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Municipal solid waste management of Mongolia: Analysis on the solid waste treatment of Ulaanbaatar city

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Abstract –This paper focuses on the solid waste management of Ulaanbaatar city by analyzing its current situation, major challenges as well as concerning implemented actions based on the researches of international joint projects. The main goal of this analysis is to identify the complex problems facing with the city administration to handle the solid waste properly while seeking possible solutions to make recommendations for further improvement of waste management.

Keywords –City administration, solid waste, proper management, policy reform

1. Introduction

Waste has not been considered a serious issue for Ulaanbaatar, 1,359 km2 divided into 9 districts, until its population has boost into total of one million /one third of the total population/. Due to the economical development and continuing transference of market economy Ulaanbaatar became a center of science, culture, trade, services, industry and business of the country. As a result, the municipal planning policy gets lost its way to handling environmental issues. At present, Ulaanbaatar has severe pollution of both soil and air generated from the wastes which were improperly disposed. Most of the solid waste is usually delivered to the disposal areas without any elementary classification. According to the JICA research team 150 thousand ton solid wastes have produced annually in Ulaanbaatar city, mostly composed with plastics, glass, organic, paper, metal and inorganic wastes. In the meantime the research carried out by the Municipal Governor's office concludes that 700-750 ton daily and 260-280 thousand solid waste produced annually in Ulaanbaatar by households, enterprises and industries. According WHO survey results, it was established that one citizen of a city produces 0,354-0,535 kg waste a day. 75% of total waste is collected by city waste maintenance organizations and 15% is transported by the organizations with their own trucks and 5-10% of waste is left without being transported. Currently there are 173 trucks registered for solid waste transportation in Ulaanbaatar city, however over 30 percent is old trucks with outdated use. Also the statistics show that only one third of the Ulaanbaatar population live in apartment buildings and two third are living in the house region or traditional dwelling GER district where the illegal dumping has out of control and left without any charges. On the other hand waste collection fees are not very high in those areas due to their low income and scarce social education which makes many problems for authorities to handle their huge amount of waste with that tight budget.

Generally, the Municipal Governor's Office is in charge of waste treatment along with its executive agencies including environmental protection authority and district maintenance companies. But there is a lack of potential policies, techniques, financial resources and human resources. At a national level, government policies are mostly delayed and public organizations, NGOs and civil group's participation has being so poor while implementing a number of foreign projects' comparatively low efficiencies than other Asian countries.

2 . Major challenges

However, there are many requirements can be named under this issue; the major decisive challenges can be divided into 3 levels including three parts' participation.
First of all, in national level government has to upgrade its legal system as well as reform methods of controlling and implementing them with high consideration of future changes,

Secondly, in local administrative level the city authorities has to research possibility to recycle and reuse by constructing related infrastructures, as well as reform

waste payment and punishment system while improving public education on managing waste.

Thirdly, in communal level public organizations and NGO's participation is needed to improve people's contribution in the society by providing them proper knowledge and information in order to build the social habit to manage waste properly.

2.1 Problems

In case of Ulaanbaatar city, the waste managing problems can be explained by its sudden growth of population. Before 1990's democratic revolution the city had enough space and well controlled city plan. But today the city can hardly clean present waste and couldn't destroy them completely. The most certain problems now facing are:

Lack of proper disposal areas/sites: Presently, there are only two waste disposal sites /landfill/ near the city and several open field areas in Ulaanbaatar city. It is being highly polluted areas the wastes left behind on the field where the hundreds of scavengers live on.

Lack of system techniques and transportation: Waste collecting trucks and other transportations now used are mostly second handed techniques from the foreign projects. Some of them are difficult to work in the Mongolia's harsh winter weather.

Lack of classification, collection and charge system: Originally, there is no classification system or standard for the city besides health care wastes. All households, enterprises and industries even governmental organizations throw their wastes for collection without any classification.

Lack of human resources and financial resources: The Municipal Governor's Office has one officer responsible for the city's environmental policy planning. Ulaanbaatar's environmental protection authority including the air quality department consists of only 15 staffs.

Lack of monitoring and interrelation of government agencies: Even though the government had passed several laws and acts regarding waste management while there are still exists many municipal regulations, controlling and evaluation system of implementation has been always delayed. Monitoring and charging of implementation agencies are not quite equal to conclude its real activeness. Furthermore, governmental and municipal organizations work separately and there is no environmental management structure that would ensure the coordination between these organizations.

