

해외출장복명서

기 간: 2015. 6. 27 ~ 2015. 7. 3

출장지: 스리랑카 콜롬보, 캔디

정일호 선임연구위원

출장자: 조판기 연구위원

이진아 연구원

I. 출장개요

1. 출 장 지 : 스리랑카 콜롬보, 캔디

2. 출장기간 : 2015년 6월 27일 ~ 7월 3일, 5박 7일

※ 정일호 선임연구위원은 6월 27일부터 7월 1일까지 3박 5일 일정임

3. 출 장 자

소속	직급	성명
글로벌개발협력센터	선임연구위원	정일호
국토관리·도시연구본부	연구위원	조판기
	연구원	이진아

4. 출장목적

☐ 최종보고회 개최

- 국가고형폐기물 개념계획 수립관련 정책컨설팅
- 고형폐기물처리시설 시범사업 관련 논의
- 재원조달방안 논의

☐ 후속사업연계를 위한 관계기관 면담 개최

- 스리랑카 기재부(ERD)와 재원조달방안 논의
- 시범대상지역지방정부(Kandy)와 시범사업 소개 및 사업화방안 논의

5. 출장효과

☐ 국가고형폐기물 개념계획 수립관련 정책컨설팅부문 및 시범사업대한 협의 및 의견수렴

☐ 스리랑카 정부와 후속사업을 위한 상호협력과 향후 우리기업 진출기회 확보

II. 출장일정

날짜	출발지	도착지	방문기관/ 장소	주요 수행업무	비 고
6.27 (토)	인천	-	인천공항	(23:45) 인천 출발	KE473
6.28 (일)	-	콜롬보	Bandaranaike Int' Airport	(04:10) 스리랑카 도착	
	-	-	수출입은행 현지사무소	(16:00 ~ 18:00) 사전점검회의	황선명 (한국수출입은행 주재원)
6.29 (월)	-	-	스리랑카 기재부(ERD)	(09:30 ~ 10:30) 기재부(ERD) 면담	Priyantha Ratnayake (DG)
			스리랑카 환경부	(13:30 ~ 15:00) 최종보고회	Ajith Silva (Director)
6.30 (화)	콜롬보	칸디	-	(07:30 ~ 13:00) 칸디아동	
	-	-	Kandy Municipal Council	(15:00 ~ 16:00) 칸디시장 면담	Mahindra Batwatte (Mayor)
7.1 (수)	칸디	콜롬보	-	(08:00 ~ 14:00) 콜롬보 이동	
	-	-	건화 현지사무소	(16:00 ~ 18:00) 업무협의회	윤형희 (건화 현지사무소)
7.2 (목)	콜롬보	-	Bandaranaike Int' Airport	(19:00) 콜롬보 출발	
7.3 (금)	-	인천	인천공항	(07:00) 인천도착	KE474

III. 수행사항

1. 사전점검회의 개최

□ 일 시 : 2015. 6. 28(일) 16:00 ~ 17:00

□ 장 소 : 수출입은행 현지사무소

□ 참석자

- 국토연구원 : 정일호 선임연구위원, 조판기 연구위원, 이진아 연구원
- 한국수출입은행 : 황선명 차장, 이선재 연구원
- (주)건화 : 윤형희 상무, 송동근 과장

