Pollution source analysis and treatment strategy of intensive waste

Lanyun Chen\textsuperscript{1}\textsuperscript{*} and Shuanglei Wu\textsuperscript{2}

\textsuperscript{1}School of Architectural Engineering, Jinhua Polytechnic, Jinhua, Zhejiang, China
\textsuperscript{2}School of Materials Science and Engineering, Zhejiang University, Zhejiang, China
\textsuperscript{*}Corresponding author’s e-mail: wushuanglei@zju.edu.cn

Abstract. Intensive waste pollution is one of the main causes of serious pollution in many important water sources, and waste disposal has become an urgent problem to be solved. Controlling intensive waste pollution and carrying out the resource utilization of organic waste is the main way to solve my country's environmental pollution problems. This paper examines the possible impact of intensive waste on the environment, and analyses the main methods of waste treatment measures and resource utilization, their effects and existing problems. Studies have shown that the adoption of waste treatment measures supported by modern biotechnology and engineering technology, the comprehensive utilization of waste resources based on the production of organic fertilizers and biofuels, and the establishment of a virtuous cycle of ecosystems will help promote sustainable development, improve the ecological environment and human settlements.

1. Introduction

With the rapid development of society and industry, coupled with the continuous improvement of people’s living standards, more and more energy consumed, and the ensuing environmental pollution problems have gradually emerged [1]. Among them, intensive waste brings the environment the incoming pollution is a problem that cannot be ignored. According to statistics from relevant sources, the intensive waste generated globally can reach 10 billion tons every year. If these intensive wastes are handled improperly, the environment will likely be seriously polluted, which will harm people's health. Therefore, the pollution of intensive waste has become one of the most serious problems in today's environmental pollution problems, and has attracted widespread attention all over the world. Intensive waste is mainly composed of domestic waste, construction waste and industrial intensive waste. At present, China's intensive waste management is not perfect, the processing capacity is insufficient, cannot meet the requirements of intensive waste treatment. Nowadays, the technology level of harmless treatment of solid waste in China is not high [2]. For general industrial solid waste, comprehensive utilization is adopted for treatment, but there are big differences in the treatment process. Among them, for some hazardous intensive waste, China has made remarkable achievements in the research of treatment technology, and has more advanced treatment technology. There are mainly physicochemical method, high temperature incineration method and solidification method [3]. However, in the process of treatment, the lack of corresponding practice and scientific management experience, coupled with the lack of funds and small scale, lead to the quality and productivity of the
complete set of equipment in the manufacturing process that can’t meet the corresponding requirements.

The problem of intensive waste pollution has attracted worldwide attention. However, most people's awareness of environmental protection is not enough. In addition, some waste production enterprises are very rude to the intensive waste treatment, and even some waste production enterprises directly dump the solid waste in the nearby open space or bury them on the spot. The long-term stacking or burying of these intensive wastes will produce a large number of toxic and harmful substances, resulting in serious pollution of the surrounding environment. These toxic and harmful substances cause serious harm to the surrounding environment and the health of nearby residents. To study the pollution forms of China's intensive waste, analyze the causes and sources of pollution, and take targeted measures will help to carry out this work, which is of great significance to the protection of people's physical and mental health and the sustainable economic and social development.

2. Analysis of pollution sources of intensive waste

Intensive waste has become one of the main sources of environmental pollution. Its pollution characteristics are various, complex components and huge quantity [4]. Although great efforts have been made in the treatment and utilization of solid waste in recent years, some progress has been made in the treatment and utilization of solid waste, and the research and application of some intensive waste treatment technologies suitable for the current economic and technological development level have been accelerated [5]. However, compared with developed countries such as Europe, the United States and Japan, the overall level of intensive waste treatment is still very low the disposal technology is far from meeting the needs of the people's good ecological environment. The pollution sources of intensive waste are mainly manifested in the following aspects.

3. Industrial intensive waste

Due to the lack of incentive mechanism for intensive waste treatment, the intensive waste generated in the production process of industrial enterprises cannot be effectively disposed for a long time, and the cumulative stock is increasing, and its environmental harm is also increasingly serious. It is estimated that the national industrial intensive waste storage covers an area of more than 1 million mu, including about 100000 mu of farmland [6]. A large number of untreated industrial intensive wastes are stored in the industrial areas and wasteland around the city. Wind and rain have become serious pollution sources and lead to pollution accidents. Some intensive wastes are dumped in rivers, rivers, lakes and other water bodies, damaging the water environment and water ecology and endangering the safety of drinking water [7]. The disposal facilities of industrial intensive wastes in township enterprises are weak. The tailings, waste ores, smelting slag and stone processing wastes of some mining township enterprises cannot be effectively disposed for a long time, and they are piled up and stored in the open air, occupying a large amount of land; some shoemaking, leather making and garment enterprises dispose of leftover materials irregularly, causing serious environmental pollution. As a whole, China's chromium compound production enterprises have small scale, many factories, scattered locations, backward technology and substandard pollution control as a result, chromium slag pollution accidents occur frequently, threaten personal safety and health, and damage the ecological environment. Main cause and effect diagram of intensive waste management is shown in Figure 1.
3.1. Municipal solid waste

