

SECTION L 合同調整委員会

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L 合同調整委員会

L.1 第6回合同調整委員会

L.1.1 Agenda

The Sixth Joint Coordinating Committee Meeting on 18th May 2012 The Project for Strengthening the Capacity for SWM in Ulaanbaatar

Agenda

Date: 10AM on 18th May 2012,

Venue: 6th Floor of Mayor's Office Meeting Room

Chairperson: Project Director

1. Opening speech by Mongolian side, Project Director

2. Opening Speech by Japanese side, Representative from JICA Mongolia Office

3. Presentation of the Outcome of the Project

Item	Responsible Person	Minutes
1. Outline of the Project	Chief Advisor of JET	10 minutes
2. Progress and Outcome of the Project	EPWMD	20 minutes
3. Assessment Results of the Project	Assessment Team	20 minute

4. Discussion

5. Recommendation by Assessment Team Leader

6. Closing Speech: Project Director

Attachment 1: Progress Report No.5

Attachment 2: Power point presentation

Attachment 3: Members of Joint Coordinating Committee

Attachment 3

Members of Joint Coordinating Committee

Assignment	Name	Position and Organization
Chairperson	Mr. Ch.Bat	General Manager of Ulaanbaatar City and Chief of the Mayor's Office, Municipality of Ulaanbaatar
Member	Mr. B.Khurenbaatar	Director, Department of Development Financing and Cooperation, Ministry of Finance
Member	Mr. Ts.Banzragch	Director, Sustainable Development and Strategy Planning Department, Ministry of Nature, Environment and Tourism
Member	Ms. S.Tugsdelger	Director, Public Health Policy and Implementation Coordination Department, Ministry of Health
Member	Mr. L.Baatartsogt	Project Manager, Director, Environmental Pollution and Waste Management Department of the Mayor's Office, Municipality of Ulaanbaatar
Member	Mr. B.Byambadorj	Director, City Maintenance and Public Utilities Agency
Member	Mr. L.Byambasuren	Director, Capital City's Specialized Inspection Agency
Member	Mr. Toshinori ISOGAI	Chief Representative, JICA Mongolia Office
Member		JICA Expert Team (JET)
Observer		Representative(s) Embassy of Japan in Mongolia

L.1.2 プレゼンテーション資料

Joint Coordinating Committee Meeting No6

The Project for Strengthening the Capacity for Solid Waste Management in Ulaanbaatar City

May 18, 2012
Project Team for SWM in Ulaanbaatar City

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Agenda

1. Outline of the Project
2. Progress of Third Phase and Outcome of the Project
3. Final Assessment of the Project
4. Others

2

1. Outline of the Project

Mr. Kono
Chief Advisor of Japanese Expert Team

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a. Joint Coordinating Committee members

Assignment	Name	Position and Organization
Chairperson	Mr. Bui Champoug	General Manager of Ulaanbaatar City and Chief of the Mayor's Office, Municipality of Ulaanbaatar
Member	Mr. B.Hurenbatar	Director, Department of Development Financing and Cooperation, Ministry of Finance
Member	Mr. T.Bauzragch	Director, Sustainable Development and Strategy Planning Department, Ministry of Nature, Environment and Tourism
Member	Ms. S.Tsigdelger	Director, Public Health Policy and Implementation Coordination Department, Ministry of Health
Member	Mr. Baidarsogt	Director, Environmental Pollution and Waste Management Department of the Mayor's Office, Municipality of Ulaanbaatar
Member	Mr. Byambadorj	Director, City Maintenance and Public Utilities Agency
Member	Mr. L.Bayamburen	Director, Capital City's Specialized Inspection Agency
Member	Mr. Toshio Inagoi	Chief Representative, JICA Mongolia Office
Member	JICA Expert Team	
Observer	Representative(s) Embassy of Japan in Mongolia	

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b. Counterpart Personnel

Output	Main C/P	Support. C/P
1.Policy making and Planning	EPWMD (S.Arignun)	CMPUA (D.Purevdorj)
2.O&M of Equipment	CMPUA (O.Luvsandagva)	EPWMD (T.Enkh-Amgalan)
3.Operation of NEDS	CMPUA (D.Amgalan)	EPWMD (Sh.Chantsainurmaa)
4.Waste Service Fund	EPWMD (Z.Mungunzul)	
5.Public Awareness	EPWMD (E.Batbileg)	CMPUA (A.Oyunchimeg)
6.Waste Separation and Recycling	EPWMD (O.Oojargal)	CMPUA (E.Idorchuluun)

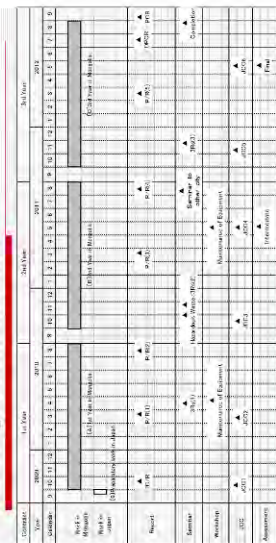
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c. Japanese Expert Team (JET)

Assignment	Name
Team Leader/SWM Financial Management2	Ichiro KONO
Maintenance of Equipment	Koji UZAWA
Collection and Transportation	Junji ANAI
Landfill Management	Hiroshi FUJITA
Financial Management 1	Susumu SHIMURA
Public Awareness Raising	Yuko AOKI
Waste Separation and Recycling	Mie NAGAYASU
Database Development/ Administration Coordinator	Shimosuke ODA

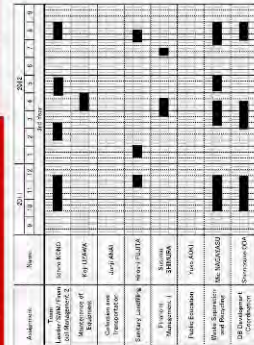
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d. Project Schedule



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e. Japanese Expert Assignment



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2. Progress of Third Phase and Outcome of the Project

Counter Part and JET of the Project

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Activities for Output 1

- a. Training on Formulation of Regulation and Guidelines
- b. Formulation of Revised M/P
- c. Formulation of EPWMD Action Plan
- d. Organizing Final Seminar on August 2012.

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Proposed Action Plan of SWM in MUB from 2013 to 2016

1 Goal

The fundamental goal of the A/P for SWM in MUB is:
 "To establish an environmentally sound SWM system in MUB by 2016 through the promotion of 3R (reduce, reuse, recycle)".

Strategies (1)

Strategy 1: Establishment of proper waste management and recycling at generation sources
 Establishment of discharge rules
 Promotion of 3Rs at generation sources



Strategies (2)

Strategy 2: Improvement of collection and transportation system
 Strengthening of waste collection and transportation capacity
 Improvement of waste collection fee management systems
Strategy 3: Improvement of public area cleaning system
 Strengthening of public area cleansing services
 Elimination of littering

Strategies (3)

Strategy 4: Promotion of recycling
 Operation of RPF plant
 Support of recycling industries
Strategy 5: Improvement of final disposal system
 Implementation of sanitary landfill operation
 Construction of a new disposal site (TDDS) for eastern districts

Strategies (4)

Strategy 6: Establishment of hazardous waste management
 Improvement of legal background
 Establishment of hazardous industrial waste management
Strategy 7: Establishment of construction waste management
 Improvement of legal background

Revised Master Plan

Background

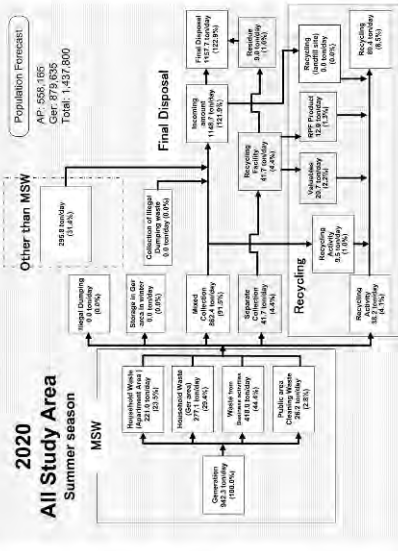
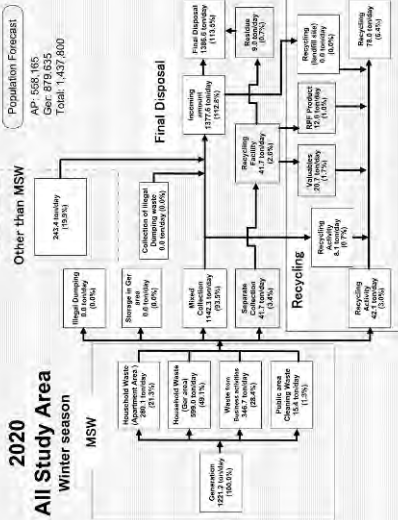
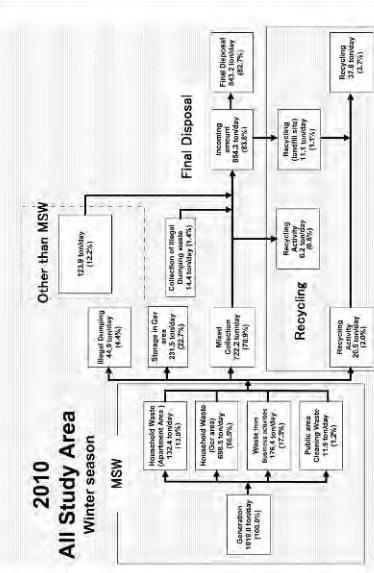
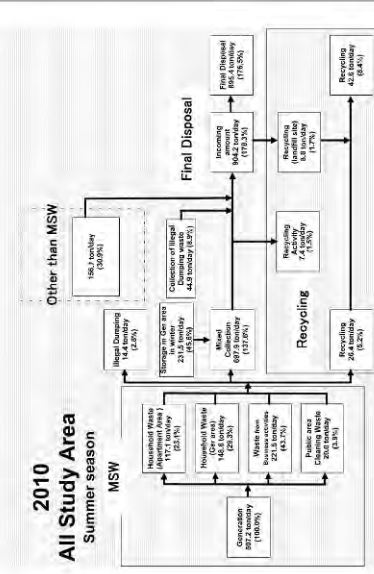
- M/P in SWM in UBC was formulated in 2006 for the target year of 2020.
- M/P should be implemented step by step.
 - 1st stage: 2006 to 2010
 - 2nd stage: 2011 to 2015
 - 3rd stage: 2016 to 2020
- Achievement of 1st step was studied and rest of the step will be revised if necessary.

