

## Technical Cooperation Project for Strengthening the Capacity for Solid Waste Management in Ulaanbaatar City in Mongolia

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In the 5th volume of our newsletter, we would like to introduce the current progress in relation to three kinds of our pilot project activities and “operation & maintenance of equipment”.

### 1. Mongolia-Japan 3R Public Event

“Mongolia-Japan 3 R Public Event” was held at the Japan Center from April 29 to May 1, 2011. The purposes of this event are to enhance the public awareness on the waste issues and promote active participation in our waste separation & recycling PP.

Especially for this event, we invited a famous environmental cartoonist Mr. Hiroshi Takatsuki and 6 other volunteers from Japan.



Mr. Takatsuki is a professor of Ishikawa Prefectural University and professor emeritus of Kyoto University. He has been drawing environmental

cartoons as a pen-name “High Moon” since his early childhood for over sixty years. His cartoons are very adorable and easy to understand so being widely used as an environmental education material by NGO, the municipality, and researchers not only in Japan but also in other countries.



During the whole 3-day event, we had various kinds of program activities and in total there were around 260 peoples participated. In the exhibition hall, we displayed original

“High Moon” cartoons and some recycled goods

such as shopping bag, coasters made from waste, and also had eco-bag making work shop for school children.

In the opening ceremony on April 30, EPWMD senior officer, the Japanese ambassador and JICA representative in Mongolia made opening remarks. Then, Mr. Takatsuki made a presentation regarding essential waste problems in Japan and a learning program concerning waste reduction. All of the participants were listening attentively to his comprehensible lecture that used many “High Moon” cartoons. Zorig Foundation (Mongolian NGO) also made a presentation on the recycling of used batteries.



In the seminar room, “3R knowledge quiz” was given for 45 students in order to examine the recognition level of 3R of Mongolian citizens. Although the concept of “3R (Reduce, Reuse,

Recycle)” has not been well known yet in Mongolia, it seemed that Mongolian citizens became known through this program that the first priority should be

given to “Reduce, and “Reuse” as a second option, then “Recycle” as the last option in sustainable waste management.

The tea ceremony teachers from Kyoto demonstrated manners of the Japanese tea ceremony and then served green tea and sweets to the visitors. It seemed that everyone was enchanted by beautiful kimono-wearing teachers, although some of children were not used to the bitter taste of green tea.



On the final day on May 1, the workshop called "Let's draw the cartoon to reduce waste" was instructed by Mr. Takatsuki and there were more than 50 school children participated. Each group drew up a colorful, unique cartoon while ardently discussing on how to reduce waste. Then, they

explained the contents of cartoon in front of other participants to share.





We hope that more or less this event gave Mongolian citizens an opportunity to think more about waste issues and 3R!

## 2. PP1 for Waste Separation & Recycling – phase



The PP1 has been implemented in 4 target khoros; SBD#5, SBD#7, BZD#1 and BZD#7 (in green colored areas on the map) starting from April 2010 and it will continue up to the final year of the technical cooperation project. The second phase of PP1 has

started with the selection of new 4 target khoros; ChD#4, BZD#15, BGD#3 and KhUD#2 (in blue colored areas on the map) in November 2010. The following EPWMD officers are respectively responsible for implementation of PP1 in the newly selected khoros.

Khoroo	ChD#4	BZD#15	BGD#3	KhUD#2
EPWMD responsible officer				
	Enkh-Amgalan	Batbileg	Odjargal	Ariguun

They have already conducted POS on waste separation & recycling and currently conducting Time & Motion survey to improve waste collection system as well as organizing periodical AOU meeting at each assigned khoroo.



## 3. PP 2 for Separate Collection at SBD#7

### Purpose of PP2

The purpose of the PP2 is to collect necessary data for formulation of the most suitable collection system for UB city.

### PP Description

- 1) Target items: RPF<sup>1</sup> materials and valuables discharged separately by selected households.
- 2) Separate collection: every Tuesday, once a week, from apartments to the sorting yard of NEDS.
- 3) Period of separate collection: From May 17 to July 5, 2011
- 4) Data analysis & recommendation: The cost for separate collection, quality of recyclables and the level of public cooperation etc. are to be investigated in order to recommend the most appropriate separating system in UB City.

### Progress of PP2

#### 1) Selection of target khoroo:

The selection has been made among the

<sup>1</sup> RPF is “Refused Papers & Plastics Fuel”. These waste plastics and papers can be a fuel if they form a certain density and shape for feeding in Power Plant. Soon within 2011, RPF plant will be installed in NEDS by KOICA.

khoroos under the first phase of PP1; SBD#5, SBD#7, BZD#1, BZD#7. Considering several conditions such as 1) the expected generation amount of target items, 2) existence of places for storing target items i.e., closed DCs, and 3) degree of cooperation by AOU and collection provider, SBD#7 was selected as a target area.

**2) Arrangement of vehicles & equipments:**

Tsuzuku Yume which provides SBD#7 with usual collection was selected as a separate collection provider. They allocate 1 compactor truck for separate collection and PR sticker and different music from usual collection was attached to their collection vehicle.

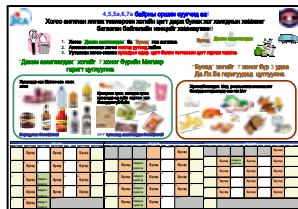
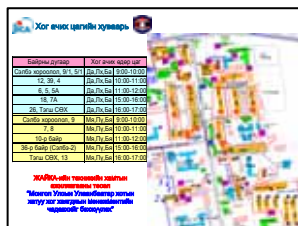
**3) Public education activities &:**

AOU meetings were held on May 3 & 10, 2011 and public meetings on May 15, 2011. Furthermore, the house-to-house visit to the target apartments was conducted from May 17 to May 20.