With the development of economy and the improvement of people's living standards, the amount of garbage is increasing day by day. The lack of public awareness of environmental protection leads to the decline of garbage recovery rate. According to statistics, China's urban domestic waste stock over the years has reached more than 6 billion tons, and some small and medium-sized cities even have no fixed sites to stack garbage, which leads to the deterioration of the ecological environment. At present, every street in the city is equipped with sanitation and cleaning personnel, and there are a certain number of garbage cans and fruit bins on each street for daily garbage storage and transportation, but it is difficult to separate and collect the garbage. Mixed collection of garbage increases the reuse cost of waste resources and reduces the resource value of organic matter that can be used for composting. At the same time, it also causes a large number of harmful substances such as batteries and waste oil into the garbage, which increases the technical difficulty of harmless treatment of garbage. Some waste incineration treatment will produce some toxic substances, such as toxicity thousands of times stronger than KCN heavy metal ions are contained in the waste batteries in a large number of mixed garbage, which lead to water pollution, soil pollution, ecological environment damage, and human survival and development.

3.2. Electronic waste

With the improvement of people's living standards and the extensive application of electronic products, the output of electronic products in China has increased rapidly, and the number of electronic products eliminated has increased rapidly. The pollution of China's electronic intensive waste has become increasingly prominent. It is predicted that the peak period for the scrapping of household electronic and electrical appliances in China has arrived, with about 14 million computers, refrigerators, washing machines, TV sets and other household appliances to be scrapped every year, as well as small household appliances such as mobile phones and VCDs. In the process of producing electronic products, a large number of chemical raw materials are used, and a considerable part of them will pollute the environment. If they can't be disposed of, discarded at will, simply landfilled or incinerated without control, the environment will be seriously polluted, resulting in diseases of human nervous system and immune system. At present, China's e-waste treatment technology and equipment is relatively backward, a lot of e-waste dismantling rely on manual work, there are almost no specialized e-waste treatment institutions, there is no perfect e-waste management system, e-waste pollution prevention and control work has just started, it is not able to effectively dispose of a large number of e-waste a large number of electronic waste mixed in domestic waste or transported to remote areas,
causing serious environmental pollution. What's more, some foreign e-waste enters China through various channels, which further aggravates the e-waste pollution.

3.3. Rural intensive waste

The trend of rural intensive waste is increasing, which poses a great threat to the rural environment. For example, the arbitrary stacking and burning of rural domestic waste and crop straw occupy a large amount of rural land, causing air pollution; the emission of pollutants from rural agricultural livestock breeding leads to the spread of various diseases in rural areas, and also causes water pollution; the plastic residue film for agricultural use is especially important the land has a continuous impact, making the land barren and even completely losing its farming function. According to the survey, China's livestock and poultry breeding produces 1.73 billion tons of faces every year. However, 80% of the large-scale livestock and poultry farms do not have the necessary equipment and facilities for pollution control. The pilot scale of biogas production by using manure and the establishment of ecological agriculture demonstration park is small and has not been promoted. With intensive farming in rural areas, a large amount of livestock manure is directly discharged into the environment without effective treatment, which seriously pollutes the air and water. In addition, a large number of rural domestic waste has not been treated and disposed, and the treatment of rural intensive waste in most areas has not been included in the environmental protection work plan.

4. Intensive waste management strategy

4.1. Improving the management system of intensive waste

According to the actual situation of intensive waste management in various regions, we should improve the management system of solid waste, form a trinity of legislation, law enforcement and supervision and management, and form a situation of joint management. First, all localities should improve the legal system, formulate local laws and regulations on waste recycling and environmentally sound disposal in accordance with national laws, regulations and local pollution characteristics, as well as environmental and economic incentive policies and environmental management policies to adapt to the market economy and conform to the reduction, recycling and harmless treatment of industrial wastes the behaviour of disposal enterprises and the responsibility and behaviour of waste disposal of industrial intensive waste producers. Second, local environmental protection departments should organize the establishment of intensive waste management information network, especially for hazardous and intensive wastes, to provide technical support and improve supervision and management capacity; environmental protection departments should be responsible for the supervision and management of waste logistics in the whole process of collection, transportation, treatment and disposal of intensive waste, so as to ensure that the treatment of industrial intensive waste is not dangerous the environmental protection department is responsible for managing the bidding work of enterprises engaged in intensive waste collection, treatment and disposal, and implementing the license management; receiving the annual report of waste logistics from collectors and processors, and organizing experts to evaluate the annual report and treatment scheme submitted by enterprises undertaking collection, transportation, treatment and disposal. Third, local environmental protection departments should organize and inspect the activities of enterprises, institutions and social organizations within their jurisdiction to carry out the classified collection, recycling and safe disposal of intensive waste; strengthen the inspection, implement the declaration and registration of enterprise solid waste, and carry out daily supervision on the prevention and control of intensive waste pollution; strengthen the supervision on the environmental pollution caused by intensive waste investigation and punishment of violators. Treatment process of intensive waste is shown in Figure 2.
4.2. **Strengthening macro-control of the structure**