Achievement of 1st step: Quantitative Target

Items	値 (2006)	目標値 (2010)	実績値 (2010)
ゴミ収集率	100	100	100
カパ地区	42.1	100	90
居住区に対する収集率	54.2	1.2	4.4
冬季	20.2	2.6	2.6
夏	0	15	0
アパート地区での分別収集	0	83,957	0
冬季	0	4.9	0
夏季	0	8.5	0
居住区に対する中間処理の比率	0	2.2	0
冬季	0	3.6	0
夏季	0	4.8 (1.0)	0
居住区に対するリサイクルの比率	3.0	8.4 (1.7)	0
夏季	6.6		
最終処分法		Sanitary Landfill	Sanitary Landfill
NEOS		Level 1	Level 4
その他		Open Dumping	Level 2
その他		Level 2	Level 2

Revised Quantitative Target in Stage 2 and Stage 3

Items	第1段階達成率 (2010)	第2段階達成率 (2015)	第3段階達成率 (2020)
ごみ収集率	100	100	100
カパル地区	99	95	100
衛生圏に対する周知率	5.4	5.9	10
冬季	2.4	1.4	0
夏季	0	0	0
ごみ処理場の分別収集率	18.4	30.0	85
分別収集人口	80,000	342,887	342,887
衛生圏に対する分別収集率	0.5%	0.5%	3.4%
冬季	0	0	4.4%
夏季	0	0	4.4%
衛生圏に対する中間処理率	0	0.3%	2.8%
冬季	0	0.4%	4.4%
夏季	0	0.4%	4.4%
衛生圏に対するリサイクル率	0	4.5%	6.4%
冬季	0	7.7%	8.5%
夏季	0	7.7%	8.5%
最終処分方法	Sanitary Landfill Level 4		
NEDS	Sanitary Landfill Level 4		
1.7の削減率	Sanitary Landfill Level 2		
2.3の削減率	Sanitary Landfill Level 3		



Activities for Output 2

- On the Job Training at Central Workshop for Operation and Maintenance of Waste Collection Truck
- Monitoring for Operation and Maintenance Report

Activities for Output 3

- Conducting Training in Mongolia
- Conducting landfill gas emission survey at NEDS
- Preparing environmental monitoring report on NEDS.
- 2nd Monitoring for Landfill Operation by Monitoring Committee was conducted on 14 May 2012.

Activities for Output 4

- Strengthening the capacity for comprehensive administration/financial management of SWM.
- Assistance for preparing guideline on calculating appropriate waste collection fee.
- Assistance for introduction of tender system
- Assistance for preparing manual on management of tender system
- Assistance for preparing weigh bridge operation manual.

Activities for Output 5

- Waste Fee Calculation Guideline

Background

- City Mayor issued ordinance for collecting waste collection fee together with electricity bill sometime June 2011.
- Accordingly power distribution company started to collect waste fee from July 2011.
- Previous waste fee collection rate surveyed by JET is 24% for 6 districts during Sep 2008 to Aug 2009
- Current waste fee collection rate in Ger Area clime up to 61% in December 2011.

Terminology

- Waste Collection Fee of Household
 - Waste collection fee to be paid by residents for discharging wastes
 - 2,000tg/hh/month for Apartment and 2,500tg/hh/month for Ger
- Waste Collection Fee for Transporters
 - Waste Collection Fee to be paid to waste transporting organizations
 - 65,000tg/trip, 75,000tg/trip
 - 1,300tg/ton/km and so on.

① Appropriate Waste Collection Cost per day (Tg/day)

	SBD	ChD	SKhD	BZD	BGD	KhUD
CT 8m3	129,093	127,221	113,930	136,956	120,108	131,340
CT 15m3	212,390	207,710	174,482	232,046	189,926	218,006
DT 6 ton	144,374	141,254	119,102	157,478	129,398	148,118

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Waste Fee Collection from Ger Area Households in each District

District	Actual Collection Amount in 2011											
	1	2	3	4	5	6	7	8	9	10	11	12
1. SBD	11,862	2,500	20,406	10,075	10,075	10,075	10,075	10,075	10,075	10,075	10,075	10,075
2. BZD	56,028	2,500	115,200	33,891	51,235	51,235	38,338	17,125	51,337	51,337	45,308	70,844
3. BGD	11,862	2,500	104,656	16,751	30,535	41,884	56,118	56,118	56,118	56,118	56,118	56,118
4. SKhD	18,000	2,500	45,253	14,238	22,807	23,187	13	24,898	25,604	25,604	25,352	5,486
5. KhUD	27,108	2,500	67,763	18,545	36,259	37,593	38	38,895	41,702	41,702	40,008	6,896
6. DT	17,229	2,500	430,650	107,046	174,320	202,192	211,440	233,662	251,744	251,744	251,161	6,036
Total	172,229	17,250	1,000,000	238,622	328,222	328,222	328,222	328,222	328,222	328,222	328,222	328,222

Net Collection Rate against Normal amount: 23%, 42%, 47%, 55%, 54%, 63%, 69%
Fee Collection Rate considering 20%: 19%, 29%, 36%, 44%, 45%, 50%

© 2010 IAHB Statistic

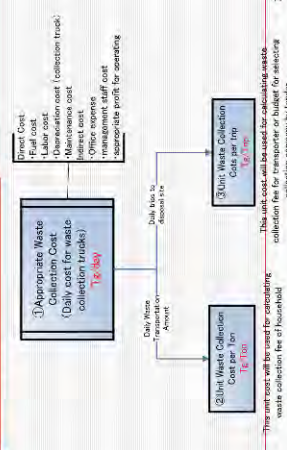
b. Waste Fee Calculation Guideline

Procedure for determining appropriate waste collection fee of household

1. Calculate appropriate waste collection fee for transporters
2. Sum up necessary waste collection cost to be paid to transporters.
3. Simulation of waste collection fee of household to cover waste collection cost.
4. Materials for policy makers (balance within district, cross subsidy among apart and ger, subsidy from Government etc)

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Waste Collection Cost per Ton and per trip



Cost & Income of Waste Collection for Apart and Ger Area (1)

□ Unit Cost for collecting waste in each area (Tg/ton)

Description	SBD	ChD	SKhD	BZD	BGD	KhUD
Apartment Area (CT8m3)	20,000	19,700	17,600	21,200	18,600	20,300
Ger (DT6ton)	26,800	26,200	22,100	29,200	24,000	27,500

□ Waste Generation Rate in 2010:
Apartment Area: 294 g/person/day (312w and 276s)
Ger Area: 627 g/person/day (1,034w and 220s)
□ Number of Family Member of a Household in 2010
Apartment Area: 3.8 person/household
Ger Area: 4.1 person/household

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② Unit Waste Collection Cost per Ton of Wastes (Tg/ton)

	SBD	ChD	SKhD	BZD	BGD	KhUD
CT 8m3	20,000	19,700	17,600	21,200	18,600	20,300
CT 15m3	17,500	17,100	14,400	19,100	15,700	18,000
DT 6 ton	26,800	26,200	22,100	29,200	24,000	27,500

Cost & Income of Waste Collection for Apart and Ger Area (2)

□ Waste Generation of a Household per Month in 2010

Area	Description	SBD	CHD	SKHD	BZD	BGD	KHUP
Apart (C80m3)	Tg/hm	20,000	19,700	17,600	21,200	18,600	20,300
	Tg/HH/month	670	660	590	710	623	680
Ger (DT60m)	Tg/hm	36,800	26,200	22,100	29,200	24,000	27,900
	Tg/HH/month	1,916	1,873	1,580	2,088	1,716	1,966

□ Estimated Income from a Household per Month

Area	Income (Tg)
Apartment Area	1,692 Tg
Ger Area	1,174 Tg

2,000Tg x 0.9 (collection rate) x 0.94 (OSNAAG commission)
2,500Tg x 0.61 (collection rate) x 0.77 (UBTSTS JSC commission)

Law and Regulation on selecting Waste collection organizations.

- Law on HH and IW
- Public Procurement Law of Mongolia.
- Decree of the Government of Mongolia #22 on approval of threshold value.

Tools for Introducing Tender System

- Preliminary Study Report
 ↑ For preparing technical specification
- Guideline for calculating appropriate waste collection fee
 ↑ For calculating budget for tender amount
- Prototype of standard tender form
 ↑ For preparing tender document

The Guideline of Contract Management

c. Introduction of Tender System

Type of Procurement

- Open procurement procedure
- Exceptional procurement procedure.
- Selection of contractor under comparison method

Which procedure should be introduced is depend on the contract price which was regulated under Decree of the Government of the Mongolia #22

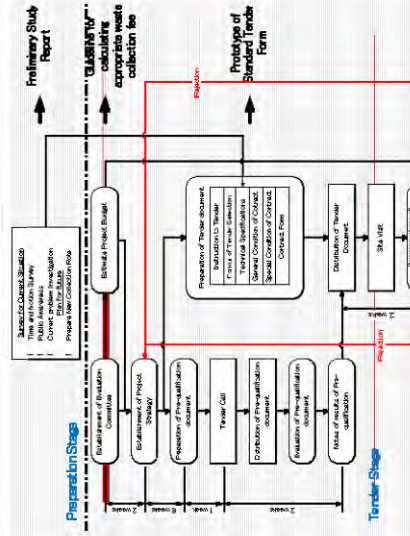
Activities for Output 5 and 6

- a. Conducting pilot project :Phase II
- b. Development of tools for raising public awareness on SWM

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Background

- Under the Law on HH and IW chapter 2 stated "District governor should select waste collection organization through competitive bidding system"
- Instead of above, almost all the waste collection organizations were selected without tender.
- In order to promote this tender system, prototype of tender document was developed for future improvement of SWM.



