

**Lao People's Democratic Republic
Ministry of Natural Resources and Environment
Ministry of Public Works and Transport**

**Laos Pilot Program for
Narrowing the Development Gap
towards ASEAN Integration**

Environmental Management Component

**Project Completion Report
Main Report**

October 2015

**Japan International Cooperation Agency
(JICA)**

**Kokusai Kogyo Co., Ltd.
CTI Engineering International Co., Ltd.**

LA
JR
15-002

Laos Pilot Program for Narrowing the Development Gap towards ASEAN Integration

Environmental Management Component

Project Completion Report consists of the following documents.

1. Main Report (Japanese, English and Lao)
2. Supplement Book (Japanese and English)
 - Supplement 1 (Appendices for Vientiane Capital)
 - Supplement 2 (Appendices for Luang Prabang District)
 - Supplement 3 (Appendices for Xayaboury District)
 - Supplement 4 (Other Appendices)

Main Report

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Lao People's Democratic Republic

Area : 236,800 km²
 Population : 6,770 thousand (2013)
 GNI per capita : 1,450 USD (2013)
 Source: World Bank



**Laos Pilot Program for
 Narrowing the Development Gap toward ASEAN Integration (LPP)
 Project Location Map (Environmental Management Component)**

Abbreviations

ASEAN	Association of South - East Asian Nations
AIESC	ASEAN Initiative on Environmentally Sustainable Cities
AP	Action Plan
AWGESC	ASEAN Working Group on Environmentally Sustainable Cities
CA	Capacity Assessment
CD	Capacity Development
C/P	Counterpart
DHHP	Department of Hygiene and Health Promotion (MOH)
DPWT	Department of Public Works and Transport
DOH	Department of Health (Provincial Level)
DONRE	Department of Natural Resources and Environment
EEA	Environmental Education and Awareness
ESC	Environmentally Sustainable Cities
IC/R	Inception Report
JICA	Japan International Cooperation Agency
LNTA	Lao National Tourism Authority
LPB	Luang Prabang District
LPP	Laos Pilot Project
LPPA	Agricultural Component of LPP
LPPE	Environmental Management Component of Laos Pilot Project
LPPO	Laos Pilot Project Office
LPPSC	Laos Pilot Project Steering Committee
M/M	Minutes of Meetings
MAF	Ministry of Agriculture and Forestry
MOFA	Ministry of Foreign Affairs
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
OJT	On-the-job Training
ONRE	Office of Natural Resources and Environment
PCD	Pollution Control Department
PDM	Project Design Matrix
PO	Plan of Operation
PP	Pilot Project
P/R	Progress Report
R/D	Record of Discussion
SJET	Short Term Japanese Expert Team
SWM	Solid Waste Management
T/C	Technical Committee
UDAA	Urban Development Administration Authority
UEM	Urban Environment Management
UNESCO	United Nations Educational, Scientific and Cultural Organization
VTE	Vientiane Capital
VUDAA	Vientiane Urban Development Administration Authority
XYB	Xayabouri District
3Rs	Reduce, Reuse and Recycle

1 Outline of the Project

1.1 Background

“Laos Pilot Program for Narrowing the Development Gap towards ASEAN Integration” (LPP) is a tripartite cooperation project whereby the Secretariat of the Association of Southeast Asian Nations (hereinafter the ASEAN Secretariat), the Japan International Cooperation Agency (hereinafter JICA) and the Government of Laos work together to narrow the development gap towards ASEAN integration. In February 2010, when a kick-off workshop of the LPP was held in Vientiane Capital, it was agreed that the concept of cooperation strategy was “Clean, Green, Beautiful Laos” and that the tripartite cooperation would be implemented under the two main subjects “Clean Environment” and “Green Economy”. It is expected to promote the development that utilizes the strengths of Laos in light of its economic, social and cultural background.

The target sectors of LPP was agreed by the three parties to be tourism promotion, promotion of good agriculture performance and environmental management as a result of a screening process where four major criteria were taken into consideration, i.e. i) contribution to the implementation of the roadmap for ASEAN integration, ii) consistency with the development strategies and plans of Laos, iii) possibility and effectiveness of the input of resources from ASEAN, and iv) alignment with Japan’s cooperation policy to Laos. Those three target sectors are to be individual project components which are carried out in parallel in the LPP framework. As for the environmental management component, the promotion of environmentally sustainable cities (ESC), one of the areas advocated in “Ensuring Environmental Sustainability” in the blueprint for the ASEAN socio-cultural community (ASSC), was determined to be the primary objective.

After a series of discussions among the three parties, the Minutes of Meeting (M/M) on the LPP were signed by the Government of Laos, ASEAN Secretariat and JICA on August 13, 2010, and then the Record of Discussions (R/D) for the LPP by six relevant ministries and administrations of Laos and JICA on September 15, 2010.

For project implementation, JICA selected a team of Japanese consultants as a short-term JICA Expert Team (SJET) in August 2011, and SJET started its work in Laos at the end of August 2011.

This is the Project Completion Report that describes the achievement and lessons learnt of the project during the entire period since its commencement.

1.2 Project Overview

1.2.1 Name, Goal, Purpose and Outputs of the Program (LPP)

Name: Laos Pilot Program for Narrowing the Development Gap towards ASEAN Integration (LPP)

Overall goal: Actions for narrowing the development gap towards ASEAN integration are progressed and regional integration is promoted.

Program purpose: Tripartite cooperation mechanism among Lao P.D.R., the ASEAN Secretariat and JICA is established for narrowing the development gap towards ASEAN integration.

1.2.2 Purpose and Outputs of the Project (Environmental Management Component, LPPE)

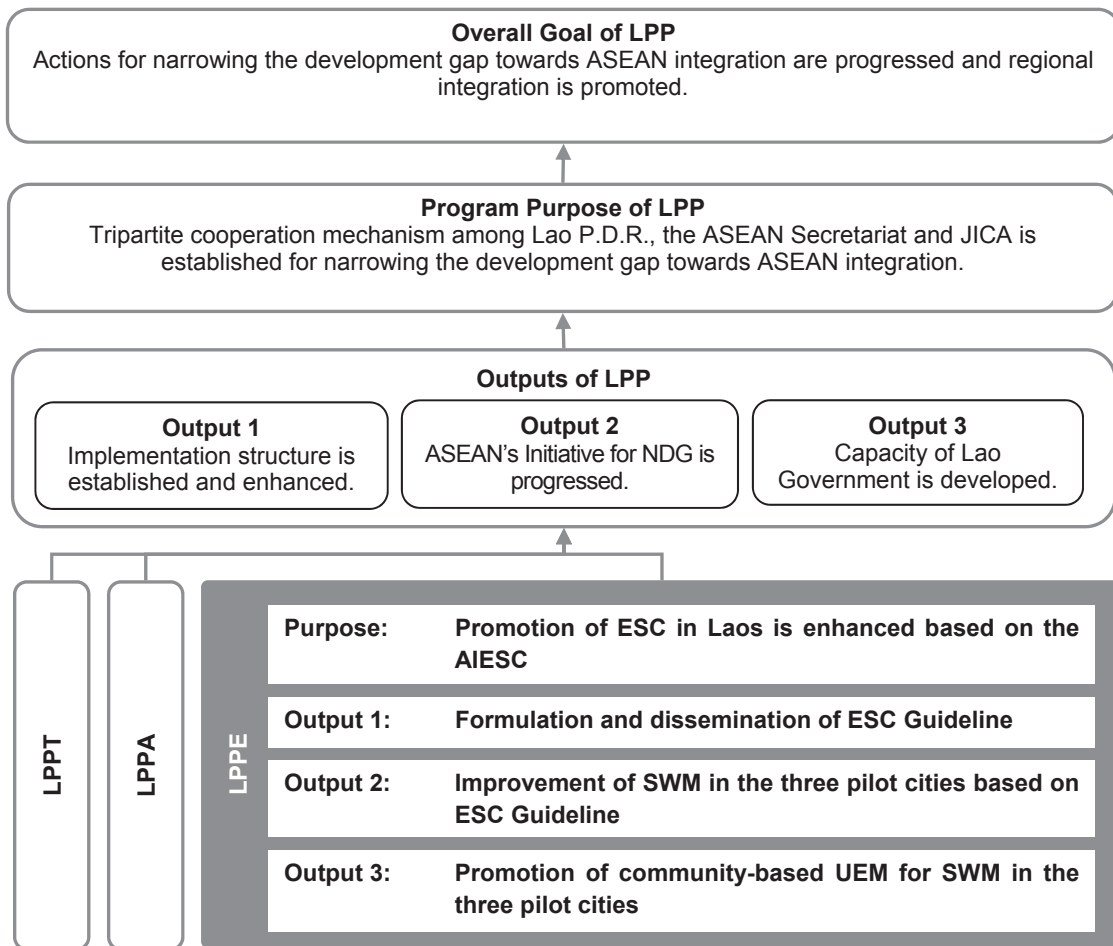
Purpose: Promotion of environmentally sustainable cities (ESC) in Lao P.D.R. is enhanced based on the “ASEAN Initiative on Environmentally Sustainable Cities (AIESC)”.

Output 1: The guidelines on ESC are formulated and disseminated based on the National Environmental Strategy 2020 and related strategies and action plans.

Output 2: As part of urban environmental management, solid waste management (SWM) in

the three pilot cities is improved based on the Guidelines on ESC.

Output 3: Community-based urban environmental management for SWM is promoted in the three pilot cities



LPPE: Environmental Management Component of LPP
LPPA: Good Agricultural Practice Component of LPP
LPPT: Tourism Promotion Component of LPP

Figure 1. Purpose and Outputs of LPP and Environmental Management Component

a. Area Targeted by LPPE

Three cities, Vientiane Capital (VTE), Luang Prabang (LPB) and Xayabouri (XYB), registered as ESC of AIESC in Laos.

b. Counterpart (C/P) for LPPE

Implementation organizations: Ministry of Natural Resources and Environment (MONRE) and Ministry of Public Works and Transport (MPWT)

Relevant Organizations: DONRE (Department of Natural Resources and Environment) DPWT (Department of Public Works and Transport), UDAA (Urban Development and Administration Authority) of VTE, LPB and XYB and other related organizations.

c. Project Schedule

The project was implemented from August 2011 to October 2015. The project period was divided into four according to the terms of contract between JICA and SJET.

Year 1: August 2011 – March 2012

Year 2: April 2012 – September 2013

Year 3: October 2013 – February 2015

Year 4: March 2015 – October 2015

1.3 PDM, PO and Implementation Structure

1.3.1 PDM and PO

The PDM (Project Design Matrix) and PO (Plan of Operation) are the management tools of the project. They were revised several times according to the project progress at the occasion of the Technical Committees (T/C). The latest ones are PDM ver.6 and PO ver.6, which are presented in Appendix 1 (Minutes of Meetings on the 8th T/C).

1.3.2 Implementation Arrangements

a. T/C

The Technical Committee, T/C, is the primary implementation body of the project. T/C was held every six months when the project progress reports (P/Rs) were drafted and reviewed.

Following the result of discussion, four T/Cs were formulated at the central level and the local level for three pilot sites. Due to the personnel transfer and/or the retirement of some officials, the member list was updated and confirmed in the Minutes of Meetings (M/M) of T/C several times.

The table below shows the chairpersons and members of the T/C.

Table 1. T/C Chairpersons and Members

Assignment	Central Government	Vientiane Capital (VTE)	Luang Prabang (LPB)	Xayabourri(XYB)
Chairperson	<u>Deputy Director, Pollution Management Division, PCD, MONRE</u> Mr. Vanhxay PHIOMANYVONE	<u>Deputy Director General, DONRE</u> Dr. Ms. Bangon SAYARATH	<u>Deputy Director General, DONRE</u> Mr. Chanthavong PHONNACHIT	<u>Deputy Director General, DONRE</u> Ms. Khamphiou PHANTHAVONG => <u>Director General, DONRE</u> Mr. Chattava KEOKHAMPHET
Member	<u>Department of Housing and Urban Planning, MPWT</u> Mr. Bounthong KEOHANAM	<u>Deputy Director General, DPWT</u> Mr. Bounchan KEOSITAMMA	<u>Technical Staff, DONRE</u> Mr. Sackdaphone KEOPRACHAN	<u>Director, UDAA</u> Mr. Bounkhong PHONGSAVANH
	<u>Technical Staff, Department of Hygiene, Ministry of Health</u> Ms. Khampasith PHOMMACHAK	<u>DPWT</u> Ms. Bouavone LUANGKHOT	<u>DPWT</u> Mr. Bounpheng CHITHAPHONE	<u>DPWT</u> Mr. PhouangKham PHILAKET
	<u>Technical Staff, Pollution Management Division, PCD, MONRE</u> Mr. Noudeng VONGDALA	<u>DPWT</u> Ms. Thongnith PANYAVONG	<u>DPWT</u> Mr. Phouttasorn MANOPHAT	<u>DPWT</u> Mr. Vilaysak LINTHAVONG
	<u>Technical Staff, Pollution Management Division, PCD, MONRE</u> Mr. Sivanh KHONESAVANH	<u>Chief of Environment Section, DONRE</u> Ms. Rotchana PHOUANGMANIVONG	<u>Deputy Director, UDAA</u> Mr. Phoumy OPHETHSANE	<u>Technical Staff, DONRE</u> Mr. Kitsamone PHOTILAK
	<u>Technical Staff, Pollution Management Division, PCD, MONRE</u>	<u>Technical Staff, DONRE</u> Mr. Vilasak VENPASEUTH	<u>Chief of Administration Section, UDAA</u>	<u>UDAA</u> Mr. Thonglan PHEUAPHOM

Assignment	Central Government	Vientiane Capital (VTE)	Luang Prabang (LPB)	Xayabouri(XYB)
	Mr. Nakkalin VORASARN		Ms. Kaisone KHOUSONSAVATH	
	<u>Technical Staff, Pollution Management Division, PCD, MONRE</u> Ms. Phatsada SOUMPHOMPHUKDY	<u>Deputy Director General, VUDAA</u> Mr. Khampian INTHALUXA		<u>UDAA</u> Mr. Phathanong SONEPHAN
	<u>Technical Staff, Pollution Management Division, PCD, MONRE</u> Mr. Sengkeo TASAKETH	<u>Chief of Urban Cleaning Supervision Section, VUDAA</u> Mr. Sisouk THOLATHA		<u>UDAA</u> Mr. Soulinyan MANKHONG
		<u>VUDAA</u> Mr. Sonethavy PHIMMASANE		
		<u>Technical Staff, VUDAA</u> Mr. Kaysone CHANTHALATH		

b. JICA Short-term Expert Team, SJET

A SJET consisting of the following members were dispatched to Laos by JICA.

Table 2. JICA Short-term Expert Team Members

Sector in Charge	Name
Team Leader/Urban Environmental Management	Susumu SHIMURA
Deputy Team Leader/Waste Intermediate Treatment and Final Disposal (1)	Naofumi SATO
Waste Intermediate Treatment and Final Disposal (2)	Tamotsu SUZUKI
Water Environment Management	Kanehiro MORISHITA
Waste Collection and Transport (1)	Ikuo MORI
Community-based Urban Environmental Management (1)/ Environmental Education	Noriko OTSUKI
Waste Collection and Transport (2)/Community-based Urban Environmental Management (2)/ Pilot Projects	Shinnosuke ODA
Baseline Survey on Urban Environmental Management	Shinya KAWADA

c. Counterparts

MONRE and MPWT, implementation organization, assigned its staff as counterpart as below.

Table 3. Counterpart Members (Project Management)

Name	Title/Affiliation	Role in Project
1. Mr. Khampadith KHAMMOUNHEUANG	Acting Director General of DOE, MMONRE	Project Manager (08/2011 – 10/2012)
2. Mr. Phengkhamla PHONVISAI	Director of Pollution Control Division, DOE, MONRE	Project Coordinator (08/2011 – 10/2012)
3. Mr. Phengkhamla PHONVISAI	Head of Policy and Information Division, Department of Pollution Control, MONRE	Project Manager (10/2012 –07/2013)
4. Mr. Vanxay PHIOMANYVONE	Acting Head of Environmental Management Division, Department of Pollution Control, MONRE	Project Coordinator (10/2012 —07/2013) Project Manager (07/2013 –)
5. Mr. Bounthong KEOHANAM	Department of Housing and Urban Planning, MPWT	Technical Committee Member (08/2011 –)

MONRE also appointed the following staff for daily project operation.

Table 4. Counterpart Members (Project Operation)

Name	Affiliation	Responsibility	Period
1. Mr. Noudeng VONGDALA	Technical Officer for Environmental Management Division, MONRE	Construction & Improvement of SW disposal site	(10/2012-)
		SW Collection & Transportation System	(07/2013-)
2. Mr. Nakkhalinh VOLASANE	Officer from Technical Promotion Division, NONRE	Newsletter, magazine, pamphlet and other printing	(10/2012 -)
3. Mr. Sivanh KHONESAVANH	Technical Officer for Environmental Management Division, MONRE	3R promotion	(10/2012-)
		HCWM from hospital	(07/2013 -)
4. Ms. Phatsada KHOUNPHONEPAK DI	Technical Officer for Environmental Management Division, MONRE	Program documentation	(07/2013 -)
5. Ms. Palina KHOTPHOUTHONE	Technical Officer for Environmental Management Division, MONRE	HCWM from hospital	(10/2012 - 07/2013)
6. Mr. Khounsamay SILAPHET	Officer from Technical Promotion Division, NONRE	ditto	(10/2012 - 07/2013)
7. Ms. Soukpalamy DUANGMALA	Officer from Policy & Information Division, MONRE	3R promotion	(10/2012 - 07/2013)
8. Ms. Kesone DALASENG	ditto	SW Collection & Transportation System	(10/2012 - 07/2013)
9. Ms. Thidalath VONGXAYA	ditto	ditto, program documentation	(10/2012 - 07/2013)

In three pilot cities, the relevant organizations appointed the counterparts as shown below.

2 Achievement of Project Purpose and Outputs

2.1 Revision History of PDM and PO

The PDM and PO were revised several times as shown in table below after those of version zero were approved at the first T/C.

The main point of revision was regarding the indicators of pilot projects which were implemented for Output 2 and Output 3. Revision was needed when the plan of the pilot project was changed due to the condition of the pilot sites or new pilot project were added.

Table 6. Revision of PDM and PO

Version	Point of Revision	Reference
0	<ul style="list-style-type: none"> • Approvement of the plan of LPPE 	M/M of T/C1 on November 15, 2011
1	<ul style="list-style-type: none"> • Clarification of the expression of Output 1 • Change of the name of the vision in Activity 1.4 • Change from “Cooperation Scenario” to “Action Plan” • Extension of the period of Activities 1.4, 1.5 and 1.6 • Addition of the SJET member in charge of healthcare waste management 	M/M of T/C2 on March 13, 2012
2	<ul style="list-style-type: none"> • Indicator for Project Purpose: “The ESC Guidelines and its Manual are disseminated.” was changed to “The ESC Guidelines are widely used.”。 • Means of verification for Project Purpose: “1. The number of seminars/workshops held to disseminate the ESC Guidelines and its Manual, and the number of participating cities.” is changed to “1. The number of cities formulated “Vision for ESC.” • Output 1: “The Guidelines on ESC is formulated based” is changed to “The Guidelines on ESC is formulated and disseminated”. Accordingly, indicators and means of verification were changed. • Indicators for Output 2 and Output 3 were determined in detail. • Activity 1.8 was added. 	M/M of T/C4 on February 14, 2013
3	<ul style="list-style-type: none"> • Revision of the indicators for Output 2 and Output 3. 	M/M of T/C5 on August 20, 2013
4	<ul style="list-style-type: none"> • “The number of seminars/workshops held to introduce the ESC Guidelines to the other ASEAN cities.” was added to Indicators for Output 1. • Activity 1.9 was added. • Revision of the indicators for Output 2 and Output 3 	M/M of T/C6 on March 6, 2014
5	<ul style="list-style-type: none"> • Revision of the indicators for Output 2 and Output 3 	M/M of T/C7 on August 7, 2014
6	<ul style="list-style-type: none"> • Revision of the indicators for Output 2 and Output 3 	M/M of T/C8 on January 22, 2015

2.2 Project Implementation Process

This section describes how the SJET and C/P were collaborated in the implementation process. The content of each activity will be reported in Section 3.2.