3. Implementations

Earlier legal efforts regarding environmental protection took place after the 1990's. The law on natural environment had passed in 1995. Afterwards, Law on prohibition and export of hazardous waste /2000/, Law on household and industrial waste management /2003/, Law on payment of package and case imported goods /2005/ were adopted by Parliament.

At the international level, Mongolia joined "The Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes" in 1996, "Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade" in 2001 and "Stockholm Convention on Persistent Organic Pollutant" in 2004.

In the frame work of Municipal Governor's Office, National program on Reduction waste /1999/ started to implement primarily on central 6 districts. A rule on classification, collection, temporary storage, transportation, treatment of hazardous wastes (2002), Regulation and procedures on disposal and landfill of hazardous waste of business entities, and requirements on waste containers and waste disposal sites (2006), Methodology for calculating waste norms (2006), Payment calculation methodology for hazardous waste (2006) , Regulation on labeling hazardous waste (2006), Regulation on national reporting and inventory of hazardous waste (2009) are now exist.

3.1 International collaboration: analyzing joint project results

Since 2000, Ulaanbaatar Governor's Office has been expanding its foreign relationship by signing city to city friendship treaties along with governmental cooperation level. The most influential partner and the biggest investor on the waste management field is now Japan. With its rich experience and highly developed system Japan is very welcomed to Mongolia implementing projects that intended to research, evaluate the situation and develop methodologies of proper management for Mongolia through it JICA organization. According to the JICA studies Master Plan for Ulaanbaatar city waste management has developed that targeted to 2020. Japanese Government also decided to give a grant aid worth of 10 million USD due to build new disposal site in Ulaanbaatar which were started in 2009.

Within the international cooperation framework Ulaanbaatar has been implementing several numbers of projects namely the following;

JICA development Study for "Solid Waste Management Plan for Ulaanbaatar City in Mongolia" /2004-2007/, also JICA Master Plan 2020 was formulated. World Bank loan project "Public Services improvement of Ulaanbaatar city" grant project of Australian Government "Waste Composition study of Ulaanbaatar" in cooperation with the WHO and American "Cal Recovery" company;" "Environmental Strategic Plan of the Capital city area of Mongolia" financed by Netherlands Government and World Bank. "Green Productivity Training" in cooperation with Asian Productivity Organization, South Korea: with KOICA - 3R project 2010.

Both long and short term projects are required to do basic studies on the current situation as well as doing feasibility researches by making public surveys, field exploration and training local staffs. But most of their final reports said that citizens' understanding of managing waste is so weak to deal with while human resources capacity is still very low. On the other hand Ulaanbaatar's poor infrastructure, harsh climate and governmental organizations slow response and reaction are always been affected to their projects' result.

4. Comments and recommendations

As waste treatment is complex issue required constant and long term implementation, in any case it is needed to have well founded base to the better development. According to this analysis, the following recommendations are worth noting for the future improvement of Ulaanbaatar waste management;

-To upgrade legal documents both nationally and municipally, considering its implementation and future trends while improving its effective punishment mechanism,
-To organize educational activities to improve public awareness on the waste problems,
-To strengthen the capacity of human resources and technical equipments,
-To increase the cooperation of governmental agencies as well as with foreign project units and NGOs, also distinguish governmental and municipal responsibilities by promoting municipal power,
-To reestablish waste collection fee system at the same time to increase financial resources of city waste handling,
-To construct recycling plants which will be meet with future changes and challenges,

In order to achieve upper goals, related authorities should respond effectively by promoting strategies. Because the waste management is one of the important services of municipal administration it should be fulfilled by its continuously researches and activities to provide its citizens more comfortable and safe environment to live. Importantly, citizens are the influential factor to participate with and to inform to.

5. Conclusion

It is still needed the further long-term study till city administration build its own base both legally and operationally concerning highly educated human resource and well informed public education. Therefore, it is essential to adopt a national policy and implement a comprehensive action plan which was designed on our own situation with a proper solution of budget and equipment. Although the challenges are complicated, the well organized and constant activities could reduce the side effects and huge mass of domestic solid waste. In conclusion, it is needed to solve not only technical and financial issues but also it is very important to improve community and entity participation and its coordination in waste management. It means we should not only rely on international invested projects or take foreign countries management plans but also to make our own clear vision and prosperity of waste management.

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