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Investigation and Countermeasure on the Management Problem of Harmful Domestic Garbage Classification

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Abstract

Garbage classification has always been an important issue in environmental protection, resource recycling and social life. In order to improve the management level and recycling efficiency of hazardous household waste reducing its environmental and social risks, this paper designed targeted questionnaires and a total of 954 valid questionnaires were collected. Through the analysis of 954 effective online questionnaires, the results indicate that there are obvious deficiencies in the cognition of hazardous domestic waste, Classification and collection techniques, and identification of hazardous domestic waste. Some measures were put forward, such as establishing scientific channels for the collection, recycling and disposal of hazardous domestic waste, perfecting the management system and catalogue of hazardous domestic waste. The results provide a reference for scientific and standardized management of hazardous domestic waste.

Keywords: Harmful Domestic Waste; Classification; Collection; Resource Utilization; Management

Introduction

Garbage is not a kind of waste but is misplaced resources. From a resource point of view, garbage is the only resource on earth that is growing. It is a potential resource which is placed in a specific location [1]. From the perspective of ecological environment, it is no doubt that garbage is a source of pollution. In the face of the reality of the flood of garbage, people no longer pay attention to the old problem of how to control and destroy garbage. People have begun to take proactive attitude and effective measures to eliminate waste generation from the source [2]. Currently, garbage is used as the secondary energy source to provide energy and economic benefits to maintain sustainable development.

Hazardous domestic waste (HDW) refers to the waste produced in domestic life containing toxic or harmful substances, which pose a threat to human health and the natural environment. HDW is constituted by waste batteries, fluorescent lights, thermometers, medical products, disinfectants and so on [3]. In 2016, more than 1.8 million tons of hazardous domestic waste were produced in China, and was about 2.6 times that of medical waste in the same year [4]. Currently, the classification and collection, transportation and treatment of HDW need to be paid more attention by the management departments. Improper disposal of HDW will cause serious ecological and environmental harm, so it is necessary to adopt special and correct methods for safe collection, disposal or recycling [5]. China has a standardized, complete, rigorous and scientific management system for the management of industrial hazardous wastes, while the management of HDW is much weaker [6]. Currently, HDW is exempted from hazardous waste regulations in many countries [7]. Its sources are widely distributed and a small amount of production. It is impossible to apply management measures such as declaration and registration and transfer of documents to thousands of family units [3].

So, it is a major challenge for us to clarify the problems existing in the management of HDW and to maximize the utilization rate of resources through scientific and effective management. A full understanding of the current status of HDW classification and collection management is the premise of proper management of hazardous household waste, maximizing its benefits and minimizing its harms. Therefore, we designed a questionnaire to explore the problems existing in the management of HDW and the ways to solve the problems.

The problems existing in the management of HDW

There are still many problems in the management of domestic waste, especially in HDW management. To fully understand existing problems in the HDW classification, collection and management, we performed the online questionnaire and statistical analysis method, analyze the problem that exists in the HDW management, and propose problem-solving strategies.

Introduction to the basic situation of the survey population

A total of 954 valid online questionnaires were conducted. From the perspective of gender, there are 442 males, accounting for 46.33%, and 513 females, accounting for 53.67%. The proportion of men and women in the survey population is basically balanced. Women pay more attention to this issue. 64.88% of the respondents have a science and engineering background and 16.77% of the respondents have a liberal arts background. In terms of age distribution, 5.35% of those surveyed are under 18 years old, 77.57% of those surveyed are between 18 and 45 years old 17.09% of those surveyed are over 45 years old. From the perspective of education level, 142 respondents with high school or below account for 14.88%, 85 respondents with college degree account for 8.91%, 483 respondents with bachelor degree account for 50.63% and 244 respondents with master degree or above account for 25.58%. The educational background composition of the respondents indicates that people with higher education level pay more attention to the management of HDW classification.

In terms of occupation, there are 434 students (accounting for 45.49%) 180 employees of enterprises (accounting for 18.87%), 223 employees of public institutions (accounting for 23.38%), 19 private owners (accounting for 1.99%), 49 freelancers and other types

(accounting for 5.14%) among the respondents. The results indicate that students and employees of enterprises and institutions pay more attention to the management of HDW.

Investigation on the cognition of classification and collection of HDW

In terms of the classification and collection of HDW, if we do not know what is HDW, it is impossible to carry out the classification, collection and management of them. However, 25.47% of our respondents do not know what HDW is in their lives.