2.2.1 Activities for Output 1

	Activity by SJET	Activity by C/P
Activity 1-1 Basic environmental information of	Collection and analysis of information.	Provision of information.

pilot cities are collected and analyzed.		
Activity 1-2 Laws, strategies and action plans for environmental management are collected and analyzed.	Collection and analysis of information.	Provision of information.
Activity 1-3 The best practices of UEM in ASEAN countries are reviewed and their applicability to Laos is analyzed.	Collection, review and analysis of information.	Provision of information.
Activity 1-4 The visions for ESC of the pilot cities are formulated.	Preparation of draft ESC Visions.	Discussion on the draft ESC Visions at the workshops and their finalization.
Activity 1-5 The action plans for the environment and development of the pilot cities are formulated.	Preparation of draft action plans. Preparation of draft revision of action plan based on the conditions of the pilot projects.	Discussion on the draft action plans and their finalization. Finalization of draft revision based on the conditions of the pilot projects.
Activity 1-6 The ESC Guidelines of Laos are formulated.	Preparation of draft guidelines.	Preparation of first issue by finalizing the draft guidelines.
Activity 1-7 The ESC Guidelines of Laos are finalized and the manual for the guidelines is prepared.	Preparation of final draft of guidelines and manual.	Finalization of drafts by SJET.
Activity 1-8 Dissemination activities of the ESC Guidelines are implemented to other (non-pilot) cities in Lao PDR.	Support for the reparation of presentation materials to be used at the workshop for all the provincial capitals. Necessary technical advices to the follow-up activity by the C/P.	Planning and organization of the workshop, presentation, and facilitation of group discussion. Follow-up of Vision formulation by provincial capitals.
Activity 1-9 Introduction activities of the ESC Guidelines are implemented to the other ASEAN cities.	Support for the preparation of presentation material for ASEAN ESC High Level Seminar. Organization of the seminar in LPB for the representatives from Cambodia, Myanmar and Vietnam and support for the preparation of presentation materials. Organization of workshop for Cambodian officials and support for the preparation of presentation materials.	Presentation and chairpersonship at the thematic seminar of ASEAN ESC High Level Seminar. Presentation to introduce ESC Guidelines and related activities in Laos at the seminar in LPB. Presentation to introduce ESC Guidelines and related activities in Laos at the workshop in Cambodia.

For the urban environmental management, the organizations at the provincial level such as DONRE, DPWT and UDAA (VUDAA) prepare their five-year plans. Their plans, however, do not sufficiently address how the overall situation of urban environmental is, what issue has priority and what should be done by whom.

Therefore, it was almost the first experience for the most C/P members to understand the entire urban environmental conditions, set out future goals and to construct strategies, as well as to carry out these activities together with different organizations. Through the activities for Output

1, the C/P leaned from practices of holistic thinking of urban environmental management and consensus building among different stakeholders. MONRE, as a C/P organization at the national level, gained an experience of instructing the cities other than the pilot cities to work according to the guidelines.

2.2.2 Activities for Output 2

	Activities by SJET	Activities by C/P
Activity 2-1 The pilot projects for urban environmental management are selected.	Selection of pilot projects (PPs) from the Action Plan formulated by Activity 1-5 by considering available human resources, possible input supported by the Japan side, time availability and other factors.	Same as on the left.
Activity 2-2 The pilot projects are planned.	Selection of pilot areas with the C/P. Preparation of draft PP plans regarding activities, procedures and role demarcations.	Selection of pilot area candidates and final selection of pilot areas. Discussion on the draft PP plans and their finalization.
Activity 2-3 The pilot projects are implemented.	PPs for 3Rs and waste collection: Lead the PPs for the initial half to one year, and provided support to the C/P afterwards. PPs for final disposal and healthcare waste management (HCWM): Procurement of materials and facilities, preparation of operation and maintenance (O&M) plans, technical support for O&M. PPs for institutional system: Preparation of proposals about role sharing and financial improvement.	PPs for 3Rs and waste collection: Worked always together with the SJET for the initial half to one year, and took initiative afterwards. PPs for final disposal and HCWM: Implementation of operation and maintenance (O&M). PPs for institutional system: Discussion on the proposals given by the SJET and their finalizations, legislation of some of the proposed systems, publicizing the regulations.
Activity 2-4 The results of the pilot projects are presented.	Support for the preparation of presentation materials for the workshops (only when necessary).	Organization of the workshops, presentation, facilitation and summarizing of group discussion.

As Output 2 aimed at the improvement of SWM, all the activities were carried out with a focus on the upgrading of C/P's implementation capacity. As for the PPs regarding 3Rs and waste collection, the PPs can be implemented only in a limited area. Therefore, the C/P is required to obtain the capacity to extend the PPs to new areas. For this reason, the PPs were divided into two phases; Phase I with SJET's initiative and Phase II with C/P's initiative. In Phase II, the C/P had discussions with village people to find out the pilot areas and replicated the activities of Phase I.

As for the PPs regarding final disposal, HCWM and off-site composting, the responsibility of the C/P is operation and maintenance of these facilities including the allocation of human and financial resources. The C/P requested budget to the provincial administration for the cost such as for the operation of vehicles and heavy machinery procured by JICA and for the newly necessary access roads. As a result, the C/P is now able to maintain the condition that allows waste trucks to dump waste at a designated area even in a rainy season. HCWM and off-site

composting were the newly introduced systems, but related works such as facility operation and customer negotiation have been carried out by the C/P themselves.

In regard to the institutional system improvement, the C/P decided rules about role and cost sharing and some of them were issued as official regulations.

The C/P also made their presentations at the workshops, exchanged opinions among the C/Ps of different cities and leaned experiences each other.

2.2.3 Activities for Output 3

	Activities by SJET	Activities by C/P
Activity 3-1 The best practices of community-based UEM in Laos are reviewed.	Collection of best practices.	Provision of information.
Activity 3-2 The best practices of Community-based UEM in ASEAN Countries are reviewed and their applicability to Laos is analyzed.	Collection and analysis of best practices.	Provision of information.
Activity 3-3 The environmental education and awareness (EEA) programs for SWM improvement in the pilot cities are formulated.	Preparation of draft EEA programs.	Discussion on the draft EEA programs and their finalization.
Activity 3-4 The EEA pilot projects to facilitate Activity 2-3 are planned.	Same as Activity 2-2.	Same as Activity 2-2.
Activity 3-5 EEA Tools for SWM are developed and the implementation system is enhanced.	Preparation of draft EEA tools. Support for the EEA activities.	Finalization of tools. Implementation of the EEA activities.
Activity 3-6 The EEA pilot projects are implemented	Same as Activity 2-3.	Same as Activity 2-3.
Activity 3-7 The results of the EEA pilot project are analyzed.	Support for the monitoring activities.	Implementation of monitoring.
Activity 3-8 The EEA pilot projects are presented in collaboration with Activity 2.4	Same as Activity 2-4.	Same as Activity 2-4.

The activities for Output 3 aimed at the environmental education and awareness raising in order to smoothly implement the PPs for 3Rs and waste collection since those PPs necessitated the cooperation of residents. Therefore, the activities for Output 3 were carried out in two phases just as the PPs for 3Rs and waste collection. Even in Phase I, C/P's ownership was respected in EEA tool preparation and the C/P played a main role in the provision of instruction to the residents and the monitoring activities.

2.3 Activities in Response to the Recommendation of Final Evaluation

In response to the recommendation made by the final evaluation conducted in May 2015 the following activities have been conducted:

Table 7. Recommendation on Remaining 5 months

Recommendations	Responding Activities
1. Steadily activity implementation as the LPPE has conducted.	Each activity of LPPE has been steadily conducted according to the PDM.
2. Technical and knowledge	In order to pursue technical and knowledge transfer SJET has been

transfer to C/Ps	supporting C/Ps to conduct the following activities: <ul style="list-style-type: none"> • Finalization of ESC_GL and preparation of its manual; • Monitoring, examination of necessary improvement measures and their implementation of each PP; and • Preparation of operation and maintenance plan of each PP.
3. Promotion of the ESC Guidelines as a policy statement	At first Lao version of ESC_GL has been finalized by C/Ps through the discussions among them. The same time C/Ps of MONRE included dissemination of ESC_GL in the next MONRE Five Year Plan (2016 – 2020) as the activities to be implemented. Then C/Ps is requesting Year 2016 budget for dissemination of the guidelines.
4. Sharing good practices and lessons learned among stakeholder in order to sustain the outcomes of the LPPE	As described in the Activity 3-5 EEA tools and documents prepared by each PP were integrated and shared. Especially worm composting has been disseminated to Tham village in Khammouane Province in cooperation with LPPT.
5. Promoting CSR (Corporate Social Responsibility)	Financial support by mean of CSR is proposed as one of the most important financial sources in the proposal of financial burdens for continuation, dissemination and expansion of PPs. In order to obtain support by CSR a school recycling dissemination video has been prepared.

Table 8. Recommendations After the LPPE Component Period

Recommendations	Responding Activities
1. Necessary budgetary Allocation	MONRE is applying Year 2016 budget for dissemination of ESC_GL. Based on the operation and maintenance plans of PPs three pilot cities are applying Year 2016 budget for continuation of PPs to the Provinces, etc.
2. Dissemination of formulating ESC vision using the ESC guidelines to remaining cities	MONRE/PCD is going to clearly state supporting activities in the next MONRE Five Years Development Plan (2016 – 2020) and asking allocation of 2016 budget for supporting activities.
3. Sharing good practices obtained in the course of the LPPE to ASEAN countries and cities	MONRE intends to share good practices obtained in the course of the LPPE with ASEAN countries in cooperation with IGES.
4. Promotion of 3R	DONREs of three pilot cities intend to promote 3Rs by obtaining necessary budgets based on the proposal of financial burdens for continuation, dissemination and expansion of PPs.
5. Improvement of solid waste (SW) collection system	VUDAA/UDAAs of three pilot cities intend to improve SW collection system by utilizing lessons learned by the activities of LPPE that improvement needs consensus building among stakeholders based on the Beneficiary-Pay-Principal.
6. Improvement of final disposal sites	VUDAA/UDAAs of three pilot cities in cooperation with SJET have finalized the operation plan of each final disposal site. Then they will improve their final disposal sites in accordance with the plans.
7. Improvement of healthcare waste management	VUDAA/UDAAs of three pilot cities in cooperation with SJET have finalized the HCWM plan of each city. Then they will improve their HCWM in accordance with the plans.
8. Application of current regulations and circulars on SWM operation	As described in the Activity 3-5 regulations and documents prepared by each PP were integrated and shared. MONRE intends to disseminate and deliver these information in accordance with the requests and needs of cities in the country.

2.4 Achievement of Outputs

2.4.1 Output 1

Output 1	The Guidelines on Environmental Sustainable Cities (ESC) is formulated and disseminated based on the National Environmental Strategy 2020 and related strategies and action plans.
Indicator	The ESC Guidelines is formulated and disseminated.

Overall Achievement

From the following observations, it is considered that Output 1 was achieved.

- The first draft of the ESC Guidelines was prepared in March 2012.
- The provincial capitals of the country were divided into the north group and south group and two workshops for the dissemination of the ESC Guidelines were organized for each group. All the 17 provincial capitals and Vang Vieng, which is an urban district of Vientiane Province, participated in the workshops.
- The ESC Guidelines were introduced at the ASEAN Working Group for ESC (AWGESC) twice in 2012 and 2014.
- 12 cities requested MONRE for further assistance. Three cities were selected from them and workshops were organized in those cities, where the formulation of ESC Visions and the selection of priority sectors were assisted.
- The ESC Guidelines were presented at the ASEAN High Level Seminar for ESC (HLS) in 2013, 2014 and 2015. In 2014 and 2015, the C/P of LPPE chaired a thematic session regarding the ESC in CLMV countries.
- In July 2014, representatives from CMV countries were invited to LPB and 3-day workshop was held to present the ESC Guidelines.
- In October 2014, a workshop was held in Pursat, Cambodia, with 133 officials from 25 provinces across the country in order to assist the formulation of National ESC Guidelines of Cambodia.
- In September 2015, the ESC Guidelines and the ESC Guidelines Manual were finalized.

2.4.2 Output 2

Output 2	Urban environmental management (solid waste management (SWM)) in the three pilot cities is improved based on the Guidelines on ESC.
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Indicators (*)		Status of Achievement
(In each pilot city)		
2-1	3Rs are promoted.	<ul style="list-style-type: none"> • In the three cities, compost barrels were distributed to the households as planned and the C/P continued monitoring. Utilizing the experience from the activities of Phase 1, the C/P extended the eco-basket project and recyclable separation project to new areas in Phase 2. • In LPB, food waste was separately collected from 30 hotels and restaurants and composted at the off-site facility. • In LPB and XYB, recyclable collection activity was carried out at two schools respectively.
2-2	The solid waste collection system is improved.	<ul style="list-style-type: none"> • In VTE, the primary collection system was introduced in the pilot villages and the rate of collection contract increased from 33% to 56%. The primary collection system was extended to new areas with the initiative of C/P but not to new villages against

		<p>expectation. The waste collection plan was formulated.</p> <ul style="list-style-type: none"> In LPB and XYB, the waste collection plans were formulated. The primary collection system was extended to new places with the initiative of the C/P. 5m³ waste containers were manufactured by the C/P and utilized for the waste collection.
2-3	The operation of the final disposal sites is improved.	<ul style="list-style-type: none"> Improvement plans of the final disposal sites in the 3 cities were prepared respectively. Improvement works including construction of facilities and procurement of equipment were completed. The final disposal sites are operated in accordance with the operation plans, and monitored by the final disposal site monitoring committee once a year.
2-4	Healthcare waste (HCW) management is improved.	<ul style="list-style-type: none"> The plan for the collection, treatment and final disposal of HCW was formulated for three cities. Necessary facilities were developed for three cities: incineration facility for VTE, incineration and special HCW pit for LPB and special HCW pit for XYB. Utilizing these facilities, infectious HCW is properly managed. The HCW management contracts with some hospitals among those in the PP target, however, have not yet been agreed.
2-5	<p>The following documents are prepared:</p> <ul style="list-style-type: none"> Regulation on the responsibilities of stakeholders for improved SWM is prepared and/or drafted. Proposal for financial system improvement necessary for SWM improvement is prepared. 	<ul style="list-style-type: none"> The responsibilities of stakeholders necessary for pilot project implementation were agreed and stated in various documents. Some of them were issued as legal documents. Proposals for the financial system necessary for pilot project implementation were prepared and most of them were carried out. Proposals for the financial system necessary for the continuation, dissemination and expansion of the PPs were also prepared.

Overall Achievement:

- As shown above, most of the indicators were satisfied. Therefore, Output 2 was achieved on the whole.
- (*) Each PP of each city has specific indicators. Please refer to the section about “Activity 2.3” in Chapter 3.

2.4.3 Output 3

Output 3	Community-based urban environmental management for SWM is promoted in the three pilot cities.	
	Indicators	Status of Achievement
3-1	Environmental education and awareness (EEA) program for SWM improvement in the three pilot cities is formulated.	<ul style="list-style-type: none"> The EEA programs for 3 cities were formulated based on the results of analysis on good practices of community-based UEM in 3 cities and ASEAN countries, series of discussions with C/Ps, Women’s Union, Youth Union and other local representatives, and analysis on the National Strategy and Action Plan for EEA. Some items presented in the EEA programs were carried out in the PPs.
(In each pilot city)		
3-2	The residents	<ul style="list-style-type: none"> The following indicators were monitored in March and April,

	participate the 3Rs activities.	<p>2015. (Figures in parenthesis are indicator values and achievement of pilot project areas respectively in the order of VTE, LPB and XYB.)</p> <ul style="list-style-type: none"> - The rate of the households that continue on-site compost to all the households that started on-site compost in all the pilot villages (60%, 50%, 50%): <i>Satisfied</i>. (79%, 66%, 52%) - The rate of the households that separately discharge recyclable waste to all the households covered by primary collection PP (70%, 70%, 70%): <i>Satisfied</i> (93%, 89%, 68%) - The rate of the households that refuse plastic bags as many as possible to all the households in all the pilot villages (40%, 30%, 25%): <i>Satisfied</i> (79%, 55% , 79%) - The rate of the stalls that cooperate plastic bag reduction to all the stalls in all the pilot markets (40%, 30%, 25%): <i>Satisfied</i> (67%, 81%, 40%) - (In LPB and XYB) The cooperation rate of the school recycling at the PP schools is more than 50% of total numbers of classes (50%, 50%): <i>Satisfied</i> (79.6%, 93.2%)
3-3	The residents cooperate with the waste collection system.	<ul style="list-style-type: none"> • The following was found by the monitoring in March and April, 2015. (Figures in parenthesis are indicator values and achievement of pilot project areas respectively in the order of VTE, LPB and XYB.) - Waste management groups are established in the existing collection improvement pilot villages: <i>Satisfied</i> (groups exist in three cities) - The rate of the cooperating households to all the households covered by the existing collection improvement PP (70%, 70%, 70%): <i>Satisfied</i> (93%, 90%, 99%) - (In VTE) The fee payment rate of the households in 4 pilot project villages that newly make collection service contracts with the collection company maintains (90%): <i>Satisfied</i> (almost 100%)

Overall Achievement

- As shown above, all the indicators were satisfied. Therefore, Output 3 was achieved.

2.5 Achievement of Project Purpose

Project purpose	Promotion of ESC in Laos is enhanced based on the ASEAN Initiative on Environmentally Sustainable Cities (AIESC).
Indicator	The ESC Guidelines are widely used.

Overall Achievement

From the following observations, it is considered that Project Purpose was achieved.

- As of April 2015, the number of cities which formulated the ESC vision is pilot 3 cities (VTE, LPB, XYB) and another 3 cities (Paksan, Kaysone Phomvihane, Vangvieng) which were assisted through ESC Guidelines dissemination activity. It is totally 6.
- After the ESC Guidelines dissemination workshop held in March and July 2013, 12 provincial capitals out of 14 except for 3 pilot cities established a committee for the formulation of ESC vision and requested MONRE/PCD for the assistance in order to draft the vision.
- MONRE/PCD is preparing the organizational structure for the response to their request.

Specifically MONRE/PCD is going to clearly state supporting activities in the next MONRE Five Years Development Plan (2016 – 2020) and asking allocation of 2016 budget for supporting activities.

- 25 ASEAN cities including 3 pilot cities of LPPE have been participating in the AIESC program.
 - Since 2008, AIESC regularly awards the cities which perform the exemplary activity every three years as “ASEAN ESC Award”. At the “15th Informal ASEAN Ministerial Meeting on Environment (IAM/ME)” held on Oct 2014 in Vientiane, LPB was awarded as the one of 10 award cities.
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3.2 Implementation of Each Activity

0. Common Activities for all the Outputs

Activity 0-1 Preparation of Inception Report

SJET prepared the Inception Report. After receiving comments from JICA, SJET finalized it.

Activity 0-2 Discussion on Inception Report

SJET explained the Inception Report to the counterpart organizations of the three pilot cities. The report was approved at the first T/C in October 2011.

Activity 0-3 Capacity Assessment

The first capacity assessment was in December 2011. Since then, it was carried out generally once a year, four times in all. The detail of the result is shown in Appendix 3, Supplement 4. Due to the change of personnel of the C/P, the changes of the assessment result across the years only tell a general trend. Nevertheless, the result of the fourth assessment is almost over 4 out of 5. This implies the increase of the capacity of C/P.

Activity 0-4 Preparation of Progress Report

At the opportunity of the T/Cs, the progress reports were prepared seven times in total which described the status of the project progress and plans for the next period.

1. Activities for Output 1

Activity 1-1 Basic environmental information of pilot cities are collected and analyzed.

The SJET and Lao C/Ps carried out studies on the following 3 aspects of environment management in the 3 pilot cities- Vientiane Capital (VTE), Luang Prabang (LPB) and Xayaboury (XYB) respectively and compiled the results in the Baseline Survey Reports, which is a supplementary document to Progress Report 1:

1) Urban environmental management (UEM)

The environment sector was categorized into 31 sub-sectors based on Lao Environmental Strategy and JICA's EIA Guideline and the status of UEM was studied by interviewing and reviewing reference documents.