Brochure and time schedule

Booklet

3R推進ブックレットの募集。16歳以下。3R推進ブックレットの作成。3000部制作。ウ市の学生及び一都市長(6名)。

Language/A4 size/colorful paper.

2012 year calendar

ハイムーン漫画を描きました。

Brochure

表面・市民のゴミ出しルールチラシ。裏面・企業のゴミ出しルールチラシ。

3R Promotion Video

① 3R推進動画1 - ウ市の廃棄物管理の現状と課題についての紹介
② 3R推進動画2 - 企業や住民のゴミ出し、分別PPの重要性
③ 3R推進動画3 - ごみの分別禁止
④ 3R推進動画4 - ごみの分別推進

番組やCMをDVDにて、300部作りました。

2012 year calendar

2012年PP推進カレンダー：A3サイズ、250g
光沢紙、両面印刷。濡れればごみ、分ければ資源をスローガン。

5 Others

□ POS results on March 2012

Comparison of POS results in Nov 2009 and March 2012

Are you satisfied with urban environment and sanitary conditions in Ulaanbaatar City?

Q.1-1	Apartment area			Ger area			Total
	2009	2012	Change	2009	2012	Change	
1. Yes, it is very good conditions	2.2%	1.1%	-1.1	0.5%	4.8	4.3%	-4.1
2. Yes, it is good conditions	5.6%	4.8%	-0.8	5.1%	3.9%	-1.2	-1.4
3. Yes, but it is average conditions	35.8%	37.2%	1.4	34.5%	33.8%	-0.7	34.6%
4. No, it is poor conditions	33.8%	34.0%	0.2	36.6%	35.3%	-1.3	-0.5
5. No, it is very poor conditions	22.6%	20.1%	-2.5	18.6%	21.6%	3.0%	1.2
(Urban)	1.0%	2.9%	1.9	1.9%	3.0%	1.1	3.0%
(Total)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Share of ratings above average	43.6%	43.9%	0.3	40.6%	37.0%	-3.6	33.9%
Share of ratings below average	43.6%	43.9%	0.3	40.6%	37.0%	-3.6	33.9%

Comparison of POS results in Nov 2009 and March 2012

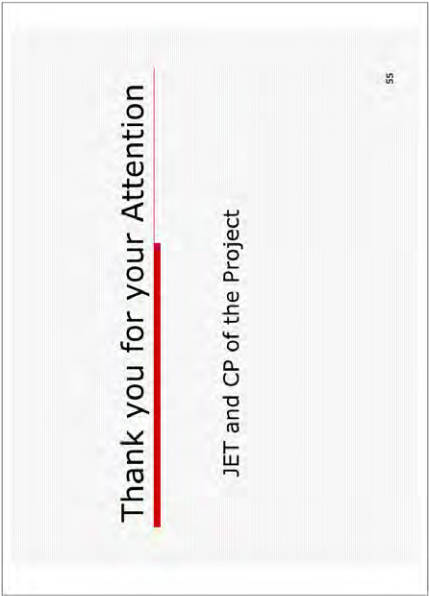
Which do you think the most serious problem is in whole Ulaanbaatar City at present

Q.2	Apartment area			Ger area			Total
	2009	2012	Change	2009	2012	Change	
1. Inadequate supply of water	0.7%	1.6%	0.9	0.5%	0.4%	-0.1	0.8
2. Air pollution	19.8%	46.5%	26.7	34.0%	31.5%	-2.5	31.1
3. Sewer problem	2.2%	4.0%	1.8	2.8%	3.4%	0.6	3.0
4. River contamination	1.9%	3.7%	1.8	1.9%	1.6%	-0.3	3.0
5. Noise problem	4.0%	1.1%	-2.9	0.3%	0.6%	0.3	0.1
6. Road noise (garage) problem	4.1%	0.7%	-3.4	0.5%	0.4%	-0.1	0.6
7. Lack of parking space	0.3%	1.1%	0.8	0.1%	0.4%	0.3	0.5
8. Public lanes in use (sidewalk)	0.2%	0.6%	0.4	0.3%	0.2%	-0.1	0.1
9. Emergency condition of pit (sewer)	2.7%	0.0%	-2.7	1.7%	0.2%	-1.5	0.4
10. Traffic congestion	2.1%	0.8%	-1.3	1.8%	1.3%	-0.5	0.6
11. Traffic condition of road	0.2%	0.6%	0.4	0.3%	0.4%	0.1	0.2
12. Inadequate supply of public transportation	0.2%	0.0%	-0.2	0.0%	0.0%	0.0	-0.3
13. Inadequate supply of public	0.2%	0.0%	-0.2	0.0%	0.0%	0.0	0.0
14. Other	0.0%	0.0%	0.0	0.0%	0.0%	0.0	-0.1
(Total)	0.0%	0.0%	0.0	0.0%	0.0%	0.0	-0.1

Comparison of POS results in Nov 2009 and March 2012

Are you satisfied with Solid Waste Management services?

Q.3-1	Apartment area			Ger area			Total
	2009	2012	Change	2009	2012	Change	
1. Yes, it is very good service	1.5%	1.6%	0.1	2.2%	1.7%	-0.5	-0.8
2. Yes, it is good service	19.3%	1.5%	-17.8	13.7%	9.0%	-4.7	-8.7
3. Yes, it is average service	42.3%	38.0%	-4.3	42.2%	42.1%	-0.1	-0.2
4. No, it is poor service	33.5%	34.2%	0.7	34.5%	30.9%	-3.6	-7.1
5. No, it is very poor service	19.3%	12.6%	-6.7	19.3%	15.3%	-4.0	-8.3
6. Do not know	1.2%	2.5%	1.3	1.5%	1.5%	0.0	1.2
(Urban)	1.2%	2.1%	0.9	2.3%	1.9%	-0.4	2.2%
(Total)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Share of ratings above average	53.3%	48.0%	-5.3	53.3%	50.5%	-2.8	-28.8%
Share of ratings below average	46.7%	52.0%	5.3	46.7%	49.5%	2.8	28.8%



L.1.3 Minutes of Meeting

MINUTES OF MEETINGS
ON THE SIXTH JOINT COORDINATING COMMITTEE

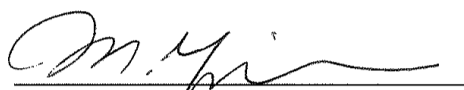
BETWEEN THE TERMINAL EVALUATION TEAM
AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF MONGOLIA
ON JAPANESE TECHNICAL COOPERATION
FOR THE STRENGTHENING THE CAPACITY FOR SOLID WASTE MANAGEMENT
IN ULAANBAATAR CITY, MONGOLIA

The Joint Terminal Evaluation Team (hereinafter referred to as “the Team”), organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”) and Municipality of Ulaanbaatar, headed by Dr. Mitsuo Yoshida, conducted the terminal evaluation on the Strengthening of the Capacity for Solid Waste Management in Ulaanbaatar City (hereinafter referred to as “the Project”) from May 7 to 18, 2012.

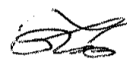
During the survey, the Team made interviews, field visits and had a series of discussions on the achievement of the Project and desirable measures to be taken by both Governments for the successful implementation of the Project.

As a result of discussions, the Team and the Mongolian authorities concerned mutually agreed upon the contents of the Joint Terminal Evaluation Report attached herewith and reported the contents to the Joint Coordinating Committee (hereinafter referred to as “the JCC”).

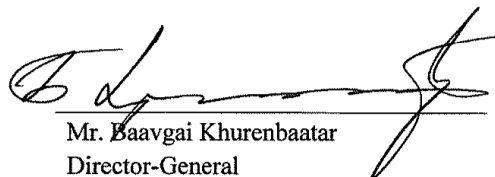
Ulaanbaatar, May 18, 2012



Dr. Mitsuo Yoshida
Leader
Terminal Evaluation Team
Japan International Cooperation Agency
Japan



Mr. Choimpog Bat
General Manager of City
and Chief of the Mayor's Office
Capital City of Ulaanbaatar
Mongolia



Mr. Baavgai Khurenbaatar
Director-General
Department of Development Financing
and Cooperation
Ministry of Finance
Mongolia

**AGREEMENT ON
THE JOINT TERMINAL EVALUATION REPORT FOR
THE PROJECT ON STRENGTHENING THE CAPACITY FOR SOLID WASTE
MANAGEMENT IN ULAANBAATAR CITY,
MONGOLIA**

The Joint Terminal Evaluation Team Review Team (hereinafter referred to as “the Team”), consists of Japan International Cooperation Agency and Municipality of Ulaanbaatar, has conducted the Terminal Evaluation on the Strengthening of the Capacity for Solid Waste Management in Ulaanbaatar City (hereinafter referred to as “the Project”) from May 7 to 18, 2012.

During the evaluation, the Team made interviews, field visits and had a series of discussions on the achievement of the Project and desirable measures to be taken by both Governments for the successful implementation of the Project.

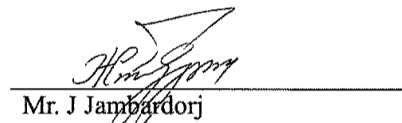
As a result of review, the Team has compiled and agreed on the Joint Terminal Evaluation Report as contents attached hereto.