It will be beneficial to the management of classification and collection of HDW if their harm to the ecological environment is recognized. The survey results suggest that less than 3% of people think that the harm of HDW is not great; no need for classification and collection of HDW is voluntary behavior. All these results show that there are some deficiencies in people's understanding of HDW classification.

About 5-10% of respondents commonly hold the view that the types of HDW are not many, the quantity is not large, and its classified collection is the work of the sanitation or environmental protection department. 19.18% of the respondents have never carried out classified collection of HDW, and 30.4% of the respondents have carried out such collection.

81.45% of the respondents believe that the classification and collection of HDW are of great significance and support it. 60.06% of the respondents believe that the standard management may be promoted through paid collection of HDW. 57.76% of the respondents believe that government enforcement is needed. 79.04% of the respondents think classification and collection of HDW require the active cooperation of each of us.

According to the results of the investigation, a small number of people are indifferent to HDW and insufficiently aware of the types of HDW at present. Most people have strong requirements for hazardous waste classification. It is urgent to need to take active measures from the management to promote classified collection recycling and reduction of HDW.

The problems existing in the classification and collection of HDW

HDW is scattered in thousands of households whose main features are large variety and total. Questionnaire results show that 575 respondents, accounting for 60.27%, do not know how to classify the collection. There are 462 respondents (48.43%) who do not know what hazardous waste is. 311 people accounting for 32.6% hold the opinion that the government does not enforce enforcement entirely and the people's implementation is entirely conscious. 749 respondents accounting for 78.51% thought that there was a lack of supporting collection measures after their own classification at home.

It can be seen from the survey results that people have recognized the harmfulness of HDW and hope to maximize its resource advantages and reduce environmental risks through classification and collection. However, due to various restrictive reasons such as the lack of classification and collection methods and policies, most people do not know how to do a good job.

Investigation and collection of HDW

A total of 578 of the 954 respondents listed some types of HDW. Most of them have listed five types, most of them have listed no more than two types. The total number of types reported by the survey respondents is 19 types and the list is as follows: Waste batteries, expired drugs, waste light tubes, waste mercury thermometers, waste electronic products, waste paint and paint buckets, waste drugs, waste pesticides, waste masks, expired cosmetics, expired nail polish, waste heavy metals, waste needles, waste oil buckets, waste disinfectants, waste medicine bottles, waste hair dyes, waste perfumes, waste mousses.

The survey results indicate that the public is aware of limited types of HDW since the official has not clearly announced the list of HDW and the public also lack awareness of attention.

Countermeasures and Suggestions

Strengthen the public publicity of HDW

Guide the public to analyze the causes of HDW, whether it can realize recycling within the family, and find ways to produce less or not. The government and public welfare organizations should regularly carry out publicity activities on HDW and establish a publicity platform for HDW [8] to publicize the harm of HDW, its classification method, the direction of recycling, its environmental benefits and economic benefits. Strengthen positive guidance and eliminate false awareness. To improve citizens' awareness of the classification, collection, and recycling of HDW and the government's management ability.

Establish scientific ways for collection, recycling and disposal of HDW

Pilot areas for the classified collection and disposal of HDW should be established. The targeted classified method of the local HDW can be designed combining with the characteristics and actual situation of the local area. Firstly, the HDW that can be recycled should be recycled. Secondly, for the small amount of HDW that are not suitable for resource utilization, they can be collected to the temporary storage points of regional hazardous wastes and treated and disposed of according to the disposal method of hazardous waste reducing its ecological environment risk [9].

Improve the management system of HDW

Through the establishment and improvement of the system, the public consciousness of the responsibility of classification and collection [10] of HDW will gradually become a part of daily life and become a conscious action.

Establish and improve the list of HDW

On the basis of the existing types of HDW, the list should be further improved by pooling wisdom from all sides and combining with expert argumentation. An official list can provide correct guidance for their classification and collection.

Conclusions

From the perspective of exposure, the HDW around us may have a greater impact on our health than the waste storage sites, which need to be paid enough attention. The whole process of scientific prevention and control should be solved from the system perspective, especially from the perspective of resource reduction and resource utilization, rather than the end treatment afterwards. The resource generation of waste, the intermediate reuse and the terminal disposal of waste depend on social, economic, technical and administrative integrated means, which is systematic engineering.

Through the standard management of HDW, the system classification can be realized. Through systematic publicity and training for the general public, the information sharing platform for HDW is established. The classification, collection, recycling, and disposal of HDW will become a green living habit of low carbon environmental protection. The collection, recycling, and safe disposal of HDW will contribute to creating and maintaining a beautiful ecological environment.

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Supplementary information

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