□ 주요 내용

- 현재 정치 상황 및 폐기물사업관련 부처 이동으로 인한 사업방향성에 대한 부재 관련
 - 지난 6월 26일에 국회가 해산되었고, 대통령이 현재 스리랑카에서 진행중인 매립장 사업에 대한 주관부서를 UDA나 다른 부서로 옮기겠다고 발표함
 - 스리랑카 정부가 새로 진행하고자 하는 사업 방향에 대해 뚜렷하게 밝히지는 않았지만, 유럽처럼 소각발전을 하고 싶다는 의견을 피력함
- 과업 연장 불가 관련
 - 스리랑카는 지난 1월부터 과도기 상황이었고, 과제가 10월까지 연장되었다 하더라도 사업 성공적인 마무리를 보장할 수 없음
 - 상황에 맞춰서 마무리하고 후속사업까지 연계하는 것이 양국의 입장에서 좋지만, 한국 기재부 입장에서는 KSP사업 중 스리랑카사업만을 위한 과업 연장은 불가함(8월에 KSP사업에 대한 총괄적인 발표회가 예정되어 있음)
 - KSP사업은 크게 두 가지 목표가 있는데, 하나는 정책 제언이고, 두번째가 후속사업 연계이지만 후속사업 연계는 필수적인 것이 아님. 대안이 있다면 연계하면 좋지만, 현재로서는 불가능하다면 정책제언으로 마무리 하는 것으로 함
- 최종보고회관련 논의 사항
 - 현 정부상황을 고려하여 시범사업 부지 및 시범사업시설내용을 변경한다는 것은 최종보고를 해야 하는 시점에서 적절치 않음

- 최종보고회 시 준비한 내용으로 보고를 하고, 부정적인 피드백이 올 경우, 이전에 체결했던 Aide Memoire 제시 및 확인하고, 고체폐기물 분야에서 스리랑카 정부가 원하는 Masterplan을 구축한 후 KSP 2차 사업으로 신청하는 것도 하나의 대안임

○ 기재부 면담관련 논의 사항

- 수출입은행에서는 큰 틀에서 차관 원칙 및 조건들 이야기하고, 국토연구원에서는 소각/매립 등의 솔루션이 중요한 것이 아니라 이 사업을 왜 하는지 그 취지와 어떤 방식으로 해결해나아갈 것인지에 대하여 설명하도록 함



▲ 최종보고 전 사전점검회의

2. 기재부 면담 개최

□ 일 시 : 2015. 6. 29(월) 09:30 ~ 10:30

□ 장 소 : 기재부(ERD) 회의실

□ 참석자(12인)

- 국토연구원 : 정일호 선임연구위원, 조판기 연구위원, 이진아 연구원
- 한국수출입은행 : 황선명 차장, 이선재 연구원, 박다희 인턴
- (주)건화 : 윤형희 상무, 송동근 과장
- 스리랑카 기재부 및 환경부

소 속		성 명	직 위
기재부	ERD	Priyantha Ratnayake	DG
		Ajith Chandra Kumara	A.D
	NPD	Hansani	A.D
환경부		Sanjaya Bandara	P.A

□ 주요 내용

- KSP 정책자문III 및 스리랑카 고형폐기물관리정책 개선 관련 내용 소개
 - 현재 환경부에서 국가고형폐기물관리정책 업데이트 단계에 있으며 제안된 정책 개선 사항을 반영할 수 있을 것으로 예상됨
- 시범사업 소개 및 후속사업화 방안 논의
 - 시범사업 뿐만아니라 정책지문 내용 중 (1) 의로 폐기물을 위한 소각장 (2) 비위생매립장의 위생매립장으로 전환하는 내용 등도 파생된 사업으로서 후속사업으로 협의할 수 있음
 - 또한, 막대한 운영비로 인한 지방정부의 부담을 덜어주고자 장기적으로는 CDM을 제안함
 - 본 면담에서 파생된 사업들을 검토 및 제안한다면 수출입은행은 추가 논의에 긍정적인 입장임
 - 다양한 재정지원 옵션이 존재하지만, 동국 상황 감안, PPP 등은 검토 필요하며, 전반적 시스템 관련, 환경부, 캔디 시의회 등 관계자들 간의 동의 및 협의를 필요함
 - 향후 진행할 사업의 확정을 위해 국가기획국(NPD)과의 협의를 제안함



▲ 기재부(ERD) 면담

3. 최종보고회 개최

□ 일 시 : 2015. 6. 29(월) 14:00 ~ 16:00

□ 장 소 : 스리랑카 환경부 회의실

□ 참석자

- 국토연구원 : 정일호 선임연구위원, 조판기 연구위원, 이진아 연구원
- 한국수출입은행 : 황선명 차장, 이선재 연구원, 박다희 인턴
- (주)건화 : 윤형희 상무, 송동근 과장, 프라산너 사원
- 스리랑카 중앙정부 관계자