The report will be submitted to the Joint Coordinating Committee to be conducted on May 18, 2012.

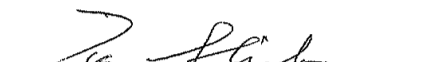
Ulaanbaatar, May 17, 2012



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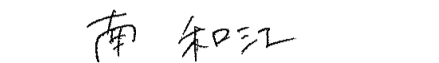
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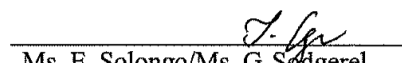
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**JOINT TERMINAL EVALUATION REPORT FOR
THE PROJECT ON STRENGTHENING THE CAPACITY FOR SOLID
WASTE MANAGEMENT IN ULAANBAATAR CITY**

May 18, 2012

**JOINT TERMINAL EVALUATION TEAM
Between
ULAANBAATAR CITY AUTHORITY
And
JAPAN INTERNATIONAL COOPERATION AGENCY**



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Abbreviations

AOU	Apartment Owners Union
CMPUA	City Maintenance and Public Utility Agency
DWSF	District Waste Service Fund
EPWMD	Environmental Pollution and Waste Management Department
JET	Japanese Expert Team
JICA	Japan International Cooperation Agency
M/P	Master Plan
MUB	Municipality of Ulaanbaatar
NEDS	Narangiin Enger Disposal Site
PDM	Project Design Matrix
POS	Public Opinion Survey
SWM	Solid Waste Management
TUK	Waste collection and cleaning companies (in Mongolian language)
UB	Ulaanbaatar
WSF	Waste Service Fund
3R	Reduce, Reuse, Recycle

1. Introduction

1.1 Background

Ulaanbaatar City (UB City) has population of approximately 1,100,000, which is over 40 % of the total population Mongolia, which stands at 2,700,000 as of 2010. Due to the recent population surge and shift to market economy, there have been changes in consumption patterns resulting in a rise in the amount of waste. Consequently, issues related to Solid Waste Management (SWM) have become severe. Illegal dumping has become a serious issue, especially in the Ger area where many nomadic people have settled, due to a shortage of waste collection services. Furthermore, final disposal site in Ulaan Chuluut, where 90 % of the waste from UB City was disposed, became nearly full and open dumping without sanitary landfill negatively impacted the surrounding environment.

Under such circumstances, JICA implemented a Development Study “The Study on SWM Plan for UB City in Mongolia” for about 2 years from 2004 and a Master Plan (M/P) for UB City (Target Year 2020) was formulated. Toward achievement of M/P, Municipality of Ulaanbaatar (MUB) is taking several measures mainly such as 1) Improvement of waste collection system such as revision of fee collection systems and development of Waste Service Fund (WSF), 2) Implementation of sanitary landfilling, 3) Promoting 3Rs, 4) Improvement of relevant institutions and management organizations such as establishment of City Maintenance and Public Utility Agency (CMPUA). In addition, Japanese Grant Aid “The Project for Improvement of Waste Management in UB City” was implemented in 2008, through which the new sanitary landfill, Narangiin Enger Disposal Site (NEDS), was constructed and SWM equipment such as waste collection vehicles and heavy machineries were procured.

The SWM system in MUB has been improving rapidly after the Development Study. However, challenges in actual operation of SWM still lies ahead in order to achieve the goals of M/P. Furthermore, due to the rapid changes of organizations and SWM system as well as introduction of new concepts such as 3Rs, development of capacities of human resources, organizations and institution for SWM are urgently required.

Under the situations above, MUB and Japan International Cooperation Agency (JICA) is conducting “Strengthening the Capacity for Solid Waste Management in Ulaanbaatar City” (hereinafter referred to as “the Project”) from September 2009 as a three-year technical cooperation project.

As the Project will terminate at September 2012, the Joint Terminal Evaluation was conducted from May 6 to May 18, 2012.



1.2 Objectives of the Terminal Evaluation

- (1) To confirm progress of the Project and examine possibility of achievement of the Project Purpose by the end of the Project
- (2) To clarify the priority issue and challenges by the end of the Project
- (3) To conduct project evaluation based on 5 criteria such as relevance, effectiveness, efficiency, impact, and sustainability
- (4) To make recommendations to be implemented by the end of the Project and after the termination of the Project
- (5) To obtain lessons learned for better implementation of other projects.
- (6) To compile the evaluation result as a Joint Terminal Evaluation Report and sign on Minutes of Meetings as agreement between Mongolian and Japanese sides

1.3 Joint Terminal Evaluation Team

The Joint Terminal Evaluation Team (hereinafter referred as “the Team”) consists of the following members:

[Mongolian Side]

Name	Title	Affiliation
Mr. J. Jambardorj	Evaluation Member	Officer, Monitoring and Evaluation Department, Office of Capital City Governor
Mr. N. Itgel	Evaluation Member	Specialist responsible on Water and Sewerage Supply, Public Utility and Environment, Urban Development Policy Department, Office of Capital City Governor

[Japanese Side]

Name	Title	Affiliation
Dr. Mitsuo Yoshida	Leader	JICA Senior Advisor on Environment
Ms. Kazue Minami	Cooperation Planning 1	JICA Mongolia Office
Ms. E. Solongo	Cooperation Planning 2	JICA Mongolia Office
Ms. Toshiko Shimada	Evaluation and Analysis	IC Net Limited

1.4 Outline of the Project

The Project has been conducted based on the PDM version 1, 2, 3 and 4. The summary of the Project is described below.

(1) Overall Goal

Deteriorated urban environment and sanitary conditions caused by uncontrolled solid waste will be improved in Ulaanbaatar City.

(2) Project Purpose

Capacity for SWM in Ulaanbaatar City is strengthened through human resource development.

(3) Output

Output 1	Development of human resource in EPWMD for policy making and planning for solid waste management.
Output 2	Development of human resource in EPWMD and CMPUA for operation and maintenance of solid waste collection vehicles and heavy machineries.
Output 3	Development of human resource of CMPUA for proper management of Narangiin Enger Landfill.
Output 4	Development of human resource in EPWMD and WSFs for administrative/financial management in SWM.
Output 5	Development of human resource of EPWMD and District Officers for promoting public awareness and participation in SWM.
Output 6	Recommendation for the appropriate system of waste separation and recycling in Ulaanbaatar City.

1.5 Schedule of the Terminal Evaluation

	Date	Schedule
1	5/6 (Sun)	Arrival in UB (Ms. Shimada)
2	5/7 (Mon)	09:30 Meeting at JICA Mongolia Office 11:15 Interview: CMPUA(Deputy Director) [PM] Interview: CMPUA
3	5/8 (Tue)	09:00 Internal Meeting 11:00 Interview: JET 14:00 Interview: EPWMD
4	5/9 (Wed)	09:00 Interview: Sukhbaatar District Khoroo No.7 11:20 Interview: Sukhbaatar District Khoroo No.5 14:00 Interview: Khan Uul District Khoroo No.2
5	5/10 (Thu)	09:00 Interview: Director of EPWMD 10:30 Interview: EPWMD
6	5/11 (Fri)	Report Preparation
7	5/12 (Sat)	Report Preparation /Arrival in UB (Dr. Yoshida)
8	5/13 (Sun)	12:00-16:40 Team Meeting
9	5/14 (Mon)	09:30-10:00 Courtesy call on JICA 11:00-11:45 Courtesy call on MOF 14:00-17:30 NEDS monitoring committee
10	5/15 (Tue)	10:00-13:00 C/P Presentation of each output Report preparation
11	5/16 (Wed)	09:00-10:00 Courtesy call on CMPUA 11:20-16:00 Joint Evaluation Meeting 16:00-17:00 Meeting with JICA volunteers
12	5/17 (Thu)	08:00-9:30 Meeting with C/P and JT 10:00-17:00 Joint Evaluation Meeting and report preparation
13	5/18 (Fri)	10:00 Joint Coordinating Committee & signing on M/M [PM] Report to EOJ, JICA Office
14	5/19 (Sat)	Leave UB (Dr. Yoshida and Ms. Shimada)

1.6 Methodology of the Terminal Evaluation

The Project was evaluated using Project Cycle Management method defined in the New JICA Guidelines for Project Evaluation First Edition (2010). The procedures for the Terminal Evaluation are as follows:

- (1) The Team collected the necessary data for evaluation by a review of the project reports and documents, a questionnaire survey, interviews with the stakeholders, and field visits of pilot project sites.
- (2) The Team verified and evaluated the achievements as per the PDM version 4 and implementation processes of the Project using an Evaluation Grid.
- (3) The Team evaluated the Project based on the following five criteria:

Relevance	Relevance refers to the validity of the Project Purpose and the Overall Goal in accordance with the policy direction of the Government of Mongolia and the Japanese Official Development Assistance as well as needs of beneficiaries and target groups.
Efficiency	Efficiency refers to the productivity of the implementation process, examining if the inputs of the Project were efficiently converted into the Output.
Effectiveness	Effectiveness refers to the extent to which the expected benefits of the Project have been achieved as planned, and examines if the benefit was brought about as a result of the Project.
Impact	Impact refers to direct and indirect, positive and negative impacts caused by implementing the Project, including the extent to which the Overall Goal has been attained.
Sustainability	Sustainability refers to the extent to which the Mongolian side can further develop the Project, and the benefits generated by the Project can be sustained in the policy, financial, institutional, and technical aspects

2. Achievement of the Project

2.1 Inputs

2.1.1 Mongolian side

1. At the time of the Terminal Evaluation, 14 staff members of the EPWMD and the CMPUA were assigned as the main counterparts and the supporting counterparts for the Project. The number of the total counterpart personnel assigned for the Project by the time of the Terminal Evaluation stood at 20 people (See ANNEX 2).
2. The cost borne by the Mongolian side stood at MNT 10.42 million, i.e. 0.64 million yen¹. It included the rental fee for the project office in the CMPUA building, the operation cost for heavy machineries under the pilot project and monthly internet payment for the NEDS (See ANNEX 3).

