CHINA'S REFERENCE TO THE EXPERIENCE OF EU WASTE DISPOSAL AND MANAGEMENT

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Abstract: With the development of global economy, the more and more domestic waste comes from human beings, the management level and efficiency of waste disposal affect the economic development of the region and the living standard of the people, and the garbage disposal mode of the European Union is advanced and efficient. It is of great reference significance for China with a large population. This paper proposes to improve the ability of garbage disposal and waste utilization in China through advertising, charging by quantity, encouraging recycling, subsidizing environmental protection enterprises, and perfecting environmental legislation.

1. Introduction
Municipal Solid Waste Disposal is an important problem which decides sustainable urban development. After a long period of exploration, urban waste disposal system is the main development trend of the future and principal of Municipal Solid Waste treatment. "The reduction, reuse and harmless" are states in their efforts to pursue the goal.

2. History of the waste sorting in Europe
Waste has long history with the history of mankind. In the Middle Ages, compost, landfill, incineration, feeding animals have been tasks of the natural.¹ But with the development of the industrial revolution, the human’ waste volume multiplied of growth, then went into the age of the fast production – consumption – abandoned. The consumption ability of the nature is increasingly insufficient, and the ways of waste disposal is facing unprecedented challenge. What’s more, the latter half of the nineteenth century, and the government undertook major work of waste removal. This is the second stage of solid waste disposal, the third stage is the 1970s, Government began to attach importance to waste sorting and recycling. The development of technology provide a basis of recycling, but more difficult than the technology is to educate people spontaneous to waste sorting, to change garbage makers into the garbage collector, this is the real challenge of municipal administration. In 1994 the world's population is four times in 1900, it is expected by 2025 will exceed 9.4 billion people, most people focus on the crowded city, people will throw away more and more waste. Waste sorting provides a foundation for environmental protection and waste recycling. In Europe, calling people to sort waste had also experienced the failure, and, in 1872, people throw away...
200 grams garbage per person per day, less to 700 grams in 1922 in Paris, to 1.6 kg garbage in 1994. With the economic development and material wealth increasing, people no longer mended some old stuff, and accustomed to recycling but to buy new things, and soon discarded. As early as 1782, French law was subjected to "Families with rubble, pottery, broken glass, broken bottles or waste paper, should put the waste into the baskets or other containers, and transported the roadside to stake piles and separate the soil, do not mix. In 1884, Paris Mayor called again waste sorting, but the same law was not complied. In 1974, in LaRochelle, French, government took charge of pick-recyclable waste and committed to improve beach, but after ten years this approach was annulled because income is too low. In the same year, the French government set up the first waste-bin of waste glass, almost all of the citizens of Western countries required throw the glass bottles into professional waste-bin. In the early 20th century, In Germany, some cities tried to make use of a grid of waste sorting. Nordic European countries require residents to throw paper and bottles in the curbside collection trash in different colors. Blue trash lays paper, yellow trash lays plastic waste, small box is used to hold the battery. In the middle of the 20th century, the United States used tracheotomy, there are three trashes per household that respectively for laying food waste, waste and ash. This sorting system was later replaced by a new way. In 1983, six Pennsylvania municipalities enacted legislation to distribute 45,000 boxes to the households, and then regular reclaimed valuable metal, plastic, and newspapers.1 The Japanese put trash into combustible and noncombustible waste, even worse, such as Hiroshima divided into combustible, non-flammable, recyclable, hazardous materials, bulky items. In the Netherlands, the government less use landfill to dispose waste. For landfill, the government imposes high landfill tax. After the waste sorting, residents put them on the curbside, the sorted waste is transported by cleaning companies, there are glass recycling bins in the supermarket parking. By the road side there are batteries, paint and old clothes recycling bins, bulky waste items specially appoint with the government to be recycled. Now in Netherlands, government begins use Intelligent garbage truck, pours the waste sorting into the truck, and also installs cameras to scan the code of the waste bags to determine the volume of each of the trash and in order to calculate the waste of disposal fees, and garbage bags are purchased and affixed own code, in order to control some of the people to save money to transport to the outside or into a neighbor's trash. In Germany, the government first to adopt "who produce who recycle" principle, the recycling bags and boxes are reclaimed by the manufacturer, or are recovered by the recycling company, amount depends on the number of production. In two years, on the packaging production and consumption decreased by 8%. Switzerland pay more intention of recycled resource, many people have the five garbage bags in home, a kitchen garbage, a fitted newspapers and waste paper, a fitted glass jar, a plastic bottle fitted. If people take not waste sorting as required, in addition to heavy fines, the Government's garbage trucks will be absent in this area for several days, so that the surrounding neighbors create pressure to this family. It has been observed in Western countries, the government collect forwardly garbage is more efficient than that people thrown voluntarily waste sorting into the trash, but it was costly and then the government adopted by the voluntary waste sorting. Government needs to educate people to protect environment, avoid waste. But as soon as the mobilization relaxed, people let down. European countries send community workers to give publicity to people. But facts have proved that when the request of the waste sorting is simple, it is easier to perform, the government sometimes makes use of social pressure on people to monitor each other.