소 속	성 명	직 위
환경부 (MoE)	Ajith Silva	국장
	Sanjaya Bandara	P.A
중앙환경청 (CEA)	K. H. Muthukuda Arachchi	부 청 장
기재부 (ERD)	Ajith Chandra Kumara	A.D

□ 주요 내용

- 시범사업관련 관계기관(ERD, 캔디MC) 협의 진행
 - 29일 오전 ERD와 사업재원관련 협의를 진행하였고, 30일 캔디지역을 방문하여 시장과의 면담을 진행할 예정임
- 한국의 폐기물 정책소개하면서 한국도 소각만을 하는 것이 아닌 매립장도 함께 운영하고 있음을 강조하여 스리랑카 현 상황에서는 소각장보다는 매립장이 더 필요함을 설명
- Tipping Fee관련 논의
 - 서부주 쓰레기 종량제 시범사업을 예정하고 있으며, 서부주 성공을 발판으로 전국적 확대를 계획 중임
 - 서부주 카르디니아 매립장의 경우 tipping fee(수거 + 운반)로 600루피 부과 중임
 - 본 시범사업에 있어서의 tipping fee는 수거+운영이 아닌 본 중간처리시설 반입~매립장운송까지의 비용을 tipping fee로 책정한 사항이며, 한국의 경우 tipping fee는 대략 50달러/톤임
- 환경부측에서 7월 2일 목요일 오전 중으로 Ministry of Mahaewlli 차관과 미팅을 주선해주겠

다고 제안(추후 불발됨)



▲ 최종보고회



▲ 최종보고회

4. 캔디지방정부와 면담 개최

□ 일 시 : 2015. 6.30(화) 15:00 ~ 16:30

□ 장 소 : 캔디 MC

□ 참석자

- 국토연구원 : 조판기 연구위원, 이진아 연구원
- (주)건화 : 윤형희 상무, 송동근 과장, 프라산너 사원
- 스리랑카 중앙정부 및 지방정부 관계자

소 속	성 명	직 위
환경부 (MoE)	Ajith Silva	국장
	Sanjaya Bandara	P.A
행자부 (Department of Local Government)	B.H.N Jayawickrams	Commis sioner
	Marambage Dilky Wathsala	
캔디 Municipal Council	Mahindra Batwatte	시 장
	N.D.Disssanegh	Engineer
	Chandana Abeyratne	
	D.W.Matewbecgc	

□ 주요 내용

- 스리랑카 KSP 사업 추진배경 및 시범사업 소개
- 캔디지방정부측에서는 고하고다부지 선정에 대해서 적극적으로 찬성함
 - 현재 고하고다부지 내에 한국측 기업이 소각관련사업을 진행 예정임
- 사업추진이 현실화되기 위해서는 환경부측에서 8월에 진행되는 스리랑카 기재부-한국수출입은행 회의에 아젠다로 상정될 수 있도록 노력 필요
- 재원조달방식은 중앙정부에서 EDCF차관을 차입하는 방식으로 지방정부에 운영비를 제외하고는 재정적 부담이 없음

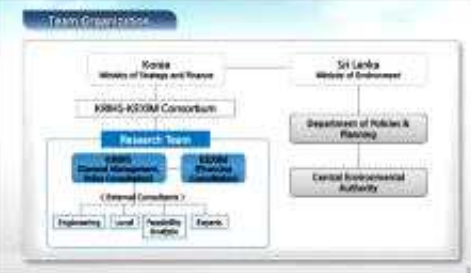


▲ 캔디시장 면담

부록1 : 최종보고회 자료



3. Research Implementation Scheme and Structure



4. Current Status of Research

Mission 1: Supply of Site Memoirs & Accession Report

- Date : 2014.12.15(Mon) 10:00-12:00
- Location : Central Environmental Authority
- Participants : S.M.U.D. Biocycle Vice Secretary, CEA officials, KIRAS-KSOM researchers
- Wide Memoirs
 - Current Status of Waste Management and Treatment
 - Best Practices of Korea
 - Guidelines for National Integrated Solid Waste Management System
 - Preliminary Assessments & Pilot Project
 - Training Program