Intensive waste reduction starts from the source of pollution. Governments at all levels should start from the source of intensive waste production, take comprehensive measures in production, circulation, consumption and other links to do a good job in waste reduction. We should encourage and guide the public to change unreasonable consumption patterns, reduce the use of disposable tableware and prolong the service life of consumer goods. For consumer goods manufacturers, excessive packaging of products should be gradually eliminated. Waste recycling and environmental pollution should be considered in terms of quality and quantity of packaging materials. The reduction of industrial solid waste should start with the development of circular economy and clean production, the reduction of consumption and the improvement of resource utilization rate, and the upgrading and adjustment of industrial structure should be strengthened, including the adjustment of industrial structure, enterprise structure, product structure, raw material and fuel structure, and the closure of those enterprises that pollute the environment and waste resources. Figure 3 shows the comparison of results of intensive waste disposal under different policy guidance.

Ensure that solid waste is harmless and protect people's health. In the process of waste disposal, we should adhere to high standards and strict requirements to prevent secondary pollution. Landfill leachate is seriously harmful, so it should be treated strictly and discharged according to the standard.
It is not allowed to enter the urban sewage pipe network at will. The biogas generated should be collected and recycled under the premise of economic and reasonable conditions. If it cannot be used, it should be disposed scientifically. Strictly require the technical specifications of technical equipment and process flow of waste incineration plant to prevent dioxin harm. It is especially pointed out that hazardous waste and its medical waste must be treated in a centralized way, and harmlessness must be ensured to ensure people's health.

4.3. Establishing and improving the regulations of intensive waste pollution control

Establish and improve the policy system of intensive waste pollution control, plan the industrial policy, implement the idea of developing circular economy and realizing sustainable development and the principle of reducing, recycling and harmlessness of industrial intensive waste into the industrial policy; encourage the recycling industry of renewable resources and environmental protection industry, and at the same time strictly implement the industrial policy to restrict or even prohibit the development of industries that seriously waste resources or damage the environment; to encourage enterprises to use resources in the most effective way to achieve low input and high output; to stipulate the technologies that are encouraged to be adopted and those that are restricted or prohibited to be adopted, so as to promote technological progress and encourage the popularization and application of resource recycling technologies with high scientific and technological content, and create conditions for its industrialization. To establish and improve the legal protection of intensive waste pollution control, it is necessary to establish a set of solid waste environmental management regulations, standards and technical specifications system. The system should be able to give full play to the role of guidance, supervision and guarantee. Environmental behaviour results in different ways is shown in Figure 4.

![Figure 4. Environmental behaviour results in different ways](image)

4.4. Strengthening the propaganda of solid waste treatment

The key to environmental protection is to enhance the environmental awareness of the whole people, especially the leading cadres, to promote public participation in environmental activities, and to realize the environmental protection of the whole people. It is necessary to carry out environmental publicity and education and environmental legal education for the whole people in a more extensive, deeper and more lasting way. It is necessary to warn and educate the leading cadres at all levels and the masses about the knowledge of environmental protection. It is suggested that laws, regulations and basic knowledge of environmental protection should be popularized. Environmental protection courses should be set up in colleges and universities at all levels. Through education, we can truly realize the importance of pollution prevention and environmental protection and actively participate in environmental protection. It is the social responsibility of every citizen to strengthen the solid waste
treatment and practice ecological civilization, which is related to the sustainable development of the economy and society, the rise and fall of the country and the nation, and to ensure the coordinated development of the economic and social environment. Through propaganda and education, we should really understand that we must never seek temporary economic speed and efficiency at the expense of the environment, and never sacrifice future health and development for temporary interests.

5. Conclusion

In the process of solid waste treatment, it is necessary to follow the principle of pollution-free and resource utilization. Scientific control is made in the stage of resource development; the government makes certain macro-controls on it; at the same time, people's awareness of environmental protection needs to be raised to control environmental pollution. This article studies the forms of intensive waste pollution in China, analyses the causes of pollution, the formation of pollution sources, and takes targeted measures to help the development of this work. It is of great significance to safeguarding people's physical and mental health and ensuring sustainable economic and social development.

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