**4) Distribution of PR tools**

The following PR tools such as collection schedule table & collection calendar have been prepared and distributed through public meetings and house-to-house visit.



**5) Separate collection**

Separate collection is currently being conducted and after that, data will be combined with the result of the following PP3 on sorting operation.



**4. PP3 for Sorting Operation at NEDS**

**Purpose of PP3**

The purpose of the PP3 is to verify what kind of sorting system is suitable for UB City.

**PP Description**

- 1) Type of waste: 1) separated waste collected in SBD#7 under PP2 and 2) mixed waste collected in other khoroos.
- 2) Sorting method: 1) manual sorting and 2) belt conveyor sorting are to be conducted for above 2 types of waste by employing 20 WPs who are

normally picking valuables at landfill site.

- 3) Place: NEDS sorting facility.
- 4) Period of sorting operation: From May 17 to July 5, 2011.
- 5) Data analysis & recommendation: Weight and price of sorted recyclables and RPF materials are to be recorded. The 4 types of scenarios are to be compared taking account of working environment, technical feasibility, operation cost, social consideration, and efficiency of separation. The recommendation for the most appropriate sorting system in the UB City will be given to the EPWMD in the end.
- 6) The data will also be used to examine the feasibility of KOICA's RPF plant in the future.

**Progress of PP3**

**1) Construction of sorting facilities:**

The sorting facilities were constructed in NEDS next to the control building in July 2010 and the 20m straight conveyor was installed inside of the building in September, 2010.



**2) Waste pickers (WP) meeting**

One of the objectives of operation of sorting facility is to provide employment opportunity to WPs who are working in the NEDS so that the sanitary land filling will be improved. In order to train WPs to work under rules and conditions, WP meetings have been held since April, 2010. About 20 WPs who work at the sorting facility have signed the contract to follow the working requirements.

**3) Sorting operation**

The manual sorting and belt conveyor sorting of mixed waste have been already conducted but currently those of the separated waste are still being conducted as follows.

	Mixed Waste	Separated Waste
Manual sorting	July 27 to August 2, 2010	May 17 to July 5, 2011, Once in 2 weeks
Belt conveyor sorting	April 20 to April 28, 2011	May 17 to July 5, 2011, Once in 2 weeks

**Manual sorting of mixed waste:**

The collected waste from mixed collection area was unloaded from the collection vehicle to the manual sorting



ground.

WPs sorted the waste into 12 types of materials by hands and then weighed the total amount of each material.

The necessary information such as WPs' attendance and their working hours, operation hours of heavy machineries, weight and price of sorted recyclables were recorded for later analysis.



### Conveyor sorting of mixed waste:

The mixed waste was loaded into the belt conveyor from the collection vehicle and WPs sorted recyclables and RPF materials out of waste moving on the conveyor.

After sorting, 80 - 90% of residues were transported to the landfill site in the end.

All collected data will be incorporated for analysis after the completion of manual and conveyor sorting experiments of the separated waste in July, 2011.

## 5. Workshop for Operation & Maintenance of Collection Trucks with TUKs

"Workshop for Operation & Maintenance of Collection Trucks with TUKs" was held in the Ulaanbaatar hotel on April 14. One of the expected outcomes of our project is to strengthen the capacity for the operation and maintenance of equipment. Since commencement of the project, various inspections on conditions of waste collection trucks were conducted by JET and various kinds of training in the field were conducted as well.

The purposes of this workshop are to disseminate the findings during the inspections and to recommend for longer use of the equipment under good working conditions in the future.

In total, 36 persons including representatives from all district TUKs, EPWMD, CMPUA, CWSF participated in the workshop.



After opening remarks

from both Mongolian and Japanese side, JOCV senior volunteer Mr. Matsuda explained on "Hydraulic system".

One of the JET members Mr. Uzawa made a presentation on "Improvement of maintenance of waste collection trucks".

After tea break, another meeting room was prepared to make free discussion on the current issue relating to the waste collection trucks. During the management group workshop, the participants agreed on the following issues.

- CMPUA will conduct maintenance services two times a year according to the schedule.
- Maintenance services will be conducted according to the contract.
- TUKs agree to submit operation and maintenance report monthly.
- Utilization contract will be amended and scheduled to be signed.

We hope this workshop will contribute to improve operation and maintenance of collection trucks and to maintain service level of waste management in UB City in longer term.

## 6. Future Events and Activities

- AOU Meeting at each PP1 target khoroo: on going.
- Separate collection at SBD#7 & sorting operation at NEDS: from May 17 to July 5, 2011.
- Waste amount and composition survey: June 4, 2011 on going.
- Workshop for formulation and implementation of SWM Master Plan based on the experience in UB City to major aimags: June 28 - 30, 2011.

JICA Expert Team  
The Technical Cooperation Project for  
Strengthening the Capacity for Solid Waste Management  
in Ulaanbaatar City in Mongolia  
[Office] C/O CMPUA  
Bumtsend Street-68, Khoroo 6,  
Chingeltei District, Ulaanbaatar, Mongolia  
TEL: 011-327128 FAX: 011-323128  
Website: <http://www.kkcub.mn/>