2) Solid waste management (SWM)

The following aspects were studied: waste amount and composition; waste collection; final disposal sites; recyclables dealers; healthcare waste management; waste flow.

3) Water environment

The condition of water environment was studied based on data collected through the JICA's development study, interviews and site reconnaissance.

Activity 1-2 Laws, strategies and action plans for environmental management are collected and analyzed.

The SJET has collected materials of laws and regulations related to urban environment, 5-year action plans and strategies at the provincial and district levels in the 3 pilot areas. Collected materials in Lao were translated into English and reviewed carefully.

Visions, goals, strategies and lists of projects in the 5-year action plans developed by DONRE of the 3 cities were carefully reviewed, and the results were incorporated in the Visions and

Strategies that were discussed in workshops held in December 2011.

Activity 1-3 The best practices of UEM in ASEAN countries are reviewed and their applicability to Laos is analyzed.

The SJET collected information on good practices of UEM in ASEAN countries mostly on the Internet and showed the compiled information in an appendix of Progress Report 1. SJET found that a project of infectious waste incinerators in Vietnam was relevant to Lao situation. Based on this finding, the SJET visited Vietnam to observe facilities and obtain detail information on the related activities. The team concluded that the similar practices would be feasible in Laos.

The C/Ps and other agencies in VTE and LPB organized committees to discuss this issue and made decisions to introduce an incinerating system for infectious waste management in the respective pilot cities. Subsequently JICA Laos office approved implementation of the pilot projects to introduce incinerators in the two cities and supported procurement of required facilities and equipment as a part of Activity 2-3.

Activity 1-4 The visions for ESC of the pilot cities are formulated.

The team drafted Visions for Environmental Sustainable Cities (ESC) by examining the current status and issues regarding the UEM in the 3 cities. Workshops were held in December 2011 in 3 cities with purpose of presenting the draft Visions to other relevant organizations and obtaining feedback from them.

The draft Visions were finalized taking into account the comments and proposals raised in the workshops. Pamphlets of the draft Visions were prepared in English and Lao and distributed for public comments.

The C/Ps of MONRE and DONRE also reviewed and amended the Visions from their view points. The final versions of ESC Visions of VTE, LPB and XYB are presented in Appendix 1 of Supplement 1, 2 and 3, respectively.

Activity 1-5 The action plans for the environment and development of the pilot cities are formulated.

Based on findings of the Baseline Studies, SJET summarized the issues of the SWM sector of the 3 cities and the water environment sector of VTE. Then, in accordance with the Visions developed in Activity 1-4, it determined goals and strategies for sound SWM in the 3 cities and water environment management in VTE.

The team discussed and developed action plans that contained project ideas to materialize the goal and strategies for the respective cities.

Based on the findings and lessons from the pilot projects, the action plans of the SWM sector were reviewed and updated. The final version of SWM Action Plans of VTE, LPB and XYB are presented in Appendix 2 of Supplement 1, 2 and 3, respectively.

Activity 1-6 The ESC Guidelines of Laos are formulated.

The SJET discussed conceptual outline of the Guidelines with MONRE and LPPO. It was also presented at a meeting on the formulation of provincial environmental plans held by MONRE in January 2012. The draft Guidelines were further reviewed and basic consensus was reached among stakeholders.

The English version of the updated ESC Guidelines were presented and accepted by MONRE/PCD in October 2012. MONRE/PCD revised the Lao version of the Guidelines.

Activity 1-7 The ESC Guidelines of Laos are finalized and the manual for the guidelines is prepared.

Based on the findings and lessons from the pilot projects and dissemination activities of the ESC Guidelines, the Guidelines were reviewed and updated. The finalized ESC Guidelines in English and Lao were submitted at the end of September 2015. With an intention to apply the ESC Guidelines to all the district of the country, MONRE requested 600 copies of the ESC Guidelines in Lao to the Japanese side. The request was accepted and 600 copies were provided.

To facilitate the further use of the ESC Guidelines, the manual was prepared also in both languages and submitted together with the guidelines.

Activity 1-8 Dissemination activities of the ESC Guidelines are implemented to other (non-pilot) cities in Lao PDR.

Two workshops of the ESC Guidelines were held in March and July 2013 with the participants from all 17 Provincial cities and Vang Vieng of Vientiane Province in order to disseminate the Guidelines. 3 out of 18 were pilot cities (VTE, LPB and XYB) and the other 15 cities were non-pilot cities.

The workshop participants developed the ESC Visions (draft) of their provincial capital cities following the procedure described in the Guidelines.

According to the requests from provincial cities participated the above workshops, MONRE/PCD together with LPPE selected three cities to support them to finalize their ESC Visions and select priority sectors for formulation of their action plans.

The workshops for ESC Vision and A/Ps formulation were held in March-April 2015 in Paksan (Bolikhamxai Province), Kaison Phomvihance (Savannakhet Province) and in Vangvieng (Vientiane Province). The three cities successfully formulated their visions, selected priority sectors and started to formulate A/Ps.

MONRE/PCD will set up ESC Unit in every Provinces with the lead of DONRE and disseminate ESC_GL by delivering 600 copies of guidelines to all the provinces and districts and utilizing ESC_GL manual.

Activity 1-9 Introduction activities of the ESC Guidelines are implemented to the other ASEAN cities.

In order disseminate the ESC Guidelines to other ASEAN countries, especially CMV countries, SJET and MONRE organized a thematic session in the 5th High Level Seminar on ESC in Surabaya, Indonesia on February 28 and March 1, 2014. Another session was also organized in the 6th High Level Seminar in Iskandar, Malaysia, on February 9 and 10, 2015.

In order to share MONRE's experience on ESC guidelines and to facilitate the cooperative relationships among CLMV regarding the ESC promotion, the "Workshop for Introduction of LPP/LPPE Activities and ESC Guidelines to the other ASEAN Cities" was held in Luang Prabang from 23 to 25 July 2014. ASEAN Working Group on Environmentally Sustainable Cities (AWGESC), ASEAN Secretariat, 5 Cambodian officers, 2 officers of Myanmar, 3 Vietnamese officers, Institute for Global Environmental Strategies (IGES), etc. have participated the workshop.

SJET assisted the Workshop for Formulation of the National Guidelines for ESC Promotion which was organized by the Ministry of Environment of Cambodia from 8th to 9th October 2014 in Pursat City, Cambodia. The 133 participants from Cambodia included the Environment Minister and representatives of all the 25 provinces of the country. The other participants were 6 from Laos, 5 from JICA/LPPO/LPPE and 4 from ASEAN and IGES (Institute for Global Environmental Strategies).

2. Activities for Output 2

Activity 2-1 The pilot projects for urban environmental management are selected.

The team selected pilot projects based on the action plans formulated in Activity 1-5, taking account of human resource availability of the C/Ps, effectiveness of capacity development and effectiveness for the achievement of the strategies.

Activity 2-2 The pilot projects are planned.

The team planned working procedure, schedule and execution bodies through the discussion with the C/Ps.

The C/Ps including VUDAA, DONRE, MONRE and DOH in consultation with the SJET confirmed what activities were required for each pilot project and who were responsible for them. The plan was approved at the 3rd T/C meeting on August 31 2012.

The plan, approved at the 3rd T/C, has been improved and modified according to the requirement of successful implementation of the plot project until the 7th Technical Committee meeting on Jan 2015.

In every technical committee (T/C) meeting from the 4th (Feb 2013) to 7th (Jan 2015), contents of the PPs were discussed and modified considering the conditions. When the PDM and/or PO needed to be revised due to the revision of the PP plan, the new version of PDM and/or PO were agreed by the minutes of the meeting of T/C.

Activity 2-3 The pilot projects are implemented.

The table below shows a list of the pilot projects implemented in the three cities according to the five strategies shown in the action plans. As stated earlier, the action plans were updated through the experiences of the pilot projects. Accordingly, the titles of the pilot projects were partly changed and the numbering system was also a little changed. The new numbers and project titles of the pilot projects and the corresponding project numbers used in the previous progress reports were shown in the table below.

Table 9. List of the Pilot Projects

VTE		LPB		XYB		
New numbers and project titles	Numbers used in P/Rs	New numbers and project titles	Numbers used in P/Rs	New numbers and project titles	Numbers used in P/Rs	
Strategy 1. "3Rs" are promoted.						
1.1.1 Reduction of kitchen waste and garden waste at households	1.1.1	1.1.1 Reduction of kitchen waste and garden waste at households	1.1.1	1.1.1 Reduction of kitchen waste and garden waste at households	1.1.1	
1.1.2 Recyclable waste separation at generation sources	1.1.2	1.1.2 Recyclable waste separation at generation sources	a. Waste separation project	1.1.2	1.1.2 Recyclable waste separation at generation sources	a. Waste separation project
			b. School recycling project			b. School recycling project
1.1.3 Avoidance of the use of excess packages such as plastic shopping bags	1.1.3	1.1.3 Avoidance of the use of excess packages such as plastic shopping bags	a. Eco-basket project	1.1.3	1.1.3 Avoidance of the use of excess packages such as plastic shopping bags	1.1.3
			b. Eco-bag project			

-	-	1.2.1 Reduction of kitchen waste from hotels and restaurants	1.2.1	-	-
Strategy 2. Waste collection system is improved.					
2.1.1/2.1.2 Primary collection system	2.1.1/ 2.1.2	2.1.1/2.1.2 Primary collection system	2.1.1/ 2.1.2	2.1.1/2.1.2 Primary collection system	2.1.1/ 2.1.2
2.2.1 Waste collection service planning	Not numbered	2.2.1 Waste collection service planning	Not numbered	2.2.1 Waste collection service planning	Not numbered
2.2.2 Increase of collection service contract rate	2.2.1/ 2.2.2	-	-	-	--
-	-	2.2.2 Waste collection using 5m ³ containers	2.2.1/ 2.2.2	2.2.2 Waste collection using 5m ³ containers	2.2.1/ 2.2.2
Strategy 3. Final disposal system is improved.					
3.1.1 Proper management of existing final disposal site	3.1.1	3.1.1 Proper management of existing final disposal site	3.1.1	3.1.1 Proper management of existing final disposal site	3.1.1
3.1.2 Proper management of waste pickers and improvement of their working conditions	3.1.2	3.1.2 Proper management of waste pickers and improvement of their working conditions	3.1.2	3.1.2 Proper management of waste pickers and improvement of their working conditions	3.1.2
3.2.1 Development and management of the treatment facility for the sludge from septic tanks	3.2.1	3.2.1 Development and management of the treatment facility for the sludge from septic tanks	3.2.1	3.2.1 Development and management of the treatment facility for the sludge from septic tanks	3.2.1
Strategy 4. Health care waste management is improved.					
4.1.1 HCW collection system establishment	4.1.1	4.1.1 HCW collection system establishment	4.1.1	4.1.1 HCW collection system establishment	4.1.1
4.2.1 HCW treatment and disposal system establishment	4.2.1	4.2.1 HCW treatment and disposal system establishment	4.2.1	4.2.1 HCW treatment and disposal system establishment	4.2.1
Strategy 5. Institutional system to support the above improvements is established.					
5.1.1 Consensus building among stakeholders	5.1.1	5.1.1 Consensus building among stakeholders	5.1.1	5.1.1 Consensus building among stakeholders	5.1.1
5.2.1 Financial system improvement	5.2.1	5.2.1 Financial system improvement	5.2.1	5.2.1 Financial system improvement	5.2.1

The following tables are the brief summary of each pilot project. For further information, please refer to Appendix 3 of Supplement 1, 2 and 3 for VTE, XYB and VTE, respectively.

Pilot Projects in VTE

Strategy 1. “3Rs” are promoted.

VTE1.1.1 Reduction of kitchen waste and garden waste at households

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To reduce household’s organic waste such as kitchen and garden waste at generation sources To promote home composting at the pilot households in the pilot villages and to reduce the amount of discharged waste
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE, which was selected as a main C/P. Since the main actor of promotion and expansion of on-site composting should be transferred from SJET to C/P transitionally, the project was divided into two phases: Phase I, which is mainly managed by SJET with a purpose of OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015. After that, PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> Most of the households did not separate organic waste and discharged together with other wastes. Some of the households used the kitchen waste for feeding their domestic animals.
Plan of the PP	<p>PP sites: Nonesavang village, Hongsupharp village, Nonesavanh village, Amone village</p> <p>Indicator of PP: Indicator 1: All barrels and bins are disseminated by Dec 2014 and kept monitored until the end of the project by C/P. Indicator 2: The rate of the households that continue on-site compost¹ to all the households that started on-site compost in all the pilot villages: 60%</p> <p>Implementation plan:</p> <ul style="list-style-type: none"> Residents in the pilot villages choose the method of composting, either barrel or worm. Instruction of composting is done by SJET in phase I and by C/P in phase II. Equipment for composting is also delivered to the households. Monitoring for both phases is done by C/P.
Implementation of the PP	<p>Equipment delivered:</p> <ul style="list-style-type: none"> Barrel 58 units, Worm bins 22 sets <p>Instruction:</p> <ul style="list-style-type: none"> Instruction for the management of compost was done by SJET in phase I and by C/P in phase II. <p>Monitoring, Awareness raising activity:</p> <ul style="list-style-type: none"> Monitoring has been done by MONRE and DONRE periodically. Instruction handbooks and a promotion video were made.
Evaluation and Achievement	<p>Status of achievement: As shown below, the project purpose was achieved. Indicator 1: Achieved. All composting equipment was delivered by December 2014 and has been monitored by C/P continuously. Indicator 2: Achieved. As of March 2015, 79% of the households still continue on-site composting.</p> <p>Other Outputs</p> <ul style="list-style-type: none"> In Nonesavanh village, some households shared their worms and instructed the composting method to new households by themselves.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> For worm composting, households that have domestic animals tend to keep their motivation for composting because they can feed their domestic animals with the worms. Therefore having domestic animals should be considered as one of favorable conditions for the selection of pilot households.

¹ On-site composting is conducted at generation sources. LPPE applied two on-site composting methods, i.e. Barrel method that uses composting barrel and Worm method that uses bin and worms.

	<ul style="list-style-type: none"> • For barrel composting, it is necessary for C/P to explain to the pilot households that adjustment of moisture inside the barrel is one of the keys for successful implementation. • It would be difficult for C/P to monitor all households frequently. Therefore, it is recommended to form groups of neighborhoods and let them check the condition of their compost each other.
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VTE1.1.2 Recyclable waste separation at generation sources

This PP was carried out as part of the PP “VTE 2.1.1/2.1.2 Primary collection system”, thus described together with it.

VTE1.1.3 Avoidance of the use of excess packages such as plastic shopping bags

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • To promote households and stalls not to use unnecessary plastic bags and reduce the number of plastic bags discharged as waste. • To deliver eco-baskets to the residents in pilot villages and promote their use instead of plastic bags when they go shopping. In addition, stall staff at the pilot market is encouraged not to excessively give plastic bags to their customers.
General Concept	<ul style="list-style-type: none"> • SJET designed the project plan based on the discussion with DONRE and VUDAA which were selected as a main C/P. • Since the main actor of promotion and expansion of eco-basket PP should be transferred from SJET to C/P transitionally, the project was divided into two phases: Phase I, which is mainly managed by SJET with a purpose of OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015, After that PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> • According to a public opinion survey on May 2013, which was conducted before the delivery and instruction of the eco-baskets, 12% of the residents answered that they often refused the plastic bags at shops.
Plan of the PP	<p>PP sites: Nonesavang village, Hongsupharp village, Nonesavanh village, Amone village, Houakhua market</p> <p>Indicator of PP: Indicator 1: Plastic shopping bag reduction activities are started at one or more new places under the instruction of the C/P. Indicator 2: The rate of the households that refuse plastic bags as many as possible to all the households in all the pilot villages is 40%. Indicator 3: The rate of the stalls that cooperate plastic bag reduction to all the stalls in all the pilot markets: 40%</p> <p>Implementation plan:</p> <ul style="list-style-type: none"> • In phase I, SJET is the main actor to deliver the eco-baskets to all households in 4 pilot villages and shoppers at the pilot markets and to give instructions for use. • In phase II, C/P selects new places and delivers eco-baskets after giving the instructions. • Monitoring and awareness raising for both phases are done by C/P.
Implementation of the PP	<p>Equipment delivered:</p> <ul style="list-style-type: none"> • Eco-basket 3095 units, signboard at the market 1 set <p>Instruction:</p> <ul style="list-style-type: none"> • Leaflet for explaining the objectives and methods of plastic bag reduction was prepared and delivered together with the eco-baskets. <p>Monitoring, Awareness raising activity:</p> <ul style="list-style-type: none"> • Monitoring and awareness raising activities have been done by MONRE and DONRE. • For the announcement at the market, script for raising awareness on the plastic bag reduction was prepared.

Evaluation and Achievement	<p><u>Status of achievement:</u> As shown below, the project purpose was achieved. Indicator 1: Achieved. C/P delivered eco-baskets, gave instruction, and held awareness raising activities at 9 new places. Indicator 2: Achieved. As of March 2015, 79% of the households try to reduce plastic bag use. Indicator 3: Achieved. As of March 2015, 67% of the stalls try to reduce plastic bag use.</p>
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> • Asking the cooperation not only from shoppers but also from the stall staff is needed by providing sufficient awareness raising activity. • It is important to continue the awareness raising activity because it would take time to change people's behavior.

Strategy 2. Waste collection system is improved.