2.1.2 Japanese side

1. Eight (8) short-term JICA experts were dispatched. Their professional fields are as follows: 1) Chief Advisor/Solid Waste Management/Financial Management 2, 2) Maintenance and Equipment, 3) Collection and Transportation, 4) Landfill Management, 5) Financial Management 1, 6) Public Education, 7) Waste Separation and Recycling, 8) Database Development/Coordinator. The total man-month for the Japanese experts was 62.51 as of the end of April, 2012 (See ANNEX 4).
2. The Japanese side provided a photocopy machine, printers, a projector, radiators, grills and reversible fans for bulldozers, and other equipment required for project activities. The total cost for equipment provided by the Japanese side stood at 6.13 million yen (See ANNEX 5).
3. Nineteen (19) project-related personnel participated in JICA-conducted training course programs including group training and country-focused (counterpart) training courses related to SWM in Japan (See ANNEX 6).
4. The Japanese side allocated 29.65 million yen for the operational costs of the Project (See ANNEX 3).

2.2 Outputs

The degree to what each output has been achieved is described below:

Output 1: Development of human resource in EPWMD for policy making and planning for solid waste management.

The following three objectively verifiable indicators were defined in order to evaluate the achievement of the Output 1:

¹ Exchange rate was adopted according to JICA's procurement rate (1MNT=0.062 JPN in April 2012)

H₀

Indicator 1-1 Proposals of draft policy, draft regulation(s) and draft guideline(s) on SWM prepared by EPWMD.

The thirteen laws and regulations relating to SWM were drafted by the Project in 2010 and 2011 (See Annex 7). Among them, the Guideline to Inspect Operation of NEDS of Waste Management Division of CMPUA under Mayor's Office of UB City was approved by the director of EPWMD on October 20, 2010 and enacted. Also, the Regulation on Waste Collection Fees from Ger Area Households that allows the MUB to collect waste service fees tied to electricity bills was issued on June 17, 2011 and took effect from July 1, 2011. The EPWMD has taken the initiative in drafting not only the UB city-level but also the national-level laws and regulations. They included Amendment of Law on Household and Industrial Waste, Law on Eco-Tax, and Waste Reduction National Program.

Indicator 1-2 Draft updated Master Plan prepared by EPWMD.

The waste amount and composition survey for winter season was conducted in December 2010, whereas another survey for summer season was conducted in July 2011. Based on the data of these surveys, the M/P that was prepared by the JICA Development Study (2004-2007) was being revised at the time of the Terminal Evaluation. This update of the M/P is likely to be completed in the end of May 2012.

Ministry of Nature, Environment and Tourism (MONET) has ordered every provincial city to formulate the M/P on SWM and allocated certain amount of budget to implement the M/P. In this regard, the Project, in collaboration with the MONET, held the workshop on formulation of M/P for provincial cities for three days in June 2011. The staff members of the EPWMD and the CMPUA have disseminated their knowledge and skills regarding the formulation of the M/P to the participants from 10 provincial cities.

Indicator 1-3 Action Plan for the organizational development of EPWMD.

When the Project commenced in October 2009, no annual action plan existed in the EPWMD that was newly established in January 2009. Under the Project, the annual action plans for individual staff members and for the organization of EPWMD were formulated in 2010 and 2011, respectively. Through these activities, the staff members of the EPWMD have gained the knowledge and skills to formulate an action plan.

The three-year Action Plan of SWM in MUB from 2013 to 2016 was formulated by the EPWMD with the support of the Japanese experts. Based on the discussion with the Japanese experts of the Project,

the EPWMD decided to use this three-year Action Plan of SWM as a basis for organizational development of the EPWMD. The three-year Action Plan will be finalized and implemented after the new Mayor is elected in June 2012. Some of the Team members opined that development of the three-year Action Plan of SWM is not appropriate indicator to measure whether the Output 1 is achieved since all departments of MUB need to formulate such a three-year Action Plan. Considering the fact that the EPWMD had no action plan in the beginning of the Project, development of the three-year Action Plan of SWM can be still considered as one of the achievement for the EPWMD.

Summary of Output 1

The Project has made a good progress on Indicators 1-1, 1-2, and 1-3. The Team assessed that the Output 1 is likely to be achieved by the end of the Project if the update of the M/P is finalized as planned.

Output 2: Development of human resource in EPWMD and CMPUA for operation and maintenance of solid waste collection vehicles and heavy machineries.

The following three objectively verifiable indicators were defined in order to evaluate the achievement of the Output 2:

Indicator 2-1 Report on operation of SWM equipment (collection vehicles and heavy machineries) is submitted by CMPUA to EPWMD 4 times a year.

Reporting formats for operation of SWM equipment were developed and disseminated to the drivers, the mechanics, and the head of the maintenance factory of TUKs in the training held in April 2010. However, the CMPUA was unable to collect the quarterly reports from the TUKs due to the internal problems in the CMPUA for a half year.

A draft of the operation contract of solid waste collection/transportation equipment was discussed among the EPWMD, the CMPUA and the TUKs in the seminar on operation and maintenance of solid waste collection/transportation vehicles in May 2011. Based on this discussion, the contract was finalized between the CMPUA and the TUKs in January 2012 that requires the TUKs to submit the operation and maintenance reports to the CMPUA every month. This enables the CMPUA to grasp operation and maintenance conditions of all SWM equipment. At the time of the Terminal Evaluation, it was reported that all compactors and dump trucks that were provided by the Japanese Grant Aid Program (2007-2008) were being operated.

As shown below, the submission of these reports differs from one organization to another. Some of the

TUKs have not submitted the report since 2010, which indicates insufficient enforcement and compliance based on the contract agreement. The CMPUA submitted the monthly reports six times in 2011, which reached the target value of Indicator 2-1. However, it does not regularly submit the monthly reports to the EPWMD. The total rate of the submission of reports on operation and maintenance of SWM equipment was 35% between April 2010 and March 2012. The staff member of EPWMD in charge for this activity recognized the low rate of submission of reports.

Year	2010												2011												2012			
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3				
SBD TUK																												
ChD TUK	○	○	○	○	○	○	○	○						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
BZD TUK	○	○	○	○	○	○	○	○							○	○	○	○	○	○	○	○	○	○	○	○	○	○
SKhD TUK																												
BGD TUK			○	○	○	○	○	○																				
BGD WSF																												
KhUD TUK																												
ND TUK	○	○	○	○	○	○	○	○	○	○	○	○	○															
CMPUA			○												○	○	○	○	○	○	○	○	○	○	○	○	○	○

Source: Data obtained from the Project

Indicator 2-2 Report on maintenance of SWM equipment is submitted by CMPUA to EPWMD 4 times a year.

As mentioned above, technical trainings on operation and maintenance of waste collection vehicles and other heavy machineries were provided by the Project several times to the Central Workshop of the CMPUA and the NEDS. The Project conducted a periodic inspection of waste collection vehicles and heavy machineries twice a year in the Central Workshop. Through a series of Project activities, the CMPUA has become able to identify the cause of troubles specifically. It was reported that the problem of the overloaded vehicles with heavy coal ash had become serious in terms of maintenance. According to several staff members of CMPUA interviewed by the Team, some TUKs did not maintain the waste collection vehicles borrowed by the CMPUA based on the lease agreement. Stable supply of spare parts for waste collection/transportation vehicles is another challenge. They emphasized to further strengthen the system of operation and maintenance of SWM equipment. The achievement was shown in the table of the Indicator 2-1.

Indicator 2-3 CMPUA and each district prepare and submit the waste collection plan to EPWMD once a year.

The CMPUA was expected to prepare and submit the waste collection plan when the Project was designed. Once the Project commenced, the CMPUA was considered as one of the service providers of waste collection, not as the planner of waste collection. Thus, no waste collection plan has been developed by the CMPUA, so far.

According to the Law on Household and Industrial Waste of 2004, the responsibility for SWM remains

with the District governments. Thus, the strengthening of the capacity of district offices was included in the Project. However, the staff members of district offices were unable to be actively involved in the Project because of the uncertain legal status of DWSFs that had a close relationship with district offices after the decision of the City Council in December to abolish DWSFs. As a result, each district has not prepared and submitted the comprehensive waste collection plan to the EPWMD in the course of the Project.

The statement of the Indicator 2-3, however, indicates the fact that EPWMD bears the ultimate responsibility to monitor and coordinate the SWM plan of each district in UB City. Thus, EPWMD needs to strengthen the capacity of its human resource in order to implement necessary monitoring and coordination among districts.

Summary of Output 2

A certain progress for the Indicator 2-1 can be observed since Mid-term Review. However, the Indicator 2-1 and 2-2 have not been fully, but partially achieved, The Indicator 2-3 cannot be achieved because of various external conditions. The Team evaluated that the Output 2 cannot be fully achieved by the end of the Project.

Output 3: Development of human resource of CMPUA for proper management of Narangiin Enger Landfill.

The following three objectively verifiable indicators were defined in order to evaluate the achievement of the Output 3:

Indicator 3-1 Landfilling monitoring committee assesses landfilling operation as sanitary landfilling.

As mentioned in Indicator 1-1, the Guideline to Inspect Operation of NEDS of Waste Management Division of CMPUA under Mayor's Office of UB City was developed and approved by the director of EPWMD in October 2010. As per this guideline, the first Landfill Evaluation Meeting was conducted by the Landfilling Monitoring Committee under the participation of various stakeholders. The Committee assessed the operation of NEDS as a sanitary landfilling. During the Terminal Evaluation, the second Landfill Evaluation Meeting was organized in May 2012.