3. Current situations of waste sorting in China
Different Chinese cities have different ways, for example, Kunming, the capital city of Yunnan Province, the sixth national census 2011 population of 6,432,212, covers an area of 21,473 square kilometers.2 From November 2005 started the "Kunming municipal waste management regulations". In reference, municipal solid waste management will be a gradual realization of collection by barges and sorting, enterprise and residents will throw the waste into the designated bins, transport company will transport them to designated trash collection sites. Now, the government place the recyclable and non-recyclable trash on the street. But most people did not follow the requirements of
waste sorting. Some environmentalists and the elderly of economic savings sell available waste paper, plastic, metal to waste purchaser, and throw the kitchen waste to the trash. "Waste collection to send " is a edge sector, but on the past few years in China, this sector is actively effective on protection of environment, reducing waste, controlling pollution, relieving the employment pressure. After the founding of The People's Republic of China, as early as in 1950’s, purchase of recyclable waste is state-owned, because of kitchen garbage is more than recyclable waste. In addition to the tiredness and dirty, they was out of the market. What to replace is a migrant workers, but because economic reason, they are interested in high value waste, such as cardboard box, packing bag and metal materials than those as plastic bags and plastic waste. The difference is that enterprise produced waste can profit by sending recyclable waste, without paying a large amount of producing waste costs. Government control is not tough enough, on the one hand, most of the recycling are machined by some small business, the quality of recycled paper products can’t be guaranteed. On the other hand, some small business of recycling become the caches of stolen goods, theft, sabotage and other crimes. Now Kunming only has two landfill, They can no longer suffice the growing pressures of urbanization, expected by 2020. The government will build seven integrated waste treatment plant. However, beginning in December, 2010, Kunming Urban Management Bureau entered a turnkey agreement enterprise with the International Association Company. It will be complete realized that the waste becomes the resource. The International Association Company designs a " sorting in household, cleaning by group, collection by village, transport by township, counties dealing with by county" resource-based model dealing with the city’s waste. Recently, garbage bags are being distributed and designed, and the company distributes the brochure of knowledge of waste sorting, arranges laid-off workers composed of professionals collection team that transport the waste into the designated "garbage collection trash " from time to time. About the disposal fees of waste, 10 yuan per household per month, now the government is working on calculation waste disposal fee in accordance with household water consumption.

4. Results

By comparison, China will learn from European countries in terms of waste disposal. They are as the followings:

In the first place, the government should promote to increase investment in public service, such as bus stop advertising, bus advertising and even a prime time on CCTV, although it will be spent, but it is better in the long run. It can also be broadcasted by propaganda vehicle and be explained by community workers and other ways.

In the second place, the waste disposal fee should be calculated according to the volume of waste, thus the volume of waste will be reduced, the government encourage enterprises and people in reusing the waste of resources or sold to the purchasers of recycling waste.

In addition, learning the German packaging regulations, the fees of waste disposal should be charged according to the packaging, it should be encouraged in reducing packing and recycle their own packaging for the enterprises.

What's more important, the government should subside this cycle of enterprise like the International Association Company, there have been similar enterprises in Shanghai, Beijing in China, but they have failed to make ends meet. From the European experience, government give subsidies to enterprises to promote recycling production and environmental protection, the subsidies to recycling waste disposal enterprises is more than incineration and landfill processing enterprises. The government will return the fees of waste disposal from product enterprises and people to waste dispose company.

1 Anonymity, 2011. VI national census main data are published in Kunming city. Retrieved May 26, 2011, from http://www.chinadaily.com.cn/dfpd/yn/bwzg/2011-05/26/content_12587674.htm
Due to the different economic development levels in Europe and China, the European model of waste disposal seems to be more advanced, but we should perhaps see that the problem of European unemployment rate will slightly be released by waste collection sector.

Acknowledgements
Many people have made invaluable contributions, both directly and indirectly to my research. I would like to express my warmest gratitude to Wanchongju, my colleague, for her instructive suggestions and valuable comments on the writing of this thesis. Without her invaluable help and generous encouragement, the present thesis would not have been accomplished. Besides, I wish to thank my colleagues Chenliping, who helped me search for reference. Finally, I greatly appreciate my parents and husband's support and endless love. My heart swells with gratitude to all the people who helped me.

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