VTE 2.1.1/2.1.2 Primary collection system

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • To provide an opportunity for the households to sign contracts of waste collection service. • To make waste collection service more efficient • To make a waste discharge rule more convenient for people • To prevent garbage from being littered and to keep the collection points clean • To divert recyclables from the waste collection system
General Concept	<ul style="list-style-type: none"> • VUDAA had been concerned about the low contract rate in the area where VUDAA or private collection companies provided the collection service. The increase of the contract rate was regarded as the priority issue in the pilot project. • Four villages in the Xaysettha district, where a private company provides collection service were selected as target areas in the pilot project. • VUDAA were primarily responsible for the establishment of a pilot project committee which consisted of DONRE, Xaysettha district, villages, the private company and others. SJET took the initiative in the beginning period, and gradually it was taken over to VUDAA, which also led the committee.
PP Period	From Jan, 2012 to Sep, 2015. After that, C/P continues and expands the activity.
Situation before PP	<ul style="list-style-type: none"> • In the pilot villages, only part of households was provided with collection service. Especially, households along alleys inaccessible for collection trucks often lacked the collection service contracts. • Even in the area covered with collection service, people living in alleys inaccessible for the collection trucks had inconvenience as they needed to bring their garbage from their houses to the nearest collection points. • Garbage was often piled up and littered at certain waste collection points. They impaired the view of the streets and made waste collection work difficult.
Plan of the PP	<p><u>Target Villages:</u> 4 villages in Xaysettha district: B.Hongsupharp, B.Nonesavanh, B.Amone, B.Nonesavang 2 villages in Sisathanak district</p> <p><u>Indicators:</u> Indicator 1: Primary collection system by using collection bins covers 125 households on the inaccessible road of collection vehicles in 4 pilot project villages. Indicator 2: Primary collection system by using collection bins for inaccessible road of collection vehicles will be expanded to the two new villages and cover 25 households by the initiative of VUDAA. Indicator 3: The rate of the households that separately discharge recyclable waste to all the households covered by primary collection PP: 70% Indicator 4: Waste management groups are established in the existing collection improvement pilot villages. Indicator 5: The rate of the cooperating households to all the households covered by the primary collection PP: 70%</p> <p><u>Implementation Plan:</u></p>

	<ul style="list-style-type: none"> Wheeled waste bins are provided to the groups of households who live along streets inaccessible for the waste collection vehicles. The bins are managed by those households on a rotating basis. The household on duty during a particular period collects waste from other households of the group and brings the bin to the nearest waste discharge point on a collection day. Besides, a discharge rule which is set up by the project promotes the households to separate recyclable waste in order to minimize the amount of waste to be collected and transported to the disposal site. The residents shall separate the recyclables to sell them to dealers so as not to discharge them on regular waste collection service.
Implementation of the PP	<p><u>Procurement and producing necessary tools:</u></p> <ul style="list-style-type: none"> 80 wheeled waste bins (120L) Leaflets describing waste discharging rule to be distributed to the households with contracts <p><u>Procedure:</u></p> <ul style="list-style-type: none"> Identification of streets that need improvement or new contract Collecting information about the streets (Household list including contract status) Development of maps of those streets in relation with above household list. Selection and grouping of priority Streets Conducting explanation meetings to the residents in the priority streets The wheeled containers and the leaflets are distributed to the households with contracts. Private company promotes contract to those without contract. The wheeled containers and the leaflets are distributed to the households which concluded new contract. <p><u>Situation as of the end of Aug 2015:</u></p> <ul style="list-style-type: none"> No problems are found in the area where the primary collection was introduced.
Evaluation and Achievement	<p><u>Achievement Status (As of Aug 2015) :</u></p> <p>Indicator 1: Primary collection service was introduced to 188 households in the 4 villages</p> <p>Indicator 2: Not achieved. It was implemented with VUDAA's initiative in existing 4 villages in Xaysetta because the PP could not get cooperation from new 2 villages in Sisathanak district.</p> <p>Indicator 3: 93%</p> <p>Indicator 4: The groups which share the primary collection were established in the 4 villages in the Xaysettha district.</p> <p>Indicator 5: 93%</p>
Suggestion for the Post-Project Activities	<p>Although the primary collection is an effective way to increase the waste collection contract, it necessitates initial investment for requires waste containers.</p> <p>It is expected that VUDAA and private companies properly introduce primary collection system considering its revenue from new collection contracts from a long term viewpoint regardless of initial expense.</p>

VTE 2.2.1 Waste collection service planning

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To clarify the situation of existing waste collection service in 2013 Based on the situation in 2013, the plan for waste collection service in 2020 is formulated.
General Concept	<ul style="list-style-type: none"> The situation of collection service in 2013 was studied. This information was visualized by using GIS application. Based on the situation in 2013 and visualized data, VUDAA set the target figure about contract rate in 2020. This was also visualized by GIS.
PP Period	Draft plan: 2013. Reviewing: 2014-2015. After this project, VUDAA will review and monitor the plan until 2020
Situation before PP	<ul style="list-style-type: none"> The situation of existing waste collection service was not well understood since information was not organized quantitatively and visually. VUDAA had intention to expand waste collection service. However, there wasn't any specific target value.
Plan of the PP	<u>Indicator:</u>

	<p>Indicator 1: A waste collection and transportation plan is formulated.</p> <p>Content:</p> <ul style="list-style-type: none"> 32,000 households out of 157,000 households had contact of waste collection service in 2013. The proportion of households with contracts accounted for 20.5% of total households. (23.6% in the end of July 2015) As a target for 2020, 82,500 households among 205,000 will have contract. This means that the proportion of the households with contracts to the total households will increase up to around 40%.
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015) :</p> <p>Indicator 1: Plan for waste collection was formulated in March 2014</p> <p>Other Result:</p> <ul style="list-style-type: none"> The draft future plan proposed in this project was used as basic data by the grant aid project when they made a plan for provision of equipment for waste collection. A GIS software called “QGIS” was used. As this is free, it can be downloaded to the computers of VUDAA. Therefore, some VUDAA staff is willing to learn more about GIS.
Suggestion for the Post-Project Activities	<p>According to VUDAA’s information, there are 8 private companies which provide waste collection service in Vientiane capital as of Jun 2014. It is not easy for the private companies alone to persuade residents or village office to sign service contracts. However, based on the experience of PP in Xaysetta district, it will be possible to increase the contract if VUDAA took initiative to interconnect the private companies and village officers. Therefore, the achievement of 2020 target depends on how VUDAA directs private companies to coordinate with villages.</p>

VTE 2.2.2 Increase of collection service contract rate

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> The objective is to increase the households with collection service contracts. When necessary, it introduces primary collection system for the residents who live in inaccessible street for collection vehicle. Therefore, this pilot project is strongly related to the primary collection system pilot project aforementioned.
General Concept	<ul style="list-style-type: none"> Same as the pilot project of primary collection system.
PP Period	Same as the pilot project of primary collection system
Situation before PP	<ul style="list-style-type: none"> Contract rate of collection service in 4 pilot project villages was 33.4% (600 households out of 1800 households) in June 2013. Contract rate of collection service was particularly low on the narrow alleys which were inaccessible for waste collection vehicle.
Plan of the PP	<p>Target villages: 4 villages in Xaysettha district: B.Hongsupharp, B.Nonesavanh, B.Amone, B.Nonesavang</p> <p>Indicators: Indicator 1: Collection service coverage rate in 4 pilot project villages increases from 33% in November 2013 to 50% in December 2014. Indicator 2: The fee payment rate of the households in 4 pilot project villages that newly make collection service contracts with the collection company maintains 90 %.</p> <p>Implementation Plan:</p> <ul style="list-style-type: none"> A conventional method for the collection company is to persuade people to sign contracts in cooperation with VUDAA and village office. , In the PP, the company carries out this method. . Furthermore, the project encourages the households to sign service contract by providing the wheeled waste bins. Only households who signed contracts would be covered by the primary collection system.
Implementation of the PP	<p>Procurement and producing necessary tools:</p> <ul style="list-style-type: none"> Same as the pilot project of primary collection system. <p>Procedure:</p> <ul style="list-style-type: none"> Same as the pilot project of primary collection system.

	<ul style="list-style-type: none"> The opportunities of meeting among VUDAA, Village headman and private companies were arranged intentionally. <p>Situation as of the end of Aug 2015:</p> <ul style="list-style-type: none"> Private companies continued to play central role and try to increase the contract rate cooperating with the villages
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015) :</p> <p>Indicator 1: 56.4%</p> <p>Indicator 2: If the fee isn't paid, collection service will not be provided. In the pilot area, the service is provided, Therefore, the fee should have been paid.</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> In this project, VUDAA acquired some knowhow to increase the contract rate. VUDAA is trying to increase the contract rate in other villages and districts and they succeeded the increase of contract rate to some extent. The knowhow from this pilot project might have been contributed to such achievement.
Suggestion for the Post-Project Activities	<p>The pilot project progress revealed that VUDAA's leadership is important to establish the relationship between the private company and the village even in the area where VUDAA is not providing service.</p> <p>VUDAA is expected to be responsible for mediating actively between the private company and the village for further increase of collection contract rate in other villages or districts.</p>

Strategy 3. Final disposal system is improved.

VTE3.1.1 Proper management of existing final disposal site

Items	Detail
Project Purpose	<ul style="list-style-type: none"> The final disposal system is improved to mitigate adverse impacts on the surrounding area, and the final disposal site is managed properly to dispose of waste.
Concept	<ul style="list-style-type: none"> The proper operation and maintenance of final disposal site is conducted in accordance with the formulated operation plan of final disposal site. The operation of final disposal site is regularly monitored after improvement.
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015.
Condition before PP	<ul style="list-style-type: none"> The collection vehicles cannot approach to the disposal place in KM32 existing disposal site in rainy season since the condition of access road became muddy. As a result, the collected waste was openly dumped on the access road.
Outline of plan	<p>Target Area: KM32 existing disposal site</p> <p>Indicator of PP:</p> <p>Indicator 1: An operation plan of the final disposal site is formulated. Indicator 2: The final disposal site is operated in accordance with the operation plan. Indicator 3: The final disposal site is monitored by the final disposal site by monitoring committee once a year.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> The improvement plan of the final disposal site is designed by VUDAA and SJET. The construction work for improvement is implemented by JICA fund. The operation and maintenance plan is formulated by VUDAA and SJET. The proper operation and maintenance is conducted by VUDAA according to the plan. The management of improved final disposal site is annually monitored by MONRE and DONRE.
Implementation of PP	<p>Procurement of heavy machinery for final disposal site:</p> <ul style="list-style-type: none"> Bulldozer 1 unit Dump truck: 2 units <p>Construction work for the improvement at existing disposal site:</p> <ul style="list-style-type: none"> Access road : 1,200m Pipe drain (dai600mm L=10.0m) : 2 places

	<ul style="list-style-type: none"> • Buffer zone (tree planting at 3m interval) : 200m • PC and software for the weight bridge : 1 set • Concrete plate : 200 pieces <p><u>Instruction of waste disposal method:</u> The proper waste disposal method was instructed to VUDAA by SJET with procured heavy machinery.</p> <p><u>Data management of incoming waste amount:</u> The data management of incoming waste amount was instructed to VUDAA by SJET with the installed weigh bridge.</p> <p><u>Progress of PP at end of August 2015:</u></p> <ul style="list-style-type: none"> • Waste disposal and data management are properly operated. • VUDAA has been making every effort to appropriately operate the site. UDAA has been securing budget from the capital to operate the heavy equipment that is used for soil covering. • The draft operation plan was continuously implemented and examined at the improved KM32 final disposal site since 2012. And the operation plan was finalized in August 2015 by VUDAA and SJET. <p><u>Monitoring of final disposal site:</u></p> <ul style="list-style-type: none"> • The final disposal site was monitored by the monitoring committee once a year.
Evaluation and output of PP	<p><u>Achievement of PP:</u> The status of the PP indicators is as follows, thus the PP purpose was achieved. Indicator 1: An operation plan of the final disposal site was formulated. Indicator 2: The final disposal site was operated in accordance with the operation plan. Indicator 3: The final disposal site was monitored by the final disposal site monitoring committee once a year</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> • The enough budget allocation is recommended to manage the proper final disposal site operation and maintenance. • The capacity of the present disposal site will be full by 2026. VUDAA is required to prepare an engineering design and construct the landfill by then in the land next to the current site. • As for the daily operation, VUDAA should produce new concrete plates using formwork provided by the LPPE in order to make up a loss from deterioration.

VTE 3.1.2 Proper management of waste pickers and improvement of their working conditions

Items	Detail
Project Purpose	<ul style="list-style-type: none"> • The proper management system of the waste pickers is established to improve their working conditions.
Concept	<ul style="list-style-type: none"> • A proper management plan of the waste pickers is formulated and conducted to improve their working conditions. The management of waste pickers is monitored by the meetings with waste pickers.
Duration	January 2012 to September 2015. C/P will continually manage the waste pickers after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> • The waste pickers worked under adverse environment at the disposal site without any measures of safety.
Outline of plan	<p><u>Target:</u> Waste pickers at KM32 existing disposal site</p> <p><u>Indicator of PP:</u> Indicator 1: A management plan of waste pickers is formulated. Indicator 2: The waste pickers working conditions is improved in accordance with the management plan. Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p> <p><u>Contents of PP:</u></p> <ul style="list-style-type: none"> • The waste pickers are identified to be organized by VUDAA and SJET.

	<ul style="list-style-type: none"> • A management plan of waste pickers is formulated by VUDAA and SJET. • The management of waste picker is conducted by VUDAA in accordance with the management plan. • The meeting between waste pickers and VUDAA is regularly held to manage waste pickers.
Implementation of PP	<ul style="list-style-type: none"> • In order to regulate and control the activities of waste pickers VUDAA established and issued “Rules and Measures for Km 32 Disposal Site, No 3988/SWCT” in 2012. • In order to facilitate control of waste pickers VUDAA in cooperation with SJET has conducted the following activities: <ol style="list-style-type: none"> 1. ID cards were issued to organize the waste pickers. 2. The following equipment was provided to the waste pickers. <ul style="list-style-type: none"> • Preventive injection for infectious disease • Gloves and other safety gears • Long boots • Safety jackets • In order to facilitate control of waste pickers VUDAA in cooperation with SJET stated the control of waste pickers in the KM32 disposal site operation plan finalized in August 2015. <p>Progress of PP at end of August 2015:</p> <ul style="list-style-type: none"> • The staff belonging to VUDAA instructs “Rules and Measures for Km 32 Disposal Site, No 3988/SWCT, 2012” to the waste pickers • The implementation of the KM32 disposal site operation plan contributes the improvement of working condition, such as the prevention of infectious disease, accidents caused by heavy machinery and disputes among waste pickers and so on.
Evaluation and output of PP	<p>Achievement of of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator 1: A management plan of waste pickers was formulated.</p> <p>Indicator 2: The waste pickers working conditions was improved in accordance with the management plan.</p> <p>Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> • The regularly discussion is recommended to manage the waste pickers. • When new heavy equipment is provided by the Japan’s grant aid, the waste picking rule may need revision in order to reduce a risk of conflict between the waste pickers and the heavy equipment. The new rule should be well understood to the waste pickers.

VTE 3.2.1 Development and management of the treatment facility for the sludge from septic tanks

Items	Detail
Project Purpose	<ul style="list-style-type: none"> • The proper management system of the sludge from septic tanks is developed to mitigate impacts to surrounding aquatic environment.
Concept	<ul style="list-style-type: none"> • The proper operation and maintenance of the treatment facility for sludge from septic tanks is conducted in accordance with the formulated operation plan. The operation of the treatment facility for sludge from septic tanks is regularly monitored after improvement.
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> • The facility at KM32 final disposal site to treat sludge from septic tanks was malfunctioning and the sludge overflowing from the oxidation pond was polluting the surrounding environment.
Outline of plan	<p>Target Area: the treatment facility for the sludge from septic tanks at KM32 existing disposal site</p> <p>Indicator of PP:</p> <p>Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks is formulated.</p> <p>Indicator 2: The treatment facility for the sludge from septic tanks is operated in accordance with the operation plan.</p>

	<p>Indicator 3: The treatment facility for the sludge from septic tanks is monitored by the final disposal site monitoring committee once a year.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> The construction plan of treatment facility for the sludge from septic tanks is designed by VUDAA and SJET. The construction work at existing KM32 disposal site is implemented by SJET. The operation and maintenance plan is formulated by VUDAA and SJET. The proper operation and maintenance is conducted by VUDAA according to the plan. The management of the treatment facility for the sludge from septic tanks is annually monitored by MONRE and DONRE.
Implementation of PP	<p>Civil works: Construction of the facility: 1 unit</p> <p>Operation of treatment facility: Proper operation of the treatment facility for the sludge from septic tanks was conducted by VUDAA.</p> <p>Instruction of sludge removal method: The method of regular removal of sedimentation sludge was instructed to VUDAA by SJET with procured heavy machinery.</p> <p>Progress of PP at end of August 2015: The constructed treatment facility for the sludge from septic tanks is managed properly.</p> <p>Monitoring: The treatment facility for the sludge from septic tank was monitored by the monitoring committee once a year.</p>
Evaluation and output of PP	<p>Achievement of of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks was formulated.</p> <p>Indicator 2: The treatment facility for the sludge from septic tanks was operated in accordance with the operation plan.</p> <p>Indicator 3: The treatment facility for the sludge from septic tanks was monitored by the final disposal site monitoring committee once a year</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> The regular removal of sedimentation sludge is conducted with procured heavy machinery. The frequency will be once in six months, same to the current manner. In case that daily receiving amount of septic tank sludge in a month reaches more than 90% (32.4 m³) of capacity of treatment pond, the new treatment pond is recommended to design.

Strategy 4. Health care waste management is improved.

VTE 4.1.1 HCW collection system establishment

VTE 4.2.1 HCW treatment and disposal system establishment

Due to the close linkage of these two PPs, they are described in the table below together.

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> The PP for HCW Collection System Establishment aims to establish a separate collection and transportation system for HCW generated in main hospitals in VTE and its monitoring system. The PP for HCW Treatment and Disposal System Establishment aims to establish a treatment and disposal system for the separately collected HCW generated from main hospitals in VTE and its monitoring system. Through these projects, infectious HCW discharged from seven main hospitals in VTE is separately collected and incinerated.
General Concept	<ul style="list-style-type: none"> The PP implementation body which is chaired by director of the Urban Cleaning Supervision Section of VUDAA and consists of members of MOH and DOH was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP.

PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> There was a separate collection system for infectious HCW aside from general HCW. This separate collection system, however, did not have a uniform fee structure and the fee was determined for each hospital individually. Furthermore, the fee was set together with general HCW collection and was very cheap. The infectious HCW, therefore, was not strictly separated. Consequently infectious HCW was often found in a mixture with general HCW at the HCW pit in the KM32 disposal site.
Plan of the PP	<p>Target Hospitals of PP: 7 Main hospitals of VTE, namely Mahosot Hospital, Sethathirath Hospital, Friendship Hospital, Military Hospital (103 Hospital), Police Hospital (5 April Hospital), Mother and Child Hospital, and Child Hospital</p> <p>Indicator of PP: Indicator 1: A healthcare waste collection, treatment and disposal plan for the target hospitals is formulated. Indicator 2: Healthcare waste from the target hospitals is collected, treated and disposed of in accordance with the aforementioned plan.</p> <p>Contents:</p> <ul style="list-style-type: none"> VUDAA conducts the separate collection of infectious HCW discharged by the 7 target hospitals. VUDAA incinerates infectious HCW separately collected from the 7 target hospitals by the incinerator installed at the KM32 disposal site. VUDAA collects the incinerated ash and dispose it of at the designated pit in the KM32 disposal site.
Implementation of the PP	<p>Construction of Infectious HCW Treatment:</p> <ul style="list-style-type: none"> Infectious HCW incineration building: 1 unit Infectious HCW Incinerator (manufactured by VAST in Vietnam, Capacity 20kg/hr): 1 unit <p>Situation in July 2015:</p> <ul style="list-style-type: none"> Collection System: VUDAA conducts the separate collection of infectious HCW discharged by the 7 target hospitals and 6 non-target medical institutions. Treatment and Disposal System: VUDAA incinerates infectious HCW separately collected from the 13 medical institutions. Consequently VUDAA incinerates 202kg/day of infectious HCW that is more than the capacity of the incinerator, i.e. 76kg/day. <p>Education, Monitoring and Awareness Raising Activities on the Improvement of HCWM:</p> <ul style="list-style-type: none"> Various education, monitoring and awareness raising activities have been conducted in cooperation with MOH, VUDAA, DOH and DONRE. An education and instruction video on the separation of infectious HCW was produced.
Evaluation and Achievement	<p>Status of Achievement: Indicator 1: Achieved. A healthcare waste collection, treatment and disposal plan (HCWM Plan) for the target hospitals was formulated. Indicator 2: Achieved. Healthcare waste from the target hospitals is collected, treated and disposed of in accordance with the aforementioned plan.</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> Instruction, monitoring and control of MOH/DHHP have been established to improve HCWM in VTE. Legal tools necessary for the improvement of HCWM in VTE have been developing with a lead of the MOH. In addition to the target seven hospitals VUDAA is providing infectious HCWM separate collection, incineration and disposal services to other six medical institutions which were out of the scope of PP. This means the HCWM Plan has been implemented more than the targets of year 2015.
Suggestion for the Post-Project Activities	<ol style="list-style-type: none"> A reliable list of medical institutions in VTE should be prepared and the HCWM plan should be reviewed and modified when necessary by using the list. In the review of the HCWM plan, VUDAA should examine the demand for incineration of the incombustible infectious HCW from the medical institutions that do not have its treatment facility for a purpose of intermediate treatment. Based on the review of the HCWM plan VUDAA should formulate and implement a

	<p>construction plan of an incinerator which has enough capacity to treat all infectious HCW in VTE.</p> <p>4. MOH should legalize the ministerial decree on HCWM in order to establish the separate collection, treatment and disposal of all the infectious HCW generated in VTE as soon as possible.</p> <p>5. Based on the above decree, MOH in cooperation with DOH and VUDAA should strengthen a monitoring and enforcement system against the improper management of infectious HCW.</p> <p>6. VUDAA should operate and maintain the HCW incinerator referring to the manual shown in Appendix 7, Supplement 1. Also, it should examine the introduction of a system to reduce and manage leachate from the HCW disposal pit.</p>
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Strategy 5. Institutional system to support the above improvements is established.