Indicator 3-2 Report of waste composition survey is prepared by CMPUA.

A waste composition survey was carried out at the manual sorting facility of the NEDS in August 2010. Another survey was conducted at the belt conveyor sorting facility of the NEDS from April to July in

2011. The CMPUA took the initiative in conducting these surveys which served as a basis for revising the Mater Plan on SWM and for conducting the pilot project under the Output 6. However, the data obtained from these surveys were not fully interpreted by the Project counterparts. This means the human resource development is still the challenge for the CMPUA.

Indicator 3-3 Environmental monitoring including gas emission survey at landfill site is conducted regularly by CMPUA.

The Japanese experts gave guidance on the operation of gas detector in October 2010 and March 2011. The orientation on the environmental monitoring was provided to the staff members of the NEDS in April 2011. Since then, the monitoring of underground water quality and the explosive gas has been conducted regularly by the CMPUA. According to the staff members of CMPUA, the results of such monitoring have been submitted to MONET. It was observed, however, that the interpretation skill of environmental monitoring data is still at a crude stage for the CMPUA.

Summary of Output 3

The Team evaluated that the Output 3 can be fully achieved by the end of the Project, if the staff members of NEDS and CMPUA successfully enhance their capacity on data interpretation in the remaining period of the Project.

Output 4: Development of human resource in EPWMD and WSFs for administrative/financial management in SWM.

The following six objectively verifiable indicators were defined in order to evaluate the achievement of the Output 4:

Indicator 4-1 Common financial management rule for all WSFs is established.

The baseline survey conducted by the Project revealed that DWSFs had already prepared and submitted the financial statements in a standardized format to the EPWMD as per the rules and regulations of the Government of Mongolia, before the City Council's decision in 2009.

However, the financial management system of SWM including the method of collecting waste service fees from dischargers, the method of selecting waste collection service providers, the contents of a contract with waste service providers, and the waste collection fee for service providers differs from one district to another, or even from one khorro to another. Based on the interview with the project stakeholders, the Team confirmed that the tender for selection of waste collection service providers hardly took place, as specified in the Law on Mongolian Household and Industrial Waste. This means

that common financial management rule over the city has not been established yet.

Indicator 4-2 Financial condition of each WSFs is monitored regularly by EPWMD.

The baseline survey conducted by the Project revealed that DWSFs had submitted the monthly, quarterly and annual financial reports to EPWMD. Because of the decision of the City Council in December 2009 to abolish DWSFs, they have been unable to submit these reports to the EPWMD regularly.

Since DWSFs have uncertain legal status, the EPWMD need to explore some of the alternatives to monitor the financial condition of each service provider. The EPWMD made a new report format and requested all waste collection and transportation service providers to submit the revenue report from waste collection fees. Since March 2012, the EPWMD has been able to grasp the revenue of waste collection service providers, but some service providers have not followed the rule. This indicates that monitoring capacity of the EPWMD is still insufficient.

Indicator 4-3 EPWMD strengthens understanding about administrative/financial management of SWM.

This indicator is not objectively verifiable. Thus, the Team explored relevant case examples showing good understanding of the EPWMD about administrative and financial management of SWM. The relevant case examples are as follows:

The bi-monthly meetings conducted based on the recommendation of Mid-Term Review have helped enable the directors of the EPWMD and the CMPUA, and the Japanese experts to share the progress of Project activities and formulate a common understanding regarding the Project. As mentioned in Indicator 4-2, the EPWMD has endeavored to monitor the revenue from waste collection fees by distributing a new format of financial report to waste service providers. Also, the EPWMD took initiative in improving the weighbridge record system in the NEDS by modifying the computer program in order to obtain more accurate data of incoming amount of waste, which serves a basis for not only formulating landfill disposal plans but also making payment to waste service providers. Moreover, the EPWMD has contributed to introduction of the new waste service fee collection system in Ger areas that is tied to electricity bills, which leads to the increase in collection rate of waste service fee from Ger areas. Thus, it was assumed the EPWMD has gradually deepened understanding about administrative and financial management of SWM by involving various project activities.

Indicator 4-4 EPWMD can design necessary waste generation fee based on the appropriate waste collection tariff to the waste collection organizations.

The Project has improved the quality of weighbridge data at the NEDS by installing LED board, building weighbridge information site and updating truck registration. As mentioned in Indicator 4-3, the EPWMD has changed the recoding system of weighbridge by asking necessary questions to drivers each trip to the NEDS to improve the quality of weighbridge data.

The Guideline on Estimation of Appropriate Waste Collection Fee was formulated by using the weighbridge data. This Guideline enables the staff members of the EPWMD to estimate costs of waste collection and transportation to be paid to waste collection service providers and to do a trial calculation of waste collection fees for dischargers.

Indicator 4-5 EPWMD can prepare standard tender procedure and standard tender document for selection of waste collection organizations.

The standard tender procedures were designed, and the standard tender documents for selection of waste collection service providers were prepared by the Project. In the process of preparation of these standard tender documents with the assistance of the Japanese experts, the staff members of the EPWMD have gained the know-how on formulating waste collection plans.

Indicator 4-6 Control system of selected waste collection organizations will be developed.

According to the Law on Household and Industrial Waste of 2004, the responsibility for selecting waste collection service providers by tender remains with the Governor of District. However, the tender has not actually taken place in most of the cases. In order to functionalize the tender mechanism and to manage/inspect selected waste collection organizations based on the contract, the Guideline on Contract Management was prepared by the Project.

Summary of Output 4

The Project has made a good progress on the Indicators 4-4 and 4-5 since the Mid-Term Review. However, the Indicator 4-1 has not been achieved and other indicators have been partially achieved. The Team evaluated that the Output 4 partially be achieved by the end of the Project.

Output 5: Development of human resource of EPWMD and District Officers for promoting public awareness and participation in SWM.

The following three objectively verifiable indicators were defined in order to evaluate the achievement

of the Output 5:

Indicator 5-1 Personnel who are in charge of Public Awareness in EPWMD and District offices are able to conduct the public awareness activities by taking initiatives.

This indicator is not objectively measurable. However, the Team confirmed that the staff members of the EPWMD have obtained wide knowledge on 3R and public awareness and enhanced planning and monitoring, communication and coordination skills in the phase I of the pilot project to improve waste discharge manners and to introduce waste separation at generation sources. Based on these experiences, they have taken initiative in planning, implementation and monitoring of the phase II of the pilot project. Regarding evaluation of the pilot project, the Project has yet to formulate a strategy that was recommended by the Mid-Term Review to disseminate the good practice of the pilot project to the other areas of UB City.

The staff members of the district offices concerned partially participated in the pilot projects. However, the involvement of these district staff members was less sufficient than expected. This was because of the uncertain legal status of DWSFs that had a close relationship with district offices after the decision of the City Council to abolish DWSFs. As a result, they might have yet to gain necessary and sufficient knowledge and skills to conduct the public awareness activities related to SWM.

Indicator 5-2 Public awareness campaign will be conducted in 4 khoroods through PP and another 4 khoroods by the C/P.

The public awareness campaign was conducted by the Project in selected 4 khoroods through the phase I of the pilot project mainly through the interpersonal communication channel such as holding AOU meetings, public meetings, and house-to-house visits.

In the phase II, the public awareness campaign was conducted mainly by the staff members of the EPWMD in another 3 khoroods. In order to disseminate necessary information and message on 3R promotion more effectively and efficiently, the public awareness campaign was carried out through the mass media including TV programs and TV spot advertisement messages.

Indicator 5-3 Awareness of residents on waste separation and discharging manner is improved at the PP sites.

According to the results of the Public Opinion Survey (POS) conducted in the pilot project sites of the phase I, the proportion of the residents who separated waste at discharging points has dramatically

increased from 38.0% in May 2010 to 64.7% in October 2011. As shown in the table below, the proportion of the residents who never separate waste has steadily reduced from 54.0% to 24.9% over the past one and half years.

Practice on waste separation among residents (Q4.3 Do you currently separate waste?)			
	POS 1 (May 2010)	POS 2 (Sep 2010)	POS 3 (Oct 2011)
Yes, always	10.2%	21.8%	32.0%
Yes, but not always	27.8%	37.5%	32.7%
No, never	54.0%	31.1%	24.9%
Blank	8.0%	9.5%	10.3%
Total	100.0%	100.0%	100.0%

Source: Progress Report 5 and ANNEX 5

Overall, the awareness of residents on waste separation has been raised by the implementation of the pilot project. When analyzed by khoroo, the results of these surveys slightly differed from one khoroo to another, as presented in the table below. Since the residents of Shukhbaatar Khoroo No.7 participated in the pilot project phase 1 to introduce source-separation of waste under the Output 6, the level of their practice on waste separation was the highest among the three khoroo.

Practice on waste separation among residents by pilot project site (khoroo) (Q4.3 Do you currently separate waste?)			
	Bayanzurkh Khoroo No.7	Sukhbaatar Khoroo No.5	Sukhbaatar Khoroo No.7
Yes, always	19.2%	21.0%	55.2%
Yes, but not always	39.4%	43.2%	16.7%
No, never	29.8%	29.6%	15.6%
Blank	11.5%	6.2%	12.5%
Total	100.0%	100.0%	100.0%

Source: Progress Report 5, ANNEX 5

Note: This was the result of the third POS. Bayanzurkh Khoroo No. 1 refused to participate in the third POS since it received much complaint of collection services from its residents as a result of irregular collection services.

The representatives of AOU and the Governors of khoroo interviewed by the Team noted that discharging manners among residents and sanitary conditions in each khoroo have been dramatically improved through the implementation of the pilot project. Also, they emphasized that the waste collection service in designated time would be indispensable for improving the discharging manners among residents. Some residents did not follow the rule when discharged waste was not collected as scheduled. In summer, 2011, waste was not collected as scheduled in some khoroo because of lack of fuel and soaring cost of fuel. As a result, some closed outside discharging points were used again to keep waste as emergency measures.

