approval authority was determined both by different levels of government authority, e.g. authority of approval, authorization, and registration, and by the environmental impact of the construction projects. According to *Catalogue of Construction Projects of which Environmental Impact Statements are Subject to Approval by Ministry of Environmental Protection* and *Catalogue of Construction Projects of which Environmental Impact Statements are Subject to Approval by Provincial Environmental Protection Departments*, the approval level of environmental impact statement mainly depend on the investment or construction scope of the project. Although the investment or construction scope of farming, livestock husbandry or project of township enterprises was relatively small, their environmental impact is in no way little. Thus, it is suggested that their approval level should be raised.

3.3 Strictly implement EIA system for rural construction projects

Under the complex status quo of co-existence of point sources and non-point sources, mixing of residential pollution with industrial pollution, and transferring of industrial and urban pollution to the rural areas, EIA should be strictly implemented in farming, livestock husbandry and projects of township enterprises. Environmental access policy and regional environmental function should be rigorously observed to prevent pollution from spreading. Projects against China's industrial policies should be forbidden in rural areas.

4. Prospects

In order to improve environmental protection in rural areas, we should change the current philosophy for rural environmental protection, formulate and improve relevant laws, regulations and standards on rural areas, and strictly implement EIA and "three-simultaneous" system, e.g. environmental protection facilities should be designed, built and put into operation at the same time with the main construction facilities of the project. What's more, the awareness of villagers on environmental protection, especially the participation awareness, should also be enhanced.

4.1 The philosophy of rural environmental protection should be changed

Most of China's villages today no longer have green hills and clean water. With its severe environmental situations, they have become the frontier of environmental protection of China. We must change the long-lasting philosophy of "city over villages, industry over agriculture, and point source over non-point source", and formulate and improve relevant laws, regulations and standards on rural areas so that the pollution could be controlled from the source.

4.2 The rural environmental management should be strengthened

The environmental management system rest on improvement, but more importantly, it depends on implementation. We should enhance environmental management of rural construction projects, and strictly implement EIA and "three-simultaneous" system. Illegal construction and construction before getting approval should be forbidden. Apart from that, rural environmental monitoring and evaluation system should also be established.

4.3 The rural environmental protection education should be intensified

Currently, Chinese villagers are not adequately aware of the urgency and importance of environmental protection. We should enhance the promotion and education on rural environmental protection with a variety of easily acceptable manners. For example, schools, communities and families should all be mobilized to raise the awareness of environmental protection and encouraged more villagers to participate in the environmental protection in order to protection our home.

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