VTE 5.1.1 Consensus building among stakeholders

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To improve SWM in VTE Capital a lot of pilot projects (PPs) have been conducted based on the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. The purpose of this PP is to codify the responsibilities of each stakeholder regarding the PPs for SWM conducted in VTE Capital and build consensus among them. The PP has clarified the responsibilities of each stakeholder necessary for the PPs implementation and built consensus among them. When consensus was made, the PP tried to codify the contents of the consensus as much as possible in various forms from legislative documents to leaflets for distribution.
General Concept	<ul style="list-style-type: none"> To establish the project concept the PPs implementation body, which is chaired by director of Urban Cleaning Supervision Division of VUDAA and consists of members of DONRE and MOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and HCWM Improvement, DONRE, VUDAA and MOH formulated the PP execution bodies in consideration of their roles and duties.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 1.
Plan of the PP	<p><u>Target Area:</u> VTE Capital</p> <p><u>Activities:</u> The clarification of roles and responsibilities of the stakeholders of the PPs for SWM improvement conducted based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p><u>Targets Indicator:</u> Regulation on the responsibilities of stakeholders for improved SWM is prepared and/or drafted.</p>
Implementation of the PP	The PPs for SWM improvement have been conducted in order to implement 4 strategies of the A/P, i.e. 1. Promotion of 3Rs, 2. Improvement of Collection System, 3. Improvement of Final Disposal System and 4. Improvement of Healthcare Waste Management. The roles and responsibilities of the stakeholders of the PPs are codified in Rule of VUDAA, leaflet among stakeholders and others.
Evaluation and Achievement	<p><u>Status of Achievement:</u> The PP purpose was achieved. The following two VUDAA rules were established and Ministerial Order on HCWM is under discussion in the PPs. Also other documents prepared in the PP can serve for the future regulations.</p> <p>Strategy 3: Final Disposal System Improvement :</p>

	<ol style="list-style-type: none"> 1. <u>798/SWCT/VUDAA 23/11/2011: Rules and Measures for User of KM32 Disposal Site:</u> To establish rules for the user of KM32 disposal site and penalty of violator. 2. <u>3988/SWCT/VUDAA 01/08/2012: Rules and Measures of KM32 Disposal Site:</u> To establish rules of the waste pickers working at KM32 disposal site and penalty of violator. <p>Strategy 4: HCWM Improvement :</p> <ol style="list-style-type: none"> 3. <u>Revision of No 1706/MOH 20/07/2004: Ministerial Order on HCWM of Healthcare Facilities:</u> The ministerial order has being revised. For the revision works of the MOH the experience of HCWM PPs in VTE Capital and LPB District is being considered. Especially “No.159/DOH.LPB 05/01/2014: Regulation on HCWM from Healthcare Facilities in LPB District” is one of the important references for revision work. <p>Other Outputs:</p> <ul style="list-style-type: none"> • The roles and responsibilities of stakeholders on improvement of SWM became clear through the implementation of various PPs. • Through the implementation of various PPs coordination system among MONRE, MOH and MPWT of central government and VTE Capital, District and Village of local government, and Residents have been established. • The coordination system among relevant organizations was established to enforce the regulations on the improvement of HCWM.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> • “Basic Laws on SWM” should be established as soon as possible by the lead of MONRE. • Following the “Basic Laws on SWM”, VTE Capital in cooperation with its Districts should establish “Regulation on SWM in VTE Capital” according to the situation of Districts in VTE Capital. • If “Basic Laws on SWM” of national level delays, VTE Capital may need to establish “Regulation on SWM in VTE Capital” with the cooperation of MONRE. • For the establishment of “Regulation on SWM in VTE Capital” VTE Capital and its Districts should utilize the experiences of the PPs.

VTE 5.2.1 Financial system improvement

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • The purpose of this PP is to improve the financial system necessary for SWM improvement through the implementation of the PPs under the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. • The financial system to be improved by the PP includes: (i) a system necessary for the implementation of the PPs for SWM improvement and (ii) a system necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE. • As for the former system (i), most proposals were regarding the operation and maintenance (O&M) cost shouldered by the Laotian side. In addition, most of them were actually implemented because of the necessity of implementation of the PPs. • For the latter system (ii), proposals regarding both O&M cost and investment were prepared.
General Concept	<ul style="list-style-type: none"> • The PP implementation body, which was chaired by director of Urban Cleaning Supervision Division of VUDAA and consists of members of DONRE and MOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. • As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and HCWM Improvement, DONRE, VUDAA and MOH formulated the PP execution bodies in consideration of their roles and duties.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> • Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 2.

Plan of the PP	<p><u>Target Area:</u> VTE Capital</p> <p><u>Activities:</u> To prepare financial system improvement proposals necessary for SWM improvement through the implementation of the PPs based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p><u>Indicator:</u> Proposal for financial system improvement necessary for SWM improvement is prepared.</p>
Implementation of the PP	<ul style="list-style-type: none"> • The proposals for the financial system improvement were prepared for the implementation of the PPs and they were mostly realized. • Proposals necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE were prepared.
Evaluation and Achievement	<p><u>Achievement of PP:</u> The status of the PP indicator is as follows, thus the PP purpose was achieved.</p> <ol style="list-style-type: none"> 1. As for the proposals necessary for the implementation of the PPs for SWM improvement, the following documents were prepared and officially issued. <p>Strategy 4: HCWM Improvement :</p> <ul style="list-style-type: none"> • <u>Meeting Minute No 019 /DONRE.VTE 21/08/2012: Minute of Meeting on Implementation of Incinerator at KM32 Disposal Site:</u> Six major medical institutions (MIs) in VYE Capital agreed on the fee for the separate collection and incineration at 10,656 kip/kg proposed by VUDAA. After this agreement a lot of meetings have been held until actual contract agreement for the service provision. • <u>Contract Agreement on Separate Collection and Incineration of Infectious HCW: No xxx VUDAA/MIs in VTE Capital: Contract for Infectious HCW Collection, Incineration and Disposal Service:</u> Contract agreement between VUDAA and MIs in VTE Capital on the separate collection, incineration and incinerated ash disposal of infectious HCW. At the end of July 2015 VUDAA has made contracts with 16 MIs. <ol style="list-style-type: none"> 2. The financial proposals for continuation, dissemination and expansion of the PPs were prepared. <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> • Through the implementation of various PPs, needs of financial system improvement plan with fair financial burden for each stakeholder on improvement of SWM became clear. • In order to prepare and implement financial system improvement plan, the coordination system among MONRE, MOH and MPWT of central government and VTE Capital, District and Village of local government, and Residents have been established through the implementation of various PPs.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> • It is recommended to examine O&M cost for SWM improvement based on the beneficiaries- bear principle. • As for the investment, it is also recommended to apply the beneficiaries- bear principle in general. In case where large investment for equipment and facility is needed, however, it is recommended to ask budget from the Central and Provincial governments and financial cooperation of donors and enterprises promoting CSR (cooperate social responsibility). • As for the preparation of financial proposals it is recommended to utilize the experiences of various PPs as much as possible. Especially for the financial system improvement plan for the continuation, dissemination and expansion of the PPs, it is recommended to refer to the table of " Results of Financial Burdens for PP Implementation in VTE Capital and Proposal of Financial Burdens for Continuation, Dissemination and Expansion of PPs", shown in Appendix 3, Supplement 1.

Pilot Projects in LPB

Strategy 1. “3Rs” are promoted.

LPB1.1.1 Reduction of kitchen waste and garden waste at households

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To reduce household’s organic waste such as kitchen and garden waste at generation sources To promote home composting at the pilot households in the pilot villages and to reduce the amount of discharged waste
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA, which were selected as a main C/P. Since the main actor of promotion and expansion of on-site composting should be transferred from SJET to C/P transitionally, the project was divided into two phases: Phase I, which is mainly managed by SJET with a purpose of OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015. After that, PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> Most of the households did not separate organic waste and discharged together with other wastes. Some of the households used the kitchen waste to feed their domestic animals.
Plan of the PP	<p>PP sites: VatThaat village, Pongvane village, Pakham village</p> <p>Indicator of PP: Indicator 1: All barrels and bins are disseminated by Dec 2014 and kept monitored until the end of the project by C/P. Indicator 2: The rate of the households that continue on-site compost to all the households that started on-site compost in all the pilot villages: 50%</p> <p>Implementation Plan:</p> <ul style="list-style-type: none"> Residents in the pilot villages choose the method of composting, either barrel or worm. Instruction of composting is done by SJET in phase I and by C/P in phase II. Equipment for composting is also delivered to the households. Monitoring for both phases is done by C/P.
Implementation of the PP	<p>Equipment delivered:</p> <ul style="list-style-type: none"> Barrel 10 units, Worm bins 43 sets <p>Instruction:</p> <ul style="list-style-type: none"> Instruction for the management of compost was done by SJET in phase I and by C/P in phase II. <p>Monitoring, Awareness raising activity:</p> <ul style="list-style-type: none"> Monitoring has been done by DONRE and UDAA periodically. Instruction handbooks and a promotion video were made.
Evaluation and Achievement	<p>Status of achievement: As shown below, the project purpose was achieved.</p> <p>Indicator 1: Achieved. All composting equipment was delivered by December 2014 and has been monitored by C/P continuously.</p> <p>Indicator 2: Achieved. As of March 2015, 66% of the households still continue on-site composting.</p>
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> For worm composting, households that have domestic animals tend to keep their motivation for composting because they can feed their domestic animals with the worms. Therefore having domestic animals should be considered as one of favorable conditions for the selection of pilot households. For barrel composting, it is necessary for C/P to explain to the pilot households that adjustment of moisture inside the barrel is one of the keys for successful implementation. It would be difficult for C/P to monitor all households frequently. Therefore, it is recommended to form groups of neighborhoods and let them check the condition of their compost each other.

LPB 1.1.2 Recyclable waste separation at generation sources

a. Waste separation project

This PP was carried out as part of the PP “**LPB 2.1.1/2.1.2 Primary collection system**”, thus described together with it.

b. School recycling project

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To promote recyclable waste separation at schools for recycling. Recyclable wastes from each class are separated from other waste and kept inside the storage. They are sold to collection companies when the storage becomes full.
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA that were selected as a main C/P. After that, DONRE and UDAA discussed about the plan with each pilot school and finalized it.
PP Period	From February 2014 to September 2015. After that, PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> In Santhipab School, plastic bottles were separated and sold, but there was no enough space to keep them. In Pongkham School, recyclable wastes were not separated and discharged with other wastes.
Plan of the PP	<p><u>Pilot schools of PP:</u> Santhipahb Secondary School, Pongkham Secondary School</p> <p><u>Indicator of PP:</u> Indicator 1: The school recycling activities continue at the two pilot project schools. Indicator 2: The cooperation rate of the school recycling at the pilot schools is more than 50% of total numbers of classes.</p> <p><u>Implementation plan:</u></p> <ul style="list-style-type: none"> Each class separates recyclable waste and take it to storage once a week. When the storage is full, school calls a collection company and sells it. Each school discusses and decides the way to manage the money generated by selling the recyclables. Monitoring and awareness raising activity are done by C/P.
Implementation of the PP	<p><u>Equipment delivered:</u></p> <ul style="list-style-type: none"> Storage 6 units, Containers for waste separation 8 units (Only for Pongkham School) <p><u>Instruction:</u></p> <ul style="list-style-type: none"> Poster of the instruction for recyclables separation was printed and distributed to each class. <p><u>Monitoring, Awareness raising activity:</u></p> <ul style="list-style-type: none"> Monitoring has been done by DONRE and UDAA periodically. Handbooks for raising awareness on 3R was prepared and distributed to teachers and some students. Awareness raising activity about waste problems was implemented by C/P for the students of each pilot school. A promotion and dissemination video was made.
Evaluation and Achievement	<p><u>Status of achievement:</u> As shown below, the project purpose was achieved. Indicator 1: Achieved. As of June 2015, both pilot schools still continue the project. Indicator 2: Achieved. As of June 2015, 100% of the classes cooperates the project.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> Pongkham School started to collect paper.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> There is a possibility that some private companies interested in CSR activity would support the budget for building storage, so it is recommended for C/P to use the promotion video to get support from them.

LPB 1.1.3 Avoidance of the use of excess packages such as plastic shopping bags

a. Eco-basket project

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To promote households and stalls not to use unnecessary plastic bags and reduce the number of plastic bags discharged as waste. To deliver eco-baskets to the residents in pilot villages and promote their use instead of plastic bags when they go shopping. In addition, stall staff at the pilot market is encouraged not to excessively give plastic bags to their customers.
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA which were selected as a main C/P. Since the main actor of promotion and expansion of eco-basket PP should be transferred from SJET to C/P transitionally, project's phase was decided to be divided into two; Phase I, which is mainly managed by SJET with OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015, After that PP will be expanded continuously by C/P
Situation before PP	<ul style="list-style-type: none"> According to a public opinion survey on May 2013, which was conducted before the delivery and instruction of eco-baskets, 15% of the residents answered that they often refuse the plastic bags at shops.
Plan of the PP	<p><u>Pilot sites of PP:</u> VatThaat village, Pakham village, TaHeua market</p> <p><u>Indicator of PP:</u> Indicator 1: Plastic shopping bag reduction activities are started at one or more new places under the instruction of the C/P. Indicator 2: The rate of the households that refuse plastic bags as many as possible to all the households in all the pilot villages is 30%. Indicator 3: The rate of the stalls that cooperate plastic bag reduction to all the stalls in all the pilot markets: 30%</p> <p><u>Contents of the implementation plan:</u></p> <ul style="list-style-type: none"> In phase I, SJET is the main actor to deliver the eco-baskets to all households in 2 pilot villages and shoppers at the pilot markets and gives instructions for use. In phase II, C/P selects new places and delivers eco-baskets after giving the instructions. Monitoring and awareness raising for both phases are done by C/P.
Implementation of the PP	<p><u>Equipmentdelivered:</u> As shown below, the project purpose was achieved.</p> <ul style="list-style-type: none"> Eco-basket 1482 units, Signboard at the market 2 set <p><u>Instruction:</u></p> <ul style="list-style-type: none"> Leaflet for explaining the objectives and methods of plastic bag reduction was prepared and delivered together with the eco-baskets. <p><u>Monitoring, Awareness raising activity:</u></p> <ul style="list-style-type: none"> Monitoring and awareness raising activities have been done by DONRE and UDAA. For the announcement at the market, script for raising awareness on the plastic bag reduction was prepared.
Evaluation and Achievement	<p><u>Status of achievement:</u></p> <p>Indicator 1: Achieved. C/P delivered eco-baskets, gave instruction, and held awareness raising activities at 10 new places. Indicator 2: Achieved. As of March 2015, 55% of the households try to reduce plastic bag use. Indicator 3: Achieved. As of March 2015, 81% of the stalls try to reduce plastic bag use.</p>
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> Asking the cooperation not only from shoppers but also from the stall staff is needed by providing sufficient awareness raising activity. It is important to continue the awareness raising activity because it would take time to change people's behavior.

b. Eco-bag project

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To reduce the amount of plastic bag discharged as waste by promoting tourists staying in LPB to refuse using unnecessary plastic bag. LPPE delivers eco-bags to the pilot hotels and guesthouses in LPB, then hotels or guesthouses provide the bag for the customers to borrow when they go shopping.
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA that were selected as a main C/P. Luan Prabang Hotel, Guesthouse and Restaurant Association publicizes the project in order to increase the member of the project. This PP and the PP on “the promotion of recycling at off-site by composting” to be described next together formed an “Eco-Stay Project”.
PP Period	From February 2012 to September 2015, After that PP will be expanded continuously by C/P
Situation before PP	<ul style="list-style-type: none"> Some hotels has sold their hotel’s own eco-bag for gift, but there was no hotel which promoted their customers to use the eco-bag for the reduction of plastic bag.
Plan of the PP	<p>PP sites: 30 Hotels or guesthouses in LPB</p> <p>Indicator of PP: More than 30 hotels/guesthouses participate in the plastic shopping bag reduction project.</p> <p>Plan of the implementation:</p> <ul style="list-style-type: none"> LPPE delivers the eco-bags to the member’s hotel or guesthouses and give an instruction for them. Monitoring and awareness raising activity are done by C/P.
Implementation of the PP	<p>Equipment delivered:</p> <ul style="list-style-type: none"> Eco-bag 1500 units, Promotional signboard 50 units <p>Instruction:</p> <ul style="list-style-type: none"> Promotion leaflet and signboard were made and delivered to the members. <p>Monitoring, Awareness raising activity:</p> <ul style="list-style-type: none"> Monitoring and awareness raising activities have been done by DONRE and UDAA. Information of the PP was updated in the website of Ministry of Information, Culture and Tourism. Eco-stay Project Promotion Seminar was held two times to recruit new members.
Evaluation and Achievement	<p>Status of achievement: As shown below, the project purpose was achieved. Achieved. 21 hotels and 9 guesthouses joined the eco-bag PP.</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> Maison Suvannaphoum, one of the members of the project, made additional eco-bags by their own budget in order to promote their guests not to use plastic bag.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> Hotels / guesthouses should prepare their own eco-bag managing system before joining the PP. It is recommended for C/P to ask the private companies that are interested in CSR activity for the budget of the eco-bag.

LPB 1.2.1 Reduction of kitchen waste from hotels and restaurants

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To reduce the final disposal amount of kitchen waste from hotels and restaurants by composting. Member’s hotels/restaurants separately discharge their kitchen waste, then UDAA collects it and make compost at the landfill.
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA that were selected as a main C/P. Luan Prabang Hotel, Guesthouse and Restaurant Association publicizes the project in order to increase the member of the project.

	<ul style="list-style-type: none"> This PP and the PP on “the promotion of eco-bags” described previously together formed an “Eco-Stay Project”.
PP Period	From February 2012 to September 2015, After that PP will be expanded continuously by C/P
Situation before PP	<ul style="list-style-type: none"> Hotels or restaurants discharged their kitchen waste together with other wastes.
Plan of the PP	<p><u>Pilot site of PP:</u> 30 Hotels or guesthouses in LPB</p> <p><u>Indicator of PP:</u> Indicator 1: More than 30 hotels/restaurants participate in the off-site compost project. Indicator 2: Compost is produced at the off-site compost plant.</p> <p><u>Implementation plan:</u></p> <ul style="list-style-type: none"> LPPE delivers barrels for keeping kitchen waste and give instructions for the waste separation. Monitoring and awareness raising activity are done by C/P.
Implementation of the PP	<p><u>Equipment delivered:</u></p> <ul style="list-style-type: none"> 1 Pick-up truck Barrels for keeping kitchen waste 120 units <p><u>Construction of compost plant:</u></p> <ul style="list-style-type: none"> Composting plant facility Storage Compost crushing machine Wood chipping machine <p><u>Instruction:</u></p> <ul style="list-style-type: none"> Poster for explaining the kitchen waste separation was made and delivered to the members. <p><u>Monitoring, Awareness raising activity:</u></p> <ul style="list-style-type: none"> Monitoring and awareness raising activities have been done by DONRE and UDAA. Promotion video was made for the dissemination of the project.
Evaluation and Achievement	<p><u>Status of achievement:</u> As shown below, the project purpose was achieved. Indicator 1: Achieved. 8 Restaurants and 22 hotels joined the off-site composting project. Indicator 2: Achieved. The monthly amount of waste received in 2015 was: 6.5 ton in April, 3.55 ton in May, 1.5 ton in June and 1.0 ton in July. The decline was caused because the rainy season (off season of tourism) started in May and the number of Korean tourism was affected by the outbreak of MERS.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> Component analysis and application test of the compost were conducted and confirmed to be good product as compost.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> Since the turning over of the compost piles is very hard work, UDAA is recommended to get enough budgets to increase the number of the staff who works at the compost plant.

Strategy 2. Waste collection system is improved.

LPB 2.1.1/2.1 Primary collection system

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To make waste collection service more efficient To make a waste discharge rule more convenient for people To prevent garbage from being littered and to keep the collection points clean To divert recyclables from the waste collection system
General Concept	<ul style="list-style-type: none"> Even though the collection service has been provided in the central area of the city, UDAA had been concerned about inconvenience and inefficiency caused along the narrow alleys, which are inaccessible for collection vehicles. In such a situation, 10 villages which seemed to be facing such problems were invited to a meeting. As a result of the discussion, 3 villages were selected as the sites for Phase I.