Mission 2: SWM Investigation

- Date : 2015.2.14-20
- Location : Colombo and Kandy Areas
- Site Visits, Meetings with the ministry, CSA and municipalities

4. Current Status of Research

Mission 3: Korea Report

- Date : 2015.5.18(Mon) 14:00-16:00
- Location : Ministry of Environment
- Participants : KIRAS-KSOM researchers, CEA officials, KIRAS-KSOM researchers

Capacity-Building Program

- Program Title : Green Urban Infrastructure and SWM in Korea
- Number of Participants : 100
- Period : 8 days, March 30 - April 6
- Programs : Lecture(4), Site Visit(4), Site Meeting(2), KSP Discussion Meeting

Chapter 2. Policy Consultation on National SWM Policy Formulation

1. Diagnostic Studies
2. Review of Policies and Regulations of SWM
3. Case Studies
4. Suggestion for National SWM Policy Formulation

1. Diagnostic Studies

1.1 Current Status of Waste Generation

Waste Generation Status

- Total waste generation in Sri Lanka : 6,400ton/day
- Only 2,500ton/day collected by Local Authorities
- Daily waste collected by LA is estimated at 2,600 tons

Composition of Municipal Waste Collection

Waste Type	Percentage
Biodegradable (BT)	58.57%
Non-biodegradable (NT)	5.94%
Paper	8.47%
Plastics	6.20%
Textiles/Polyester	8.24%
Polythene/Plastic	5.01%
Building	3.89%
Metal	2.14%
Unrecyclable waste	2.01%
Others	3.68%

1. Diagnostic Studies

1.2 Solid Waste Management Facility Status

- Composting Facilities**
 - Through Filiras Project, 5 large-scale composting facilities have been installed
 - For House Composting, Filiras Project distributed more than 30,000 composting bins to households
- Recycling Facilities**
 - Material recycling driven by informal market sector, such as rag dealer
- Landfill Facilities**
 - Most of final disposal of solid wastes are open dumping
 - Several engineered landfills were constructed through "Filiras" Project



2. Review of Policies and Regulations of SWM

2.1 Policy and Regulations of Korea's SWM

- Waste Management Authorities
 - ① Generally responsibility of waste management lying to sanitation department of each Local Authority and only a few of Metropolitan City having special department for waste management
 - ② Each Local Authorities such as NC, LG, PS have responsibility for establishing regulation for waste management responsibility
 - ③ Both national government and local authorities have laws and regulations for standard waste management and household waste management
- Legislation on SWM
 - Local Government Act
 - National Environmental Act
 - Public Employment
- Policy, Strategy, and Program on SWM
 - National Policy on Solid Waste Management (August 2007)
 - National Strategy on Solid Waste Management (March 2008)
 - National Solid Waste Management Program (Policy Project 2008)



2. Review of Policies and Regulations of SWM

2.1 Policy and Regulations of Korea's SWM

- Korea's SWM issues in 1980's were
 - ① Rapid increase in waste generation driven by population & economic growth
 - ② Limited disposal capacity at National Landfill (Heavy reliance on landfill)
 - ③ No proper treatment facilities & legal system
 - ④ Difficulty in building waste facilities due to NIMBY movement
- Korea's SWM trend is
 - Waste reduction
 - Waste treatment
 - Waste recycling
 - Waste to energy
 - Waste to resource