As indicated in the table below, the proportion of residents who know where the designated discharge point is but do not always follow the rule has increased from 7.7% to 24.6% over the one and half years.

Knowledge and practice on discharging waste at the designated discharging point (Q3.1 Do you know WHERE the designated discharge point is?)			
	POS 1 (May 2010)	POS 2 (Sep 2010)	POS 3 (Oct 2011)
1. Yes, I know where it is and always follow the rule	68.5%	66.7%	52.7%
2. Yes, I know where but don't always follow the rule	7.7%	10.6%	24.6%
3. Yes I know, there is no fixed discharging point	12.0%	12.6%	14.2%
4. No, I don't know	6.8%	4.8%	4.6%
Blank	4.9%	5.3%	3.9%
Total	100.0%	100.0%	100.0%

Source: Progress Report 5, ANNEX 5

The same trend was found when the residents were asked about the designated discharging date. The proportion of residents who know the date but do not always follow the rule has significantly increased from 14.5 % to 31.0% over the past one and half years.

Knowledge and practice on discharging waste at the designated discharging date (Q3.3 Do you know WHEN the designated discharge date is?)			
	POS 1 (May 2010)	POS 2 (Sep 2010)	POS 3 (Oct 2011)
1. Yes, I know the date and always follow the rule	26.2%	43.7%	36.3%
2. Yes, I know the date but don't always follow the rule	14.5%	22.1%	31.0%
3. Yes I know, there is no designated date	6.8%	6.2%	9.3%
4. No, I don't know	47.8%	24.4%	18.9%
Blank	4.6%	3.6%	4.6%
Total	100.0%	100.0%	100.0%

Source: Progress Report 5, ANNEX 5

It is also noted that there is a discrepancy of public satisfaction on SWM services between the pilot project areas and the other areas, if comparing the results of the two POSs, as shown below. It means pilot project activities themselves were effective to promote public satisfaction.

Q.2.1 Are you satisfied with SWM services in Ulaanbaatar city (by Residential Areas)? (Q1.1 Are you satisfied or dissatisfied with the waste collection service in your area?)	Pilot Project target areas		Not target	
	Count	Percentage	Count	Percentage
1. Yes, it is very good service (Very satisfied)	31	11.0%	6	2.0%
2. Yes, it is good service (Fairly satisfied)	108	38.4%	22	7.2%
3. Yes, it is average service (Neither satisfied nor dissatisfied)	100	35.6%	119	39.0%
4. No, it is poor service (Fairly dissatisfied)	25	8.9%	103	33.8%
5. No, it is very poor service (Very dissatisfied)	7	2.5%	39	12.8%
6. I do not know (Don't know)	6	2.1%	8	2.6%
(blank)	4	1.4%	8	2.6%
Total	281	100.0%	305	100.0%

Source: Progress Report 5 and data obtained from the Project

Note: There is a limitation for meaningful comparison, i.e., Q.21 was asked in the POS conducted in the UB City whereas Q1.1 was asked in the POS conducted in the pilot project areas.

Summary of Output 5

The Project has made a great progress for the Indicators 5-2 and 5-3 since the Mid-Term Review, which was verified from the results of POS. However, it is unclear about the capacity strengthening of district officers described in the Indicator 5-1. Therefore, the Team concluded that the Output 5 will be partly achieved by the end of the Project.

Output 6: Recommendation for the appropriate system of waste separation and recycling in Ulaanbaatar City.

The following three objectively verifiable indicators were defined in order to evaluate the achievement of the Output 6:

Indicator 6-1 Waste separation facility is examined in NEDS and report on necessary extra cost, efficiency, sanitary conditions of separation operation is submitted.

In order to recommend the most appropriate waste separation and recycling system for UB City, the pilot project for verification of sorting operation in the NEDS was conducted involving waste pickers. The sorting facilities were constructed in the NEDS in July 2010 and the straight conveyor was installed inside of the building in September 2010 by the Project.

In the pilot project, the different types of waste and different sorting methods were introduced and compared in terms of technical, financial and social aspects. The experiments of manual sorting and belt conveyor sorting of mixed waste were conducted involving 15 to 20 waste pickers in August 2010 and April 2011, respectively. Following that, the manual sorting and belt conveyor sorting of separated waste were conducted in June 2011. The results of these experiments were compiled by the Project.

Indicator 6-2 Valuable collectors (former waste pickers) will cooperate for sorting operation at sorting yard according to the manual and guidelines.

Waste pickers' meetings have been organized on a weekly basis since April 2010 in order to train them who were planned to work for sorting valuables in the NEDS. About 20 waste pickers signed a contract to work at the sorting facility in the pilot project and to follow the working requirements. According to the result of the pilot project for sorting operation, the waste pickers followed the working requirements well enough to work for sorting valuables at the NEDS.

Indicator 6-3 Recommendation paper on waste separation and recycling system is officially submitted to UB City authority.

According to the results of the pilot project for sorting operation at the NEDS, source-separated waste

collection is more feasible than mixed waste collection, and belt conveyor sorting is more effective than hand sorting in terms of collecting Refuse Paper and Plastic Fuel materials. In terms of sorting cost, hand sorting with source-separated collection is most economical. The source-separated waste collection is much better than mixed waste collection in terms of safety, sanitation, and a better working environment for waste pickers.

Based on the above results of the pilot project, the EPWMD made a presentation of the draft policy on how to introduce source-separation of waste at the third 3R seminar held in November 2011. However, the recommendations on the overall waste separation and recycling system have yet to be completely made by the Project. If the staff members of the EPWMD and the CMPUA can take the initiative in analyzing the results of the pilot project with the assistance of the Japanese experts, the feasible recommendations on waste separation and recycling system are likely to be made by the end of the Project.

Summary of Output 6

The Project has already achieved the Indicators 6-1 and 6-2. The Indicator 6-3 will be achieved in the remaining period of the Project. Thus, the Team evaluated the Output 6 can be achieved by the end of the Project.

2.3 Project Purpose

Project Purpose:	Capacity for SWM in Ulaanbaatar City is strengthened through human resource development.
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The current status of each verifiable indicator is presented below.

Indicator 1	People's satisfaction level (more than average) for the SWM service throughout the City reaches to 60%.
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As shown in the table below the total proportion of the respondents who noted that SWM services were "very good", "good" or "average" reduced from 55.9 % in the baseline survey to 39.8% in the endline survey. At the time of the Terminal Evaluation, it fell short of the target 60% indicated in the PDM. When analyzed by area, the significant decline in the degree of satisfaction with SWM services occurred in Ger area. The total proportion of the respondents rated their satisfaction level as "very good", "good" and "average" decreased from 58.1% to 33.3% over the past three years. The introduction of the new waste service fee collection system that is tied to electricity bills might be the reason behind this.

Are you satisfied with SWM services in Ulaanbaatar city (by Residential Areas)?

2009 Nov

Q.2-1	Apartment area			Ger area			Total		
	num	rate		num	rate		num	rate	
1. Yes, it is very good service	6	1.5%		9	2.2%		15	1.8%	
2. Yes, it is good service	42	10.2%	53.8%	57	13.7%	58.1%	99	12.0%	55.9%
3. Yes, it is average service	173	42.1%		175	42.2%		348	42.1%	
4. No, it is poor service	136	33.1%		118	28.4%		254	30.8%	
5. No, it is very poor service	43	10.5%	44.8%	38	9.2%	39.0%	81	9.8%	41.9%
6. I do not know	5	1.2%		6	1.4%		11	1.3%	
(blank)	6	1.5%		12	2.9%		18	2.2%	
Grand Total	411	100.0%		415	100.0%		826	100.0%	

2012 Mar

Q.2-1	Apartment area			Ger area			Total		
	num	rate		num	rate		num	rate	
1. Yes, it is very good service	6	1.6%		2	0.5%		8	1.0%	
2. Yes, it is good service	27	7.2%	46.8%	11	2.8%	33.3%	38	4.9%	39.8%
3. Yes, it is average service	142	38.0%		120	30.0%		262	33.9%	
4. No, it is poor service	128	34.2%		165	41.3%		293	37.9%	
5. No, it is very poor service	50	13.4%	51.1%	90	22.5%	65.3%	140	18.1%	58.4%
6. I do not know	13	3.5%		6	1.5%		19	2.5%	
(blank)	8	2.1%		6	1.5%		14	1.8%	
Grand Total	374	100.0%		400	100.0%		774	100.0%	

Source: Data obtained from the Project

Indicator 2 Waste collection rate in Ger area is increased to 90%. (waste collection cover rate in population).

The waste collection rate in Ger areas was 43% in the public opinion survey conducted by the Development Study assisted by JICA in 2007. According to the results of the opinion survey conducted by the Project in May 2010, the waste collection rate dramatically increased to 90%. This rate has been maintained at the time of the Terminal Evaluation. The increase of the waste collection rate in Ger areas might result from procurement of the increased number of waste collection vehicles, change in the system of waste collection fee and strengthening of the SWM-related organizations.

Indicator 3 Waste collection rate in Apartment area keeps 100% in spite of population growth.

The waste collection rate in apartment areas already stood at 100% before the commencement of the Project. Although the population of the apartment areas of UB City increased by 28% between 2004 and 2010, the waste collection rate has kept 100% in the apartment areas.

Indicator 4 Collection rate of waste service fee from Ger area is increased to 30%.

According to the results of the baseline survey conducted by the Project, the average rate of waste fee collection between September 2008 and August 2009 was 24% in the Ger areas of the six target districts of UB City. This collection rate of waste service fee has significantly increased to 61% as of December 2011 because of the introduction of a system to collect waste service fees together with

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electricity bills from July 2011 approved by the City Mayor's Ordinance.