	<ul style="list-style-type: none"> The implementation was planned to be conducted into 2 phases considering technical transfer. As for Phase I, pilot project was implemented by SJET's initiative in the 3 villages. As for Phase II, the implementation was conducted by UDAA's initiative in other 3 villages which were selected by UDAA based on the experience of Phase I.
PP Period	January 2012 – September 2015. After that, C/P continues and expands the activity.
Situation before PP	<p>Even in the area covered with collection service, people living in alleys inaccessible for the collection vehicles had inconvenience as they needed to bring their garbage from their houses to the nearest collection points.</p> <ul style="list-style-type: none"> Garbage was often piled up and littered at certain waste collection points. They impaired the view of the streets and made waste collection work difficult.
Plan of the PP	<p>Target Villages: Phase I: B. Huaxiang, B. Thadbosoth, B. Apay Phase II: B. Viengmay, B. Naviengkham, B. Viengsay, B. Thadbosoth</p> <p>Indicators: Indicator 1: The activities of the existing collection improvement and the promotion of recyclables discharge PP are implemented in one or more new villages under the instruction of the UDAA and DONRE. Indicator 2: Waste management groups are established in the pilot villages of the primary collection system project. Indicator 3: The rate of the cooperating households to all the households covered by the existing primary collection system project is more than 70%. Indicator 4: The rate of the households that separately discharge recyclable waste to all the households covered by primary collection service project is more than 70%.</p> <p>Implementation plan:</p> <ul style="list-style-type: none"> Wheeled waste bins are provided to the groups of households who live along streets inaccessible for the waste collection vehicles. The bins are managed by those households on a rotating basis. The household on duty during a particular period collects waste from other households of the group and brings the bin to the nearest waste discharge point on a collection day. Besides, a discharge rule which is set up by the project promotes the households to separate recyclable waste in order to minimize the amount of waste to be collected and transported to the disposal site. The residents shall separate the recyclables to sell them to dealers so as not to discharge them on regular waste collection service.
Implementation of the PP	<p>Procurement and producing necessary tools:</p> <ul style="list-style-type: none"> 80 wheeled waste bins (240L) Leaflets describing waste discharging rule to be distributed to the households with contracts <p>Procedure:</p> <ul style="list-style-type: none"> Identification of streets that need improvement Collecting information about the streets (Household list) Development of maps of those streets in relation with above household list. Grouping of priority streets Conducting explanation meetings to the residents in the priority streets Distributing the wheeled waste bins and leaflets. <p>Situation as of the end of Aug 2015:</p> <ul style="list-style-type: none"> No problems are found in the area where the primary collection was introduced.
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015) : Indicator 1: UDAA has already introduced primary collection service in the new 3 villages. Indicator 2: Primary collection share groups have been established in the previous 3 villages and the new 3 villages respectively. Indicator 3: 90% Indicator 4: 89%</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> There is no more garbage littered around the collecting points. This improvement contributes to keep favorable landscape in the central area, as a world heritage site. Therefore, the effect of this improvement is recognized by people.
Suggestion for the Post-Project	Although the primary collection is an effective way to increase the waste collection contract, it necessitates initial investment for waste containers.

Activities	However, those who discharge waste in the central area are responsible for preventing garbage from being littered and keeping favorable landscape as LPB is the world heritage site. Therefore it is important to emphasize the effect and importance of the primary collection which were recognized through the pilot project. By doing so, it is expected that the village leaders and/or the residents would be willing to buy the waste bins.
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LPB 2.2.1 Waste collection service planning

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To clarify the situation of existing waste collection service in 2013 Based on the situation in 2013, the plan for waste collection service in 2020 is formulated
General Concept	<ul style="list-style-type: none"> The situation of collection service in 2013 was studied. This information was visualized by using GIS application. Based on the situation in 2013 and visualized data, UDAA set the target figure about the coverage of collection service in 2020. This was also visualized by GIS.
PP Period	Draft plan: 2013. Reviewing: 2014-2015. After this project, UDAA will review and monitor the plan until 2020
Situation before PP	<ul style="list-style-type: none"> The situation of existing waste collection service was not well understood since information was not organized quantitatively and visually. UDAA had intention to expand waste collection service. However, there wasn't any specific target value.
Plan of the PP	<p>Indicator:</p> <ul style="list-style-type: none"> A waste collection and transportation plan is formulated <p>Content:</p> <ul style="list-style-type: none"> 69 villages out of 117 villages received collection service in 2013, which means the village-based coverage rate was 59% As a target for 2020, 80 villages out of 117 villages will receive collection service. This means the village-based coverage rate will increase up to 68%
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015):</p> <p>Indicator 1: Waste collection plan was formulated in March 2014.</p> <p>Other Outputs:</p> <p>The draft future plan proposed in this project was used as basic data by the grant aid project when they made a plan for provision of equipment for waste collection.</p>
Suggestion for the Post-Project Activities	Basically, collection service is well provided in the central area while it is not provided enough in remote area. The service distribution is determined by a lot of factors such as accessibility, population density, waste discharge amount and so on. Considering those factors, the methods and frequency of waste collection must be planned properly. For instance, dump trucks can be used for the general waste collection. In areas where dump truck can't access, 5 m ³ containers might be applicable.

LPB 2.2.2 Waste collection using 5m³ containers

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> In addition to the regular dump truck collection, 5m³ container collection system is organized to contribute for extending the waste collection service. Placing a container to an area without collection service will directly contribute to extend the collection service. Placing a container to an area with dump truck collection service will indirectly contribute to extend the collection service, because the dump truck, which used to serve this area, can be used in other area without collection service.
General Concept	<ul style="list-style-type: none"> UDAA has recognized the importance of waste container collection from a couple of years ago. It particularly focuses on: 1) securing the revenue source from generation sources of

	<p>large volume of waste, and 2) extending waste collection service for general waste in remote villages.</p> <ul style="list-style-type: none"> The PP implementation was decided in order to develop a comprehensive system in UDAA including container manufacturing, collection and maintenance so as to make the container collection system sustainable.
PP Period	January 2012 – September 2015. After this project, UDAA will continue and extend the activity.
Situation before PP	<ul style="list-style-type: none"> UDAA did not own the workshop and they had to purchase 5m³ containers, and it could not repair them when deteriorated. The number of containers was limited. Therefore the skip trailer was not fully utilized.
Plan of the PP	<p><u>Number of PP containers:</u> 10 containers</p> <p><u>Indicator:</u> Indicator 1: 10 units of 5m³ waste containers are assembled and they are placed in accordance with the container placement plan.</p> <p><u>Implementation Plan:</u></p> <ul style="list-style-type: none"> SJET conducts procurement of equipment and tools, and construction of facility UDAA produces actually containers after the engineers were trained by VUDAA in Vientiane The draft of placement plan of containers produced is prepared, and UDAA implements the actual waste collection using the containers as per of the plan
Implementation of the PP	<p><u>Procurement of equipment:</u></p> <ul style="list-style-type: none"> Welding machine, iron cutting machine, electric sander, each gas tank, and so on <p><u>Procurement of material:</u></p> <ul style="list-style-type: none"> Steel plate, steel square bar, hinge, oxygen and acetylene gas, welding rod, paint, anti-rust <p><u>Construction of facility:</u></p> <ul style="list-style-type: none"> Workshop for producing container; 1 Hanging crane; 1 <p><u>Procedure:</u></p> <ul style="list-style-type: none"> Construction of workshop for producing 5m³ container Procurement of equipment Training of producing container for UDAA engineer from engineer of VUDAA Procurement of material Drafting container placement plan Producing container Installing, and commencement of collection <p><u>Situation as of the end of Aug 2015:</u></p> <ul style="list-style-type: none"> UDAA properly performs collection service using each container.
Evaluation and Achievement	<p><u>Achievement Status (As of Apr 2015) :</u> Indicator 1: UDAA has already completed the production of 10 containers. Two of them were planned to be placed in remote villages, but in the end, all of them were placed at the large volume generators. When a skip trailer is provided from grant aid project at the end of 2015, UDAA intends to start container collection for remote villages using two new containers.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> UDAA's own workshop was constructed. Thus, in addition to producing and repairing the 5m³ containers, they can carry out various mechanical works for the urban maintenance, which is UDAA's important duty, e.g. welding repair of dump truck body or bucket of excavator. It was decided to collect health care waste incineration ash generated at the provincial hospital at the same time of the container collection for general waste. The skip loader must be modified for this purpose, and the modification work is supposed to be done by UDAA in the workshop.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> The containers already in service should be well maintained (particularly in the event of breakage). In order to manufacture containers and extend the container collection system by UDAA's own budget, UDAA should consider the next actions such as adjustment of container production price (e.g. saving unnecessary cost by using cheaper material) or reviewing the container collection fee.

	<ul style="list-style-type: none"> The applicability of the container collection in remote villages could not be examined because such waste collection was not carried out in the PP. When UDAA applies container collection to remote villages in future, appropriate places should be selected from the view point of cost-effectiveness and the affordability of the villages.
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Strategy 3. Final disposal system is improved.

LPB 3.1.1 Proper management of existing final disposal site

Items	Detail																						
Project Purpose	<ul style="list-style-type: none"> The final disposal system is improved to mitigate adverse impacts on the surrounding area, and the final disposal site is managed properly to dispose of waste. 																						
Concept	<ul style="list-style-type: none"> The proper operation and maintenance of final disposal site is conducted in accordance with the formulated operation plan of final disposal site. The operation of final disposal site is regularly monitored after improvement. 																						
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015.																						
Condition before PP	<ul style="list-style-type: none"> The collection vehicles cannot approach to the disposal place in KM8 existing disposal site in rainy season since the condition of access road became muddy. As a result, the collected waste was openly dumped on the access road. 																						
Outline of plan	<p><u>Target Area:</u> KM8 existing disposal site</p> <p><u>Indicators of PP:</u> Indicator 1: An operation plan of the final disposal site is formulated. Indicator 2: The final disposal site is operated in accordance with the operation plan. Indicator 3: The final disposal site is monitored by the final disposal site by monitoring committee once a year.</p> <p><u>Contents of PP:</u></p> <ul style="list-style-type: none"> The improvement plan of the final disposal site is designed by UDAA and SJET. The construction work for improvement is implemented by JICA fund. The operation and maintenance plan is formulated by UDAA and SJET. The proper operation and maintenance is conducted by UDAA according to the plan. The management of improved final disposal site is annually monitored by MONRE and DONRE. 																						
Implementation of PP	<p><u>Procurement of heavy machinery for final disposal site:</u></p> <ul style="list-style-type: none"> Excavator 1unit, Dump truck 1 unit <p><u>Construction work for the improvement at existing disposal site:</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Access road</td> <td style="text-align: right;">: 800m</td> </tr> <tr> <td>Earth drain</td> <td style="text-align: right;">: 470m</td> </tr> <tr> <td>Embankment</td> <td style="text-align: right;">: 400m.</td> </tr> <tr> <td>Pipe drain (dai600mm L=10.0m)</td> <td style="text-align: right;">: 3 places</td> </tr> <tr> <td>Weight bridge</td> <td style="text-align: right;">: 1 place</td> </tr> <tr> <td>Gate</td> <td style="text-align: right;">: 1place</td> </tr> <tr> <td>Leachate collection pipe</td> <td style="text-align: right;">: 100m</td> </tr> <tr> <td>Re-circulated pump and flexible pipe</td> <td style="text-align: right;">: 150m</td> </tr> <tr> <td>Workshop</td> <td style="text-align: right;">: 1 building</td> </tr> <tr> <td>Crane</td> <td style="text-align: right;">: 1unit</td> </tr> <tr> <td>Concrete plate</td> <td style="text-align: right;">: 130 pieces</td> </tr> </table> <p><u>Instruction of waste disposal method:</u> The proper waste disposal method was instructed to UDAA by SJET with procured heavy machinery.</p> <p><u>Data management of incoming waste amount:</u> The data management of incoming waste amount was instructed to UDAA by SJET with the installed weigh bridge.</p> <p><u>Progress of PP at end of August 2015:</u></p>	Access road	: 800m	Earth drain	: 470m	Embankment	: 400m.	Pipe drain (dai600mm L=10.0m)	: 3 places	Weight bridge	: 1 place	Gate	: 1place	Leachate collection pipe	: 100m	Re-circulated pump and flexible pipe	: 150m	Workshop	: 1 building	Crane	: 1unit	Concrete plate	: 130 pieces
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	<ul style="list-style-type: none"> Waste disposal and data management are properly operated. UDAA has been making every effort to appropriately operate the site. UDAA has been securing budget from the province to operate the heavy equipment procured and to develop an access road to the previous disposal cell. The draft operation plan was continuously implemented and examined at the improved KM8 final disposal site since 2012. And the operation plan was finalized in August 2015 by UDAA and SJET. <p>Monitoring of final disposal site:</p> <ul style="list-style-type: none"> The final disposal site was monitored by the monitoring committee once a year.
Evaluation and output of PP	<p>Achievement of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator 1: An operation plan of the final disposal site was formulated.</p> <p>Indicator 2: The final disposal site was operated in accordance with the operation plan.</p> <p>Indicator 3: The final disposal site was monitored by the final disposal site monitoring committee once a year</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> The enough budget allocation is recommended to manage the proper final disposal site operation and maintenance. The capacity of the present disposal site will be full by 2024. UDAA is required to have acquired a land including the one next to the current landfill, prepared an engineering design and constructed the landfill by then. As for the daily operation, UDAA should produce new concrete plates using formwork provided by the LPPE in order to make up a loss from deterioration.

LPB 3.1.2 Proper management of waste pickers and improvement of their working conditions

Items	Detail
Project Purpose	<ul style="list-style-type: none"> The proper management system of the waste pickers is established to improve their working conditions.
Concept	<ul style="list-style-type: none"> A proper management plan of the waste pickers is formulated and conducted to improve their working conditions. The management of waste pickers is monitored by the meetings with waste pickers.
Duration	January 2012 to September 2015. C/P will continually manage the waste pickers after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> The waste pickers worked under adverse environment at the disposal site without any measures of safety.
Outline of plan	<p>Target: Waste pickers at KM8 existing disposal site</p> <p>Indicator of PP: Indicator 1: A management plan of waste pickers is formulated. Indicator 2: The waste pickers working conditions is improved in accordance with the management plan. Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> The waste pickers are identified to be organized by UDAA and SJET. A management plan of waste pickers is formulated by UDAA and SJET. The management of waste picker is conducted by UDAA in accordance with the management plan. The meeting between waste pickers and UDAA is regularly held to manage waste pickers.
Implementation of PP	<ul style="list-style-type: none"> In order to regulate and control the activities of waste pickers VUDAA established and issued “302/UDAA OFF 22/01/2013: Announcement on Prohibition to Outsider for Entering KM8 Disposal Site” in January 2013.” In order to facilitate control of waste pickers UDAA in cooperation with SJET has conducted the following activities: <ol style="list-style-type: none"> ID cards were issued to organize the waste pickers.

	<p>2. The following equipment was provided to the waste pickers.</p> <ul style="list-style-type: none"> • Preventive injection for infectious disease • Gloves and other safety gears • Long boots • Safety jackets <ul style="list-style-type: none"> • In order to facilitate control of waste pickers UDAA in cooperation with SJET stated the control of waste pickers in the KM8 disposal site operation plan finalized in August 2015. <p>Progress of PP at end of August 2015:</p> <ul style="list-style-type: none"> • The staff belonging to UDAA instructs “302/UDAA OFF 22/01/2013: Announcement on Prohibition to Outsider for Entering KM8 Disposal Site” to the waste pickers • The implementation of the KM8 disposal site operation plan contributes the improvement of working condition, such as the prevention of infectious disease, accidents caused by heavy machinery and disputes among waste pickers and so on.
Evaluation and output of PP	<p>Achievement of of PP The status of the PP indicators is as follows, thus the PP purpose was achieved. Indicator 1: A management plan of waste pickers was formulated. Indicator 2: The waste pickers working conditions was improved in accordance with the management plan. Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p> <p>The other achievements:</p> <ul style="list-style-type: none"> • “302/UDAA OFF 22/01/2013: Announcement on Prohibition to Outsider for Entering KM8 Disposal Site” became effective.
Recommendation to C/P to continue	<ul style="list-style-type: none"> • The regularly discussion is recommended to manage the waste pickers. • When new heavy equipment is provided by the Japan’s grant aid, the waste picking rule may need revision in order to reduce a risk of conflict between the waste pickers and the heavy equipment. The new rule should be well understood to the waste pickers.

LPB 3.2.1 Development and management of the treatment facility for the sludge from septic tanks

Items	Detail
Project Purpose	<ul style="list-style-type: none"> • The proper management system of the sludge from septic tanks is developed to mitigate impacts to surrounding aquatic environment.
Concept	<ul style="list-style-type: none"> • The proper operation and maintenance of the treatment facility for sludge from septic tanks is conducted in accordance with the formulated operation plan. The operation of the treatment facility for sludge from septic tanks is regularly monitored after improvement.
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> • The collected sludge from septic tanks was directly discharged to the disposal site or a small stream without any treatment giving impacts to surrounding aquatic environment.
Outline of plan	<p>Target Area: the treatment facility for the sludge from septic tanks at KM8 existing disposal site</p> <p>Indicator of PP: Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks is formulated. Indicator 2: The treatment facility for the sludge from septic tanks is operated in accordance with the operation plan. Indicator 3: The treatment facility for the sludge from septic tanks is monitored by the final disposal site monitoring committee once a year.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> • The construction plan of treatment facility for the sludge from septic tanks is designed by UDAA and SJET. The construction work at existing KM8 disposal site is implemented by SJET. • The operation and maintenance plan is formulated by UDAA and SJET.

	<ul style="list-style-type: none"> The proper operation and maintenance is conducted by UDAA according to the plan. The management of the treatment facility for the sludge from septic tanks is annually monitored by MONRE and DONRE.
Implementation of PP	<p>Civil works: Construction of the facility: 1 unit</p> <p>Operation of treatment facility: Proper operation of the treatment facility for the sludge from septic tanks was conducted by UDAA.</p> <p>Instruction of sludge removal method: The method of regular removal of sedimentation sludge was instructed to UDAA by SJET with procured heavy machinery.</p> <p>Progress of PP at end of August 2015: The constructed treatment facility for the sludge from septic tanks is managed properly.</p> <p>Monitoring: The treatment facility for the sludge from septic tank was monitored by the monitoring committee once a year.</p>
Evaluation and output of PP	<p>Achievement of of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks was formulated.</p> <p>Indicator 2: The treatment facility for the sludge from septic tanks was operated in accordance with the operation plan.</p> <p>Indicator 3: The treatment facility for the sludge from septic tanks was monitored by the final disposal site monitoring committee once a year</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> The regular removal of sedimentation sludge is conducted with procured heavy machinery. The frequency will be once in six months, same to the current manner. In case that daily receiving amount of septic tank sludge in a month reaches more than 90% (32.4 m³) of capacity of treatment pond, the new treatment pond is recommended to design.

Strategy 4. Health care waste management is improved.

LPB 4.1.1 HCW collection system establishment

LPB 4.2.1 HCW treatment and disposal system establishment

Due to the close linkage of these two PPs, they are described in the table below together.

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> The PP for HCW Collection System Establishment aims to establish a separate collection and transportation system for HCW generated in main hospitals in LPB and its monitoring system. The PP for HCW Treatment and Disposal System Establishment aims to establish a treatment and disposal system for the separately collected HCW generated from main hospitals in LPB and its monitoring system. Through these projects, infectious HCW discharged from four main hospitals in LPB is separately collected and incinerated.
General Concept	<ul style="list-style-type: none"> The PP implementation body which is chaired by deputy director general of DONRE and consists of members of UDAA and DOH was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. The PP implementation body was formally established as the Provincial Committee of HCWM by the LPB Provincial Governor's Decree No 27 /LPB.Pro.Gov. 17/01/2013. The decree stipulated the roles of waste generators, UDAA and other organizations in regard to the separate collection, incineration and final disposal of HCW.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.