2. Review of Policies and Regulations of SWM

2.1 Policy and Regulations of Korea's SWM

- How to Manage Municipal Solid Waste in Korea



2. Review of Policies and Regulations of SWM

2.1 Policy and Regulations of Korea's SWM

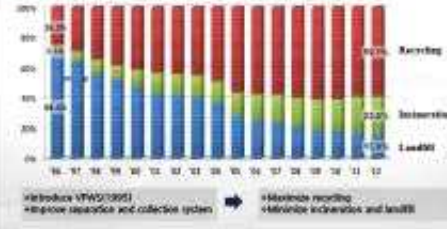
- Separate collection system in Korea



2. Review of Policies and Regulations of SWM

2.1 Policy and Regulations of Korea's SWM

- Statistical data on Solid Waste Treatment in Korea



3. Case Studies

3.1 Solid Waste Management Program for Hanoi, Vietnam

- Implementing Agencies and cooperating partners
 - Hanoi Municipality, Ministry of Natural Resources and Environment, German Technical Cooperation
- Phase I (1999.2 - 2002.7)
 - Safe & efficient door-to-door
 - Waste minimization
 - Cost effective waste disposal
- Phase II (2003.8 - 2007.7)
 - Waste minimization and sorting department
 - Policy development/evaluation
 - Consolidation of 77 barabara SWM system



3. Case Studies

3.2 Community-based Solid Waste Management in Jordan, Indonesia

Implementing Agencies and cooperating partners

Local Municipality, Village and Outposts, KSA (Kasetsart International Science Cooperation Association)

Phase I (2004 - 2005)

Building the SWM management system in four pilot sites
Establishing the community waste management system in the community
Recording the situation for the local authority



Phase II (2005 - 2010)

Developing the developed SWM management system to the whole village
Establishing the Community facilities
Recording status the waste and the situation in the whole village



4. Suggestions for National SWM Policy Formulation

4.1 Private Decision

Set priorities for waste management policies

Specify step by step goals for the waste management plan and suggest action plans



4. Suggestions for National SWM Policy Formulation

4.2 National Strategy for 2015

Database and statistics of waste type and waste generation

Assessment of solid waste type by Local Government (Local)

Assessment of solid waste type by Local Government (Local)

Community based waste management system

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

Separation system in household waste

4. Suggestions for National SWM Policy Formulation

4.3 Long-term Strategy for 2015-2020

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

Expansion of public finance budget

4. Suggestions for National SWM Policy Formulation

4.4 Waste Plan

Build database and statistics on waste generation & waste type

Enhance Training Program

Amend regulations & policies



4. Suggestions for National SWM Policy Formulation

4.5 Action Plan

Build database and statistics on waste generation & waste type

Known case for database and statistics





1. Project Site Selection

1.1 Site Selection

Analysis and Evaluation

Criteria	Site A (Rural Area)	Site B (Urban Area)	Site C (Industrial Area)
Location	Remote area, far from city	Close to city, easy access	Close to city, easy access
Availability	Land is available	Land is available	Land is available
Environmental and geographical status	Good, no pollution	Good, no pollution	Good, no pollution
Advantages	Low cost, no pollution	High cost, no pollution	High cost, no pollution
Disadvantages	High cost, no pollution	Low cost, no pollution	Low cost, no pollution

2. Recommendation for Optimal Treatment Facility

2.1 Process

- Install solid waste treatment infrastructure for a target area by selecting project site through examination of candidate site(s)
- Propose an optimal alternative by integrated deliberation such as: solid waste treatment viability and economical efficiency

2.2 Review for an Alternative Proposal

Intermediate treatment facility

- Consider the best of solid waste management based on SD Goals
- Effectively SA to EOCF (and/or) solid waste project

Criteria	Site A (Rural Area)	Site B (Urban Area)	Site C (Industrial Area)
Location	Remote area, far from city	Close to city, easy access	Close to city, easy access
Availability	Land is available	Land is available	Land is available
Environmental and geographical status	Good, no pollution	Good, no pollution	Good, no pollution
Advantages	Low cost, no pollution	High cost, no pollution	High cost, no pollution
Disadvantages	High cost, no pollution	Low cost, no pollution	Low cost, no pollution

2. Recommendation for Optimal Treatment Facility

2.1 Overall structure & Recommendation

Stages for selecting treatment process

- Stage 1: Review of optimal treatment process for pilot project
- Stage 2: Evaluation of proposed treatment processes
- Stage 3: Facility installation and operation evaluation