Summary of Project Purpose

The Indicators 2, 3, and 4 have been already achieved. However, the Indicator 1 is unlikely to be achieved by the end of the Project by the end of the Project. Thus, the Team concluded that the Project Purpose will be partially achieved by the end of the Project.

2.4 Overall Goal

Overall Goal: Deteriorated urban environment and sanitary conditions caused by uncontrolled solid waste will be improved in Ulaanbaatar City.

Indicator 1: People's satisfaction level (more than average) for urban environment and sanitation throughout the City reaches to 50%.

The table below shows the level of satisfaction of citizens with urban environment and sanitary conditions in UB City in 2009 and 2012. The total proportion of respondents rated their satisfaction level as "very good", "good" and "average" slightly decreased from 42.1% to 39.8% over the past three years.

Are you satisfied with urban environment and sanitary conditions in UBC?
2009 Nov

Q.1-1	Apartment area			Ger area			Total		
	num	rate		num	rate		num	rate	
1. Yes, it is very good conditions	9	2.2%	43.6%	5	1.2%	40.7%	14	1.7%	42.1%
2. Yes, it is good conditions	23	5.6%		21	5.1%		44	5.3%	
3. Yes, but it is average conditions	147	35.8%		143	34.5%		290	35.1%	
4. No, it is poor conditions	135	32.8%	56.4%	161	38.8%	59.3%	296	35.8%	57.9%
5. No, it is very poor conditions	93	22.6%		77	18.6%		170	20.6%	
(blank)	4	1.0%		8	1.9%		12	1.5%	
Total	411	100.0%		415	100.0%		826	100.0%	

2012 Mar

Q.1-1	Apartment area			Ger area			Total		
	num	rate		num	rate		num	rate	
1. Yes, it is very good conditions	4	1.1%	43.0%	1	0.3%	37.0%	5	0.6%	39.9%
2. Yes, it is good conditions	18	4.8%		12	3.0%		30	3.9%	
3. Yes, but it is average conditions	139	37.2%		135	33.8%		274	35.4%	
4. No, it is poor conditions	127	34.0%	57.0%	146	36.5%	63.0%	273	35.3%	60.1%
5. No, it is very poor conditions	75	20.1%		94	23.5%		169	21.8%	
(blank)	11	2.9%		12	3.0%		23	3.0%	
Total	374	100.0%		400	100.0%		774	100.0%	

Source: Data obtained from the Project

The table below presents the most serious problems in UB City answered by the respondents of the baseline and endline people's opinion surveys conducted by the Project. Air pollution was ranked as the most serious problem, followed by solid waste problems, and traffic congestions in 2009 and 2012. No differences were found in rank order of these three answers. However, the proportion of the respondents who ranked solid waste problems as the most serious problem increased from 3.4% to 9.4% over the past three years. Such a trend was significantly found in Ger area. The proportion of the respondents who answered solid waste problems considerably increased from 2.7% to 12.0% in Ger area. It is assumed that the new collecting system of waste service fees together with electricity bills

might affect the results of the answers in Ger area.

Which do you think the most serious problem is in whole Ulaanbaatar City at present?

Q.1-2	Apartment area		Ger area		Total	
	num	rate	num	rate	num	rate
1. Inadequate supply of safe water	3	0.7%	0	0.0%	3	0.4%
2. Air pollution	328	80.0%	345	83.1%	673	81.6%
3. Water pollution	9	2.2%	11	2.7%	20	2.4%
4. Soil contamination	8	2.0%	5	1.2%	13	1.6%
5. Noise problems	4	1.0%	0	0.0%	4	0.5%
6. Solid waste (garbage) problems	17	4.1%	11	2.7%	28	3.4%
7. Inadequate capacity of sewerage treatment	0	0.0%	3	0.7%	3	0.4%
8. Public toilet is not sanitary	1	0.2%	3	0.7%	4	0.5%
9. Sanitary conditions of pit latrine	1	0.2%	1	0.2%	2	0.2%
10. Traffic congestions	9	2.2%	4	1.0%	13	1.6%
11. Inadequate supply of electricity	1	0.2%	1	0.2%	2	0.2%
12. Inadequate supply of public transport	1	0.2%	4	1.0%	5	0.6%
(blank)	28	6.8%	27	6.5%	55	6.7%
Grand Total	410	100.0%	415	100.0%	825	100.0%

Source: Data obtained from the Project

2012 Mar

Q.1-2	Apartment area		Ger area		Total	
	num	rate	num	rate	num	rate
1. Inadequate supply of safe water	26	7.0%	22	5.5%	48	6.2%
2. Air pollution	174	46.5%	216	54.0%	390	50.4%
3. Water pollution	15	4.0%	11	2.8%	26	3.4%
4. Soil contamination	14	3.7%	44	11.0%	58	7.5%
5. Noise problems	4	1.1%	1	0.3%	5	0.6%
6. Solid waste (garbage) problems	25	6.7%	48	12.0%	73	9.4%
7. Inadequate capacity of sewerage treatment	4	1.1%	3	0.8%	7	0.9%
8. Public toilet is not sanitary	3	0.8%	2	0.5%	5	0.6%
9. Sanitary conditions of pit latrine		0.0%	5	1.3%	5	0.6%
10. Traffic congestions	33	8.8%	17	4.3%	50	6.5%
11. Inadequate supply of electricity	2	0.5%	1	0.3%	3	0.4%
12. Inadequate supply of public transport		0.0%	2	0.5%	2	0.3%
(blank)	74	19.8%	28	7.0%	102	13.2%
Grand Total	374	100.0%	400	100.0%	774	100.0%

Source: Data obtained from the Project

Indicator 2 Six large scale accumulated illegal disposal site out of 10 monitoring sites shall be eliminated.

The Project identified the six large-scale dumping sites out of the ten illegal disposal sites in UB City as the target value of the Indicator 2 at the second Joint Coordinating Committee meeting in March 2010. The cleaning up was carried out by the Project in the four illegal dump sites in 2010, which cost 180 million MNT. However, further illegal dumping took place in the two of them while other two sites were improved based on the results of the monitoring in November 2010.

As shown in the table below, no further illegal dumping has taken place in the three out of the six dump sites as of April 2012. One has been gradually improved but still need to be further improved while other two sites have been still used for illegal dumping.

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The status of illegal dumping sites

Content of waste	#	Site name/location	Amount of Waste		2010		2012
			Large	Small	Cleaning	Monitoring	Monitoring
household waste	Khan-Uul						
	1	(KhUD5) Khoroo #5 (West of School-41)	1				×
	2	(KhUD9) Khoroo #9 (North of White Gate)	1		○	○	○
	Chingeltei district						
	3	(ChUD12) Khoroo #12 (Ditches in the North of Central workshop and top of the mountain)	1		○	×	△
	Bayangol						
	4	(BGD10-1) Khoroo #10 (Str-15)		1			
5	(BGD10-2) Khoroo #10 (Str-12)		1				
constructi on waste	Songinokhairkhan						
	6	(SHD4&7) Khoroo #4 & #7 (border)	1				○
	Sukhbaatar						
	7	(SBD15) Khoroo #15 (Sharga morit)		1			
mixed waste	Bayanzurkh						
	8	(BZD21) Khoroo #21 (Tsagaan Davaa)	1		○	×	×
	Chingeltei district						
9	(ChUD9) Khoroo #9 (Dafan daykhar)	1		○	○	○	
Bayanzurkh							
10	(BZD2&21) Khoroo #2 & #21 (Selbe river)		1				

Source: Data obtained from the Project

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3. Implementation Process of the Project

Overall, the Project has been smoothly implemented, except for the activities to develop human resources of DWSFs and district offices. The main factor for such smooth operation results from the establishment of solid waste management system in the UB City due to the consistently support from Japan including the Development Study (2004-2007) and the Grant Aid (2007-2008). The counterparts of both the EPWMD and the CMPUA have been motivated to be actively involved in the Project and to acquire practical knowledge and skills of SWM from the Japanese experts since the Project has met their needs to strengthen the SWM in UB City. The assignment of these counterparts with a sense of ownership and responsibility to the SWM issues has led to the smooth implementation. Most of the Japanese experts have considerable experiences in working in SWM areas and the Development Study in UB City assisted by JICA. This also helps the effective technical transfer to the counterparts and the implementation of the Project as planned. The monitoring of the project activities have been well conducted in several ways including the weekly meetings, the bi-monthly meetings, the joint coordinating committee meetings and various types of surveys. The weekly meetings in which the counterparts and the Japanese experts participated have significantly contributed to not only sharing and discussing the progress of activities but also promoting smooth communication and nurturing a sense of ownership and responsibility to the Project among them.

The major external hindering factor was the City Council's decision in 2009 to abolish DWSFs. Because of this decision, the legal status of DWSFs has been uncertain, and the counterparts of DWSFs have not been assigned to the Project by the time of the Terminal Evaluation. In this regard, the capacity development of the district officers who have a close relationship with DWSFs has not been sufficiently undertaken by the Project. This has been adversely affected the achievement of the Output 2, the Output 4, the Output 5 and the Project Purpose, and the sustainability in the organizational, institutional and technical aspects. Also, a series of the disruptions of waste collection services due to various reasons have affected, to some extent, the improvement of discharging manners and the degree of satisfaction of SWM among citizens in UB City. In 2010, the final disposal sites were temporarily closed by a strike of CMPUA staff members, which disrupted waste collection services for a while. In some areas of UB City, waste was not regularly collected due to the lack of fuel, the non-payment of collection services from WSF to service providers, and disruptions as a result of the introduction of privatization of waste collection services. Furthermore, the frequent transfers of the director of CMPUA and its staff members were inhibiting factors that affected the efficiency of the Project.