<p>Situation before PP</p>	<ul style="list-style-type: none"> • There was no separate collection system for either infectious HCW or general HCW. • Consequently infectious HCW was collected together with general HCW and disposed of at KM8 disposal site.
<p>Plan of the PP</p>	<p>Target Hospitals of PP: 4 Main hospitals of LPB, namely Provincial Hospital, Military Hospital, Chinese Hospital, and International Chinese Hospital.</p> <p>Indicator of PP: Indicator 1: A healthcare waste collection, treatment and disposal plan for the target hospitals is formulated. Indicator 2: Healthcare waste from the target hospitals is collected, treated and disposed of in accordance with the aforementioned plan.</p> <p>Contents:</p> <ul style="list-style-type: none"> • UDAA conducts the separate collection of infectious HCW discharged by the 3 target hospitals except for the Provincial Hospital. • The Provincial Hospital incinerates infectious HCW separately collected from the 3 target hospitals and its own infectious HCW. • UDAA conducts the separate collection of incinerated ash and its final disposal at the designated pit in the KM8 disposal site.
<p>Implementation of the PP</p>	<p>Procurement of Collection Equipment:</p> <ul style="list-style-type: none"> • Pickup truck: 1 unit to be shared with the off-site composting PP • Plastic container dedicated for infectious HCW: 10 units <p>Construction of Infectious HCW Treatment and Disposal Facility:</p> <ul style="list-style-type: none"> • Infectious HCW incineration building: 1 unit • Infectious HCW Incinerator (manufactured by VAST in Vietnam, Capacity 10kg/hr): 1 unit • Infectious HCW Pit: 1 unit <p>Situation in July 2015:</p> <ul style="list-style-type: none"> • Collection System: UDAA has been conducting separate collection of infectious HCW for the Military Hospital and Chinese Hospital and negotiating with the International Chinese Hospital in order to conclude separate collection services contract. • Treatment and Disposal System: The Provincial Hospital has been conducting incineration of infectious HCW from itself and infectious HCW separately collected by UDAA from the Military Hospital and Chinese Hospital. The incinerated ash is collected and disposed of at the designated HCW pit by UDAA. Incineration is not yet conducted for the infectious HCW from the International Chinese Hospital. • The amount of HCW incineration is 15kg/day and it is less than half of its capacity of 38kg/day. <p>Education, Monitoring and Awareness Raising Activities on the Improvement of HCWM:</p> <ul style="list-style-type: none"> • Various education, monitoring and awareness raising activities have been conducted in cooperation with MOH, DOH, DONRE and UDAA. • Education and instruction videos on the separation of infectious HCW were produced and delivered to the target hospitals.
<p>Evaluation and Achievement</p>	<p>Status of Achievement: Indicator 1: Achieved. A healthcare waste collection, treatment and disposal plan for the target hospitals was formulated Indicator 2: Partly achieved. Separate collection, incineration and disposal is not yet conducted for the infectious HCW from the International Chinese Hospital.</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> • Provincial Committee of HCWM has been established to improve HCWM in LPB. • Legal tools necessary for the improvement of HCWM in LPB have been established with a lead of the committee. • Furthermore, a coordination and cooperation system among relevant organizations for the enforcement of legal tools has established.
<p>Suggestion for the Post-Project Activities</p>	<ol style="list-style-type: none"> 1. UDAA should conclude a contract with the International Chinese Hospital and put it into force as soon as possible. 2. A reliable list of medical institutions in LPB should be prepared and the HCWM plan should be reviewed and modified when necessary by using the list 3. In the review of the HCWM plan, UDAA should examine the demand for incineration of the incombustible infectious HCW from the medical institutions that do not have its treatment facility for a purpose of intermediate treatment.

	<p>4. The operation and maintenance of the incinerator should follow the manual shown in Appendix 7, Supplement 2.</p> <p>5. At present the capacity of the incinerator is not fully utilized. UDAA, therefore, in cooperation with DOH, should conduct necessary enforcement, education and public relation to incinerate all of the infectious HCW generated in LPB district based on the revised HCWM plan.</p>
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Strategy 5. Institutional system to support the above improvements is established.

LPB 5.1.1 Consensus building among stakeholders

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To improve SWM in LPB District a lot of pilot projects (PPs) have been conducted based on the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. The purpose of this PP is to codify the responsibilities of each stakeholder regarding the PPs and build consensus among them. The PP has clarified the responsibilities of each stakeholder necessary for the PPs implementation and built consensus among them. When consensus was made, the PP tried to codify the contents of the consensus as much as possible in various forms from legislative documents to leaflets for distribution.
General Concept	<ul style="list-style-type: none"> To establish the project concept the PPs implementation body, which is chaired by deputy director general of DONRE and consists of members of UDAA and DOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. The HCWM PP implementation body was formally established as the Provincial Committee of HCWM by the LPB Provincial Governor's Decree No 27 /LPB.Pro.Gov. As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System, DONRE and UDAA formulated the PP execution bodies in consideration of their roles and duties.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 2.
Plan of the PP	<p><u>Target Area:</u> LPB District</p> <p><u>Activities:</u> The clarification of roles and responsibilities of the stakeholders of the PPs for SWM improvement conducted based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p><u>Indicator:</u> Regulation on the responsibilities of stakeholders for improved SWM is prepared and/or drafted.</p>
Implementation of the PP	The PPs for SWM improvement have been conducted in order to implement 4 strategies of the A/P, i.e. 1. Promotion of 3Rs, 2. Improvement of Collection System, 3. Improvement of Final Disposal System and 4. Improvement of Healthcare Waste Management. The roles and responsibilities of the stakeholders of the PPs are codified in Provincial Governor's Agreement, District Governor's Regulation, leaflet among stakeholders and others.
Evaluation and Achievement	<p><u>Status of Achievement:</u> The PP purpose was achieved. Following official documents were issued.</p> <p>Strategy 3: Final Disposal System Improvement :</p> <ul style="list-style-type: none"> <u>302/UDAA OFF 22/01/2013: Announcement on Prohibition to Outsider for Entering KM8 Disposal Site: Control of the KM 8 disposal site management</u> <p>Strategy 4: HCWM Improvement :</p> <ul style="list-style-type: none"> <u>No 27/LPB.Pro.Gov 17/01/2013: Luang Prabang Province Governor's Agreement on Committees and Secretary Nomination regarding task and roles for implementation of</u>

	<p><u>Health Care Waste Incinerator</u>: Establishment of the Provincial Committee of HCWM and Clarification of the responsibilities of UDAA and other organization.</p> <ul style="list-style-type: none"> • <u>No 575 /LPB.Dis.Gov 30/07/2013: Regulation of the Governor of Luang Prabang District on Transportation fee and Disposal fee for Infectious Waste from Hospital and Public Health Places in Luang Prabang District</u>: Review of the fee of HCWM including infectious HCW collection and incineration. • <u>No.159/DOH.LPB 05/01/2014: Regulation on HCWM from Healthcare Facilities in LPB District</u>: This regulates that all the medical institutions must discharge infectious HCW separately from general waste, use a manifest format, and strictly manage from collection to final disposal. <p>Other Outputs:</p> <ul style="list-style-type: none"> • The roles and responsibilities of stakeholders on improvement of SWM became clear through the implementation of various PPs. • Through the implementation of various PPs coordination system among MONRE, MOH and MPWT of central government and Province, District and Village of local government, and Residents have been established. • The Provincial Committee of HCWM has been established to promote proper HCWM in LPB Province. • The coordination system among relevant organizations was established to enforce the regulations on the improvement of HCWM.
<p>Suggestion for the Post-Project Activities</p>	<ul style="list-style-type: none"> • “Basic Laws on SWM” should be established as soon as possible by the lead of MONRE. • Following the “Basic Laws on SWM”, LPB Province in cooperation with LPB District should establish “Regulation on SWM in LPB” according to the situation of LPB District. • If “Basic Laws on SWM” of national level delays, LPB Province may need to establish “Regulation on SWM in LPB” with the cooperation of MONRE. • For the establishment of “Regulation on SWM in LPB” LPB Province and District should utilize the experiences of the PPs.

LPB 5.2.1 Financial system improvement

Items	Description
<p>Project Purpose and Summary</p>	<ul style="list-style-type: none"> • The purpose of this PP is to improve the financial system necessary for SWM improvement through the implementation of the PPs under the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. • The financial system to be improved by the PP includes: (i) a system necessary for the implementation of the PPs for SWM improvement and (ii) a system necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE. • As for the former system (i), most proposals were regarding the operation and maintenance (O&M) cost shouldered by the Laotian side. In addition, most of them were actually implemented because of the necessity of implementation of the PPs. • For the latter system (ii), proposals regarding both O&M cost and investment were prepared. .
<p>General Concept</p>	<ul style="list-style-type: none"> • The PP implementation body, which was chaired by deputy director general of DONRE and consisted of members of UDAA and DOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. • The HCWM PP implementation body was formally established as the Provincial Committee of HCWM by the LPB Provincial Governor’s Decree No 27 /LPB.Pro.Gov. As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System, DONRE and UDAA formulated the PP execution bodies in consideration of their roles and duties.
<p>PP Period</p>	<p>From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.</p>
<p>Situation before</p>	<ul style="list-style-type: none"> • Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 2.

PP	
Plan of the PP	<p><u>Target Area:</u> LPB District</p> <p><u>Activities:</u> To prepare financial system improvement proposals necessary for SWM improvement through the implementation of the PPs based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p><u>Indicator:</u> Proposal for financial system improvement necessary for SWM improvement is prepared.</p>
Implementation of the PP	<ul style="list-style-type: none"> • The proposals for the financial system improvement were prepared for the implementation of the PPs and they were mostly realized. • Proposals necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE were prepared.
Evaluation and Achievement	<p><u>Achievement of PP:</u> The status of the PP indicator is as follows, thus the PP purpose was achieved.</p> <p>1. As for the proposals necessary for the implementation of the PPs for SWM improvement, the following documents were prepared and officially issued.</p> <p>Strategy 2: Collection System Improvement :</p> <ul style="list-style-type: none"> • <u>No 101/LPB.Pro.Gov 18/02/2014: Luang Prabang Province Governor’s Agreement on Acknowledgement of Waste Collection Service Improvement Fee in Luang Prabang City Area :</u> Revision of waste collection fee <p>Strategy 3: Final Disposal System Improvement :</p> <ul style="list-style-type: none"> • <u>No 101/LPB.Pro.Gov 18/02/2014: The same as the above:</u> Revision of tipping fee of KM8 disposal site <p>Strategy 4: HCWM Improvement :</p> <ul style="list-style-type: none"> • <u>No 575 /LPB.Dis.Gov 30/07/2013: Regulation of the Governor of Luang Prabang District on Transportation fee and Disposal fee for Infectious Waste from Hospital and Public Health Places in Luang Prabang District :</u> Review of the fee of HCWM including infectious HCW separate collection and incineration • <u>No 282 UDAA/Chinese Hospital 31/03/2014 and No 001 UDAA/Military Hospital 01/01/2015: Contract for Infectious HCW Collection, Incineration and Disposal Service :</u> Contract agreement between UDAA and Chinese Hospital/Military Hospital on infectious HCW separate collection, incineration and incinerated ash disposal. <p>2. The financial proposals for continuation, dissemination and expansion of the PPs were prepared.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> • Through the implementation of various PPs, needs of financial system improvement plan with fair financial burden for each stakeholder on improvement of SWM became clear. • In order to prepare and implement financial system improvement plan, the coordination system among MONRE, MOH and MPWT of central government and Province, District and Village of local government, and Residents have been established through the implementation of various PPs.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> • It is recommended to examine O&M cost for SWM improvement based on the beneficiaries- bear principle. • As for the investment, it is also recommended to apply the beneficiaries- bear principle in general. In case where large investment for equipment and facility is needed, however, it is recommended to ask budget from the Central and Provincial governments and financial cooperation of donors and enterprises promoting CSR (cooperate social responsibility). • As for the preparation of financial proposals it is recommended to utilize the experiences of various PPs as much as possible. Especially for the financial system improvement plan for the continuation, dissemination and expansion of the PPs, it is recommended to refer to the table of ” Results of Financial Burdens for PP Implementation in LPB District and Proposal of Financial Burdens for Continuation, Dissemination and Expansion of PPs”, shown in Appendix 3, Supplement 2.

Pilot Projects in XYB

Strategy 1. “3Rs” are promoted.

XYB1.1.1 Reduction of kitchen waste and garden waste at households

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To reduce household’s organic waste such as kitchen and garden waste at generation sources To promote home composting at the pilot households in the pilot villages and to reduce the amount of discharged waste
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA, which were selected as a main C/P. Since the main actor of promotion and expansion of on-site composting should be transferred from SJET to C/P transitionally, the project was divided into two phases: Phase I, which is mainly managed by SJET with a purpose of OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015. After that, PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> Most of the households did not separate organic waste and discharged together with other wastes. Some of the households used the kitchen waste to feed their domestic animals.
Plan of the PP	<p><u>Pilot sites of PP:</u> Natonoi village, Thin village, Phapoon village, Boung village</p> <p><u>Indicator of PP:</u> Indicator 1: All barrels and bins are disseminated by Dec 2014 and kept monitored until the end of the project by C/P. Indicator 2: The rate of the households that continue on-site compost to all the households that started on-site compost in all the pilot villages: 50%</p> <p><u>Implementation Plan:</u></p> <ul style="list-style-type: none"> Residents in the pilot villages choose the method of composting, either barrel or worm. Instruction of composting is done by SJET in phase I and by C/P in phase II. Equipment for composting is also delivered to the households. Monitoring for both phases is done by C/P.
Implementation of the PP	<p><u>Equipment delivered:</u></p> <ul style="list-style-type: none"> Barrel 247 units, Worm bins 102 sets <p><u>Instruction:</u></p> <ul style="list-style-type: none"> Instruction for the management of compost was done by SJET in phase I and by C/P in phase II. <p><u>Monitoring, Awareness raising activity:</u></p> <ul style="list-style-type: none"> Monitoring has been done by DONRE and UDAA periodically. Instruction handbooks and a promotion video were made.
Evaluation and Achievement	<p><u>Status of achievement:</u> As shown below, the project purpose was achieved. Indicator1: Achieved. All composting equipment was delivered by December 2014 and has been monitored by C/P continuously. Indicator2: Achieved. As of March 2015, 52% of the households still continue on-site composting.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> After the news about the PP was broadcasted in XYB, some people who do not live in the pilot villages got interested in it and visited one of the pilot households. The pilot households gave instructions to them and disseminate the compost to the other sites by themselves. Some people visited the pilot households to buy the worms.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> For worm composting, households that have domestic animals tend to keep their motivation for composting because they can feed their domestic animals with the worms. Therefore having domestic animals should be considered as one of favorable conditions for

	<p>the selection of pilot households.</p> <ul style="list-style-type: none"> • For barrel composting, it is necessary for C/P to explain to the pilot households that adjustment of moisture inside the barrel is one of the keys for successful implementation. • It would be difficult for C/P to monitor all households frequently. Therefore, it is recommended to form groups of neighborhoods and let them check the condition of their compost each other.
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XYB 1.1.2 Recyclable waste separation at generation sources

a. Waste separation project

This PP was carried out as part of the PP “**LPB 2.1.1/2.1.2 Primary collection system**”, thus described together with it.

b. School recycling project

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • To promote recyclable waste separation at schools for recycling. • Recyclable wastes from each class are separated from other waste and kept inside the storage. They are sold to collection companies when the storage becomes full.
General Concept	<ul style="list-style-type: none"> • SJET designed the project plan based on the discussion with DONRE and UDAA that were selected as a main C/P. • After that, DONRE and UDAA discussed about the plan with each pilot school and finalize it.
PP Period	From February 2014 to September 2015. After that, PP will be disseminated continuously by C/P
Situation before PP	<ul style="list-style-type: none"> • Recyclable wastes were not separated in the schools, discharged with other wastes.
Plan of the PP	<p><u>Pilot schools of PP:</u> Xaiyaboury Secondary School, Mittaphab Junior High School</p> <p><u>Indicator of PP:</u> Indicator 1: The school recycling activities continue at the two pilot project schools. Indicator 2: The cooperation rate of the school recycling at the pilot schools is more than 50% of total numbers of classes.</p> <p><u>Implementation plan:</u></p> <ul style="list-style-type: none"> • Each class separate recyclable waste and take it to storage once a week. After the storage is full, school calls a collection company and sells it. • Each school discusses and decides the way to manage the money generated by selling the recyclables. • Monitoring and awareness raising activity are done by C/P.
Implementation of the PP	<p><u>Equipments delivered:</u></p> <ul style="list-style-type: none"> • Storage 3 units <p><u>Instruction:</u></p> <ul style="list-style-type: none"> • Poster of the instruction for recyclables separation was made and distributed to each class. <p><u>Monitoring, Awareness raising activity:</u></p> <ul style="list-style-type: none"> • Monitoring has been done by DONRE and UDAA periodically. • Handbook for raising awareness on 3R was prepared and distributed to teachers and some students. • Awareness raising activity about waste problems was implemented by C/P for the students of each pilot school. • Promotion and dissemination video was made.
Evaluation and Achievement	<p><u>Status of achievement:</u> As shown below, the project purpose was achieved. Indicator 1: Achieved. As of June 2015, both pilot schools still continue the project.</p>

	Indicator 2: Achieved. As of June 2015, 100% of the classes cooperates the project. Other Outputs: <ul style="list-style-type: none"> Xaiyaboury School started to collect paper.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> There is a possibility that some private companies interested in CSR activity would support the budget for building storage, so it is recommended for C/P to use the promotion video to get support from them.

XYB 1.1.3 Avoidance of the use of excess packages such as plastic shopping bags

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To promote households and stalls not to use unnecessary plastic bags and reduce the number of plastic bags discharged as waste. To deliver eco-baskets to the residents in pilot villages and promote their use instead of plastic bags when they go shopping. In addition, stall staff at the pilot market is encouraged not to excessively give plastic bags to their customers.
General Concept	<ul style="list-style-type: none"> SJET designed the project plan based on the discussion with DONRE and UDAA which were selected as a main C/P. Since the main actor of promotion and expansion of eco-basket PP should be transferred from SJET to C/P transitionally, the project was divided into two phases: Phase I, which is mainly managed by SJET with a purpose of OJT to C/P and Phase II, which is mainly managed by C/P.
PP Period	From September 2011 to September 2015, After that PP will be expanded continuously by C/P
Situation before PP	<ul style="list-style-type: none"> According to a public opinion survey on May 2013, which was conducted before the delivery and instruction of eco-baskets, 4% of the residents answered that they often refuse the plastic bags at shops.
Plan of the PP	<p>Pilot sites of PP: Thin village, Phapoon village, Boung village, Simungkhun Market</p> <p>Indicator of PP: Indicator 1: Plastic shopping bag reduction activities are started at one or more new places under the instruction of the C/P. Indicator 2: The rate of the households that refuse plastic bags as many as possible to all the households in all the pilot villages is 25%. Indicator 3: The rate of the stalls that cooperate plastic bag reduction to all the stalls in all the pilot markets: 25%</p> <p>Contents of the implementation plan:</p> <ul style="list-style-type: none"> In phase I, SJET is the main actor to deliver the eco-baskets to all the households in 3 pilot villages and shoppers at the pilot markets and give instructions for use. In phase II, C/P selects new places and delivers eco-baskets after giving the instructions. Monitoring and awareness raising for both phases are done by C/P.
Implementation of the PP	<p>Equipment delivered:</p> <ul style="list-style-type: none"> Eco-basket 2023 units, Signboard at the market 1 set <p>Instruction:</p> <ul style="list-style-type: none"> Leaflet for explaining the objectives and methods of plastic bag reduction was prepared and delivered together with the eco-baskets. <p>Monitoring, Awareness raising activity:</p> <ul style="list-style-type: none"> Monitoring and awareness raising activities have been done by DONRE and UDAA. For the announcement at the market, script for raising awareness on the plastic bag reduction was prepared.
Evaluation and Achievement	<p>Status of achievement: As shown below, the project purpose was achieved.</p> <p>Indicator 1: Achieved. C/P delivered eco-baskets, gave instructions, and held awareness raising activities at 26 new places.</p> <p>Indicator 2: Achieved. As of March 2015, 79% of the households try to reduce plastic bag use.</p> <p>Indicator 3: Achieved. As of March 2015, 40% of the stalls try to reduce plastic bag use.</p>
Suggestion for the Post-Project	<ul style="list-style-type: none"> Asking the cooperation not only from shoppers but also from the stall staff is needed by providing sufficient awareness raising activity.