Recommendation

- After evaluation of stage 1 to 3, mechanical and biological composting complex treatment is the most optimal solution, considering current SD Goals's waste management policy, applicability, and economical efficiency
- Sorting facility and Process are selected and Composting facility has been eliminated in this pilot project because it is planned to be constructed in newly developing EOCF landfill sites

2. Recommendation for Optimal Treatment Facility

2.1 Overall structure & Recommendation



Facility name	• Pilot Project on Intermediate treatment facility
Waste	• Municipal solid waste
Capacity	• 1000 tons/year
Area	• 10,000 m ²
Facility details	• Waste input, pre-treatment facilities, bio-digest, Picking, and Solar power generator
Outputs	• Waste compost, Waste sorting, Waste recycling

2. Recommendation for Optimal Treatment Facility

Facility Concept

Stages of MSW generation in Rural area

- Estimate current amount of waste and organic waste



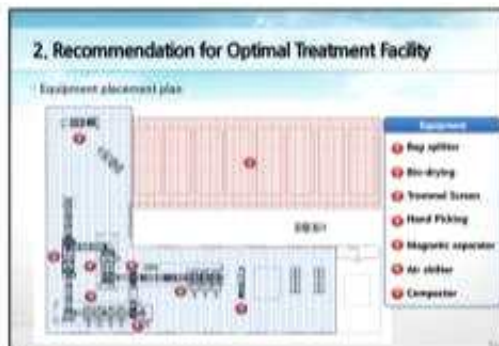
Local employment

- Generate treatment process through delivering local labor system

2. Recommendation for Optimal Treatment Facility

Treatment process diagram and mass balance





3. Financing Plan

1. Total Project Investment cost

Category	Unit	Cost (USD)	Remarks
Construction	1,250,000	1,250,000	100% of total construction cost
Equipment	1,250,000	1,250,000	100% of total equipment cost
Land	100,000	100,000	100% of total land cost
Total		2,600,000	

2. Maintenance cost

Category	Unit	Cost (USD)	Remarks
Electricity	10,000	10,000	Approximate electricity cost per year
Water	10,000	10,000	Approximate water cost per year
Landfill	10,000	10,000	Approximate landfill cost per year
Transportation	10,000	10,000	Approximate transportation cost per year
Other	10,000	10,000	Approximate other cost per year
Total		50,000	

3. Facility operating profit

Category	Unit	Cost (USD)	Remarks
Revenue	1,000,000	1,000,000	Revenue from waste treatment
Operating cost	50,000	50,000	Operating cost from waste treatment
Total		950,000	



3. Financing Plan

3.2 Project Cost and Financing

Project Cost		Financing	
Unit: million USD			
Construction	0.2	Utilities	
Equipment and Material	0.0	Commercial Loans or PPP	
Op.	1.0	ODA Loans (EXIM)	
Inv.	0.0	ODA (ODA Development Bank)	
		Equity Capital	
		Government Budget	

* 2018.12 KRW/USD 1100

3. Financing Plan

Applicable financing tools for Construction

Financing Tools	Contents	Applicability
Commercial Loan or PPP	Commercial viability High Financing Cost Short term/ Mid or Long term/ PPP	Lack of Commercial viability Lack participation of commercial finance comp. Short term → NOT Possible
ODA Loan (EXIM)	To obtain companies for overseas for Project Finance (at least 30% share), state cash flow/development source, high consulting fee/proposal cost ...	Good size and Low participation of Korean companies not feasible Cash Flow not cover local cost → NOT Possible
EDCF Loan (Overseas Development Cooperation Fund)	Commercial Loan Condition Low Financing Cost/ Long term Separation of local & foreign cost If Separated in Local Side, Commercial Bank should provide a guarantee	Relevant in terms of project size, project cost and profitability → Most preferable

3. Financing Plan

Types of EDCF Loans

- There are two applicable types of EDCF Loans below.
- It requires feasibility study, and the larger project size.
- Guarantee in respect of policy should be provided except the case of compact loan.