Activities	<ul style="list-style-type: none"> It is important to continue the awareness raising activity because it would take time to change people's behavior.
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Strategy 2. Waste collection system is improved.

XYB 2.1.1/2.1.2 Primary collection system

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To make waste collection service more efficient To make a waste discharge rule more convenient for people To prevent garbage from being littered and to keep the collection points clean To divert recyclables from the waste collection system
General Concept	<ul style="list-style-type: none"> Even though the collection service has been provided in the central area of the city, UDAA had been concerned about inconvenience and inefficiency caused along the narrow alleys, which are inaccessible for collection vehicles. In such a situation, 5 villages which seemed to be facing such problems aforementioned were invited to the meeting. As a result of the discussion, all 5 villages were selected as the pilot villages. The implementation was planned to be conducted into 2 phases considering technical transfer. As for Phase I, pilot project was implemented by SJET initiative in the 3 villages. As for Phase II, the implementation was conducted by UDAA initiative in the other 2 villages and in other streets of one village in Phase 1.
PP Period	January 2012 – September 2015. After that, C/P continues and expands the activity.
Situation before PP	<ul style="list-style-type: none"> Even in the area covered with collection service, people living in alleys inaccessible for the collection vehicles had felt inconvenience as they needed to bring their garbage from their houses to the nearest collection points. Garbage was often piled up and littered at certain waste collection points. They impaired the view of the streets and made waste collection work difficult.
Plan of the PP	<p>Target Villages: Phase I: B. Boung, B. Keng, B. Semuaeng Phase II: B. Donemai, B. Natonoy, B. Boung</p> <p>Indicators: Indicator 1: The activities of the existing collection improvement and the promotion of recyclables discharge PP are implemented in one or more new villages under the instruction of the UDAA and DONRE. Indicator 2: Waste management groups are established in the pilot villages of the primary collection system project. Indicator 3: The rate of the cooperating households to all the households covered by the existing primary collection system project is more than 70%. Indicator 4: The rate of the households that separately discharge recyclable waste to all the households covered by primary collection service project is more than 70%.</p> <p>Implementation plan:</p> <ul style="list-style-type: none"> Wheeled waste bins are provided to the groups of households who live along streets inaccessible for the waste collection vehicles. The bins are managed by those households on a rotating basis. The household on duty during a particular period collects waste from other households of the group and brings the bin to the nearest waste discharge point on a collection day. Besides, a discharge rule which is set up by the project promotes the households to separate recyclable waste in order to minimize the amount of waste to be collected and transported to the disposal site. The residents shall separate the recyclables to sell it to dealers so as not to discharge them on regular waste collection service.
Implementation of the PP	<p>Procurement and producing necessary tools:</p> <ul style="list-style-type: none"> 155 wheeled waste bins (120L) Leaflets describing waste discharging rule to be distributed to the households with contracts <p>Procedure:</p>

	<ul style="list-style-type: none"> • Identification of streets that need improvement • Collecting information about the streets (Household list) • Development of maps of those streets in relation with above household list. • Grouping of priority Streets • Conducting explanation meetings to the residents in the priority streets • Distributing the wheeled waste bins and leaflets. <p>Situation as of the end of Aug 2015:</p> <ul style="list-style-type: none"> • No problems are found in the area where the primary collection was introduced.
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015) :</p> <p>Indicator 1: UDAA has already introduced primary collection service in the new 3 villages (2 new villages and new streets in a previous village).</p> <p>Indicator 2: Primary collection share groups have been established in the previous 3 villages and the new 3 villages respectively.</p> <p>Indicator 3: 99%</p> <p>Indicator 4: 68%</p> <p>Other Result:</p> <ul style="list-style-type: none"> • UDAA officers have played a model taking part in primary collection in each their own home
Suggestion for the Post-Project Activities	<p>Although the primary collection is an effective way to increase the waste collection contract, it necessitates initial investment as it requires waste containers.</p> <p>Therefore, it is required to appeal the effect and importance of the primary collection which were recognized through the pilot project. By doing so, it is expected that the village leaders and/or the residents would be willing to buy the waste bins.</p>

XYB 2.2.1 Waste collection service planning

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • To clarify the situation of existing waste collection service in 2013 • Based on the situation in 2013, the plan for waste collection service in 2020 is formulated
General Concept	<ul style="list-style-type: none"> • The situation of collection service in 2013 was studied. This information was visualized by using GIS application. • Based on the situation in 2013 and visualized data, UDAA set the target figure about the coverage of collection service in 2020. This was also visualized by GIS.
PP Period	Draft plan: 2013. Reviewing: 2014-2015. After this project, UDAA will review and monitor the plan until 2020
Situation before PP	<ul style="list-style-type: none"> • The situation of existing waste collection service was not well understood since information was not organized quantitatively and visually. • UDAA had intention to expand waste collection service. However, there wasn't any specific target value.
Plan of the PP	<p>Indicator:</p> <ul style="list-style-type: none"> • A waste collection and transportation plan is formulated <p>Content:</p> <ul style="list-style-type: none"> • 32 villages out of 83 villages received collection service in 2013, which means the village-based coverage rate was 39% • As a target for 2020, 42 villages out of 83 villages will receive collection service. This means the village-based coverage rate will increase up to 51%
Evaluation and Achievement	<p>Achievement Status (As of Apr 2015) :</p> <p>Indicator 1: Waste collection plan was formulated in March 2014.</p> <p>Other Outputs:</p> <p>The draft future plan proposed in this project was used as basic data by the grant aid project when they made a plan for provision of equipment for waste collection.</p>
Suggestion for the Post-Project Activities	Basically, collection service is well provided in the central area while it is not provided enough in remote area. The service distribution is determined by a lot of factors such as accessibility, population density, waste discharge amount and so on. Considering those factors, the methods

	<p>and frequency of waste collection must be planned properly. For instance, dump trucks can be used for the general waste collection. In areas where dump trucks can't access, 5 m³ containers might be applicable.</p> <p>XYB UDAA intends to use dump trucks even in remote area. However when UDAA of LPB succeeds container collection in remote area, XYB would be needed to learn LPB's lessons.</p>
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XYB 2.2.2 Waste collection using 5m³ containers

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> In addition to the regular dump truck collection, 5m³ container collection system is organized to contribute for extending the waste collection service. Placing a container to an area without collection service will directly contribute to extend the collection service. Placing a container to an area with dump truck collection service will indirectly contribute to extend the collection service, because the dump truck, which used to serve this area, can be used in other area without collection service.
General Concept	<ul style="list-style-type: none"> UDAA has recognized the importance of waste container collection from a couple of years ago. It particularly focuses on securing the revenue source from generation sources of large volume of waste. The PP implementation was decided in order to develop a comprehensive system in UDAA including container manufacturing, collection and maintenance so as to make the container collection system sustainable.
PP Period	January 2012 – September 2015. After this project, UDAA will continue and extend the activity.
Situation before PP	<ul style="list-style-type: none"> UDAA did not own the workshop and they had to purchase 5m³ containers, and it could not repair them when deteriorated. The number of containers was limited. Therefore the skip trailer was not fully utilized.
Plan of the PP	<p><u>Number of PP containers:</u> 10 containers</p> <p><u>Indicator:</u> Indicator 1: 10 units of 5m³ waste containers are assembled and they are placed in accordance with the container placement plan.</p> <p><u>Implementation Plan:</u></p> <ul style="list-style-type: none"> SJET conducts procurement of equipment and tool, and construction of facility UDAA produces actually containers after the engineers were trained by VUDAA in Vientiane The draft of placement plan of containers produced is planned, and UDAA implements the actual waste collection using the containers as per of the plan
Implementation of the PP	<p><u>Procurement of equipment:</u></p> <ul style="list-style-type: none"> Welding machine, iron cutting machine, electric sander, each gas tank, and so on <p><u>Procurement of material:</u></p> <ul style="list-style-type: none"> Steel plate, steel square bar, hinge, oxygen and acetylene gas, welding rod, paint, anti-rust <p><u>Construction of facility:</u></p> <ul style="list-style-type: none"> Workshop for producing container; 1 Hanging crane; 1 <p><u>Procedure:</u></p> <ul style="list-style-type: none"> Construction of workshop for producing 5m³ container Procurement of equipment Training of producing container for UDAA engineer from engineer of VUDAA Procurement of material Drafting container placement plan Producing container Installing, and commencement of collection <p><u>Situation as of the end of Aug 2015:</u> UDAA properly performs collection service using each container.</p>

Evaluation and Achievement	<p><u>Achievement Status (As of Apr 2015) :</u> Indicator 1: UDAA has already completed the production of 10 containers. 9 containers were installed in each organization, and one has been utilized as a substituting spare.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> • UDAA's own workshop was constructed. Thus, in addition to producing and repairing the 5m³ containers, they can carry out various mechanical works for the urban maintenance, which is UDAA's important duty, e.g. producing the foundation part of flags standing along public roads. • It was decided to collect waste bins for health care waste generated at the provincial hospital at the same time of the container collection for general waste. The skip loader must be modified for this purpose, and the modification work was conducted by UDAA in the workshop.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> • The containers already in service should be well maintained (particularly in the event of breakage). • In order to manufacture containers and extend the container collection system by UDAA's own budget, UDAA should consider the next actions such as adjustment of container production price (e.g. saving unnecessary cost by using cheaper material) or reviewing the container collection fee.

Strategy 3. Final disposal system is improved.

XYB 3.1.1 Proper management of existing final disposal site

Items	Detail
Project Purpose	<ul style="list-style-type: none"> • The final disposal system is improved to mitigate adverse impacts on the surrounding area, and the final disposal site is managed properly to dispose of waste.
Concept	<ul style="list-style-type: none"> • The proper operation and maintenance of final disposal site is conducted in accordance with the formulated operation plan of final disposal site. The operation of final disposal site is regularly monitored after improvement.
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015.
Condition before PP	<ul style="list-style-type: none"> • The collection vehicles cannot approach to the disposal place in KM9 existing disposal site in rainy season since the condition of access road became muddy. As a result, the collected waste was openly dumped on the access road.
Outline of plan	<p><u>Target Area:</u> KM9 existing disposal site</p> <p><u>Indicator of PP:</u> Indicator 1: An operation plan of the final disposal site is formulated. Indicator 2: The final disposal site is operated in accordance with the operation plan. Indicator 3: The final disposal site is monitored by the final disposal site by monitoring committee once a year.</p> <p><u>Contents of PP:</u></p> <ul style="list-style-type: none"> • The improvement plan of the final disposal site is designed by UDAA and SJET. The construction work for improvement is implemented by JICA fund. • The operation and maintenance plan is formulated by UDAA and SJET. • The proper operation and maintenance is conducted by UDAA according to the plan. • The management of improved final disposal site is annually monitored by MONRE and DONRE.
Implementation of PP	<p><u>Procurement of heavy machinery for final disposal site:</u></p> <ul style="list-style-type: none"> • Back-hoe loader: 1 unit. <p><u>Construction work for the improvement at existing disposal site:</u></p> <ul style="list-style-type: none"> • Office building : 1 unit • Access road : 70m • Gate : 1place • Concrete plate : 50 pieces <p><u>Instruction of waste disposal method:</u></p>

	<p>The proper waste disposal method was instructed to UDAA by SJET with procured heavy machinery.</p> <p>Data management of incoming waste trucks: SJET instructed the staff residing the office building about how to manage the data of incoming waste trucks.</p> <p>Progress of PP at end of August 2015:</p> <ul style="list-style-type: none"> Waste disposal and data management are properly operated. UDAA has been making every effort to appropriately operate the site. UDAA has been securing budget from the province to maintain the access of trucks to the center of the disposal cell. The draft operation plan was continuously implemented and examined at the improved KM9 final disposal site since 2012. And the operation plan was finalized in August 2015 by UDAA and SJET. <p>Monitoring of final disposal site</p> <ul style="list-style-type: none"> The final disposal site was monitored by the monitoring committee once a year.
Evaluation and output of PP	<p>Achievement of of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator1: An operation plan of the final disposal site was formulated.</p> <p>Indicator2: The final disposal site was operated in accordance with the operation plan.</p> <p>Indicator3: The final disposal site was monitored by the final disposal site monitoring committee once a year</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> The enough budget allocation is recommended to manage the proper final disposal site operation and maintenance. The capacity of the present disposal site will be full by 2022. UDAA is required to have acquired a land, prepared an engineering design and constructed the landfill by then. As for the daily operation, UDAA should produce new concrete plates using formwork provided by the LPPE in order to make up a loss from deterioration.

XYB 3.1.2 Proper management of waste pickers and improvement of their working conditions

Items	Detail
Project Purpose	<ul style="list-style-type: none"> The proper management system of the waste pickers is established to improve their working conditions.
Concept	<ul style="list-style-type: none"> A proper management plan of the waste pickers is formulated and conducted to improve their working conditions. The management of waste pickers is monitored by the meetings with waste pickers.
Duration	January 2012 to September 2015. C/P will continually manage the waste pickers after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> The waste pickers worked under adverse environment at the disposal site without any measures of safety.
Outline of plan	<p>Target: Waste pickers at KM9 existing disposal site</p> <p>Indicator of PP: Indicator 1: A management plan of waste pickers is formulated. Indicator 2: The waste pickers working conditions is improved in accordance with the management plan. Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> The waste pickers are identified to be organized by UDAA and SJET. A management plan of waste pickers is formulated by UDAA and SJET. The management of waste picker is conducted by UDAA in accordance with the management plan. The meeting between waste pickers and UDAA is regularly held to manage waste pickers.
Implementation	<ul style="list-style-type: none"> In order to regulate and control the activities of waste pickers UDAA established and issued

of PP	<p>“ Temporary Regulation on Management and Monitoring KM9 Disposal Site” in May 2013.”</p> <ul style="list-style-type: none"> • In order to facilitate control of waste pickers UDAA in cooperation with SJET has conducted the following activities: <ol style="list-style-type: none"> 1. ID cards were issued to organize the waste pickers. 2. The following equipment was provided to the waste pickers. <ul style="list-style-type: none"> • Preventive injection for infectious disease • Gloves and other safety gears • Long boots • Safety jackets • In order to facilitate control of waste pickers UDAA in cooperation with SJET stated the control of waste pickers in the KM9 disposal site operation plan finalized in August 2015. <p>Progress of PP at end of August 2015:</p> <ul style="list-style-type: none"> • The staff belonging to UDAA instructs “ Temporary Regulation on Management and Monitoring KM9 Disposal Site” to the waste pickers • The implementation of the KM9 disposal site operation plan contributes the improvement of working condition, such as the prevention of infectious disease, accidents caused by heavy machinery and disputes among waste pickers and so on.
Evaluation and output of PP	<p>Achievement of PP: The status of the PP indicators is as follows, thus the PP purpose was achieved. Indicator 1: A management plan of waste pickers was formulated. Indicator 2: The waste pickers working conditions was improved in accordance with the management plan. Indicator 3: The management of waste pickers is monitored by waste pickers meeting.</p>
Recommendation to C/P to continue	<ul style="list-style-type: none"> • The regularly discussion is recommended to manage the waste pickers. • When new heavy equipment is provided by the Japan’s grant aid, the waste picking rule may need revision in order to reduce a risk of conflict between the waste pickers and the heavy equipment. The new rule should be well understood to the waste pickers.

XYB 3.2.1 Development and management of the treatment facility for the sludge from septic tanks

Items	Detail
Project Purpose	<ul style="list-style-type: none"> • The proper management system of the sludge from septic tanks is developed to mitigate impacts to surrounding aquatic environment.
Concept	<ul style="list-style-type: none"> • The proper operation and maintenance of the treatment facility for sludge from septic tanks is conducted in accordance with the formulated operation plan. The operation of the treatment facility for sludge from septic tanks is regularly monitored after improvement.
Duration	January 2012 to September 2015. C/P will continually manage the final disposal site after the completion of LPPE project in 2015
Condition before PP	<ul style="list-style-type: none"> • The facility at KM9 final disposal site to treat sludge from septic tanks was malfunctioning and the sludge overflowing from the oxidation pond was polluting the surrounding environment.
Outline of plan	<p>Target Area: the treatment facility for the sludge from septic tanks at KM9 existing disposal site</p> <p>Indicator of PP: Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks is formulated. Indicator 2: The treatment facility for the sludge from septic tanks is operated in accordance with the operation plan. Indicator 3: The treatment facility for the sludge from septic tanks is monitored by the final disposal site monitoring committee once a year.</p> <p>Contents of PP:</p> <ul style="list-style-type: none"> • The improvement plan of treatment facility for the sludge from septic tanks is designed

	<p>by UDAA and SJET. The improvement work at existing KM9 disposal site is implemented by SJET.</p> <ul style="list-style-type: none"> • The operation and maintenance plan is formulated by UDAA and SJET. • The proper operation and maintenance is conducted by UDAA according to the plan. • The management of the treatment facility for the sludge from septic tanks is annually monitored by MONRE and DONRE.
Implementation of PP	<p><u>Civil works:</u> Renovation of the existing facility: 1 unit</p> <p><u>Operation of treatment facility:</u> Proper operation of the treatment facility for the sludge from septic tanks was conducted by UDAA.</p> <p><u>Instruction of sludge removal method:</u> The method of regular removal of sedimentation sludge was instructed to UDAA by SJET with procured heavy machinery.</p> <p><u>Progress of PP at end of August 2015:</u> The constructed treatment facility for the sludge from septic tanks is managed properly.</p> <p><u>Monitoring:</u> The treatment facility for the sludge from septic tank was monitored by the monitoring committee once a year.</p>
Evaluation and output of PP	<p><u>Achievement of of PP:</u> The status of the PP indicators is as follows, thus the PP purpose was achieved.</p> <p>Indicator 1: An operation plan of the treatment facility for the sludge from septic tanks was formulated.</p> <p>Indicator 2: The treatment facility for the sludge from septic tanks was operated in accordance with the operation plan.</p> <p>Indicator 3: The treatment facility for the sludge from septic tanks was monitored by the final disposal site monitoring committee once a year.</p>
Recommendation to C/P to continue	<p>The regular removal of sedimentation sludge is conducted with procured heavy machinery. The frequency will be once a year, same to the current manner.</p>

Strategy 4. Health care waste management is improved.

XYB 4.1.1 HCW collection system establishment

XYB 4.2.1 HCW treatment and disposal system establishment

Due to the close linkage of these two PPs, they are described in the table below together.

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • The PP for HCW Collection System Establishment aims to establish a separate collection and transportation system for HCW generated in main hospitals in XYB and its monitoring system. • The PP for HCW Treatment and Disposal System Establishment aims to establish a treatment and disposal system for the separately collected HCW generated from main hospitals in XYB and its monitoring system. • Through these projects, infectious HCW discharged from two main hospitals in XYB is separately collected and disposed of.
General Concept	<ul style="list-style-type: none"> • The PP implementation body which is chaired by deputy director general of UDAA and consists of members of DONRE and DOH was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> • There was no separate collection system for either infectious HCW or general HCW. • Consequently infectious HCW was collected together with general HCW and disposed of at KM9 disposal site.
Plan of the PP	<u>Target Hospitals of PP:</u>

	<p>2 Main hospitals of XYB, namely Provincial Hospital and Military Hospital.</p> <p><u>Indicator of PP:</u> Indicator 1: A healthcare waste collection, treatment and disposal plan for the target hospitals is formulated. Indicator 2: Healthcare waste from the target hospitals is collected, treated and disposed of in accordance with the aforementioned plan.</p> <p><u>Contents:</u></p> <ul style="list-style-type: none"> • UDAA conducts the separate collection of infectious HCW discharged by the 2 target hospitals. • UDAA conducts the final disposal of infectious HCW separately collected from the two target hospitals at the designated pit in the KM9 disposal site.
Implementation of the PP	<p><u>Procurement of Collection Equipment:</u></p> <ul style="list-style-type: none"> • Plastic container dedicated for infectious HCW: 2 units • Refurbishment of the existing skip loader for the collection of containers dedicated for infectious HCW. <p><u>Construction of Infectious HCW Treatment and Disposal Facility:</u></p> <ul style="list-style-type: none"> • Infectious HCW Pit and its outer building: 1 unit <p><u>Situation in July 2015:</u></p> <ul style="list-style-