Development Project Loan	Equipment Loan
Infrastructure project such as building roads, bridges, hospitals, vocational training centers, water supply facilities, and sewerage plants. Economic development plan of the concerned developing country. * Necessary to fulfill previous condition	Equipment and other materials needed for projects. * Compact Loan

Most preferable for covering overall project cost

Applicable for equipment parts of sub-project cost

3. Financing Plan

Compact Loans

- Designed for more effectively financing development projects by spending as

Item	Details
Loan Amount	Up to 100% of the total project cost USD 5-mil and less
Interest Rate	0%
Payment Period	A period not exceeding the concessionality limit of the EDCF standard terms for each recipient country
Procurement Method	Invited competitive bidding among local and medium sized Korean enterprises that meet the criteria specified by EDCF on behalf of the Korean government

3. Financing Plan

Cooperation for Solid waste management System pilot project

- Commercial non-viability: No or low fee/low fee level and revenue of project
- Small project size: USD 5-million
- Low financing cost: Equipment/compact loan 0%
- Construction/development/operation/EDCF development loan 0.10%
- Public project player: Empty Municipal Council/BMW

Compact loan	Other Candidate Resources
USD 5-million Equipment cost Relevant installment cost	USD 5-million Construction cost, etc. Opt 1) Government Budget Opt 2) Commercial Loans/PPP Opt 3) EDA Loan Opt 4) EDCF Development Loan, * Suggestion * Project cost that is added to the loan to construct more than five pilot projects, and the project should be allocated to each entity to carry out the project

* For EDCF cost should be included in the project cost

3, Financing Plan

3.1 Economic Feasibility Analysis

Analysis Method

Analysis Model

Analysis values

Analysis period

Financing structure

3, Financing Plan

3.1 Economic Feasibility Analysis

Cost estimation

Revenue estimation

Analysis Results

Category	Item	Value (USD)	Unit
Investment cost	Initial investment	1,000,000	USD
	Working capital	500,000	USD
	Total investment	1,500,000	USD
Revenue	Revenue (Year 1)	2,000,000	USD
	Revenue (Year 2)	2,500,000	USD
	Revenue (Year 3)	3,000,000	USD
Operating cost	Operating cost (Year 1)	1,000,000	USD
	Operating cost (Year 2)	1,200,000	USD
	Operating cost (Year 3)	1,400,000	USD
Net cash flow	Net cash flow (Year 1)	500,000	USD
	Net cash flow (Year 2)	800,000	USD
	Net cash flow (Year 3)	1,100,000	USD
NPV	NPV (Year 1)	400,000	USD
	NPV (Year 2)	600,000	USD
	NPV (Year 3)	800,000	USD

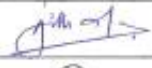
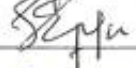
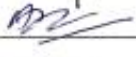
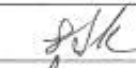
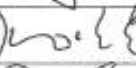


부록2 : 최종보고회 참석자

Attendance List

Venue: Ministry of Mahaweli Development & Environment

Date: June 29, 2015

No	Name	Designation	Institute	Signature
01.	ASITH SILVA	DIRECTOR/RECIPIENT PLAN	MINISTRY OF MAHAWELI DEVT. & ENVIRONMENT	
02.	K.H. Muthukundaarachchi	Dr I	CEA	
03	Sanjay, Baidya	Programme Ass/Ent	Ministry of Ent	
4.	T.H.A.C. Kumara	AD	EQD	
5.	Sunjae Lee	KSP Project officer	Korea Eximbank	이성재
6	Hwang Sunmyung	SDCF Country Director	II	hw
7	Song Dong Keun	Manager	Kumhwa Eng.	
8	Jinah Lee	Assistant research fellow	KRIS	
9	Daehee Park	EDCF Bidding Specialist	Korea Eximbank	am
10	Youn Hyanghee	EDCF P/S PM	Kumhwaeng.	
11	Chung Ilho	KRIS General par	KRIS	
12	M.A.P.S. Marashghar	Bank Manager	Kumhwa	
13	P.K. CHO	Researcher	KRIS	

부록3 : 캔디시면담 참석자

Attendance List

2015.06.30 Kandy M.C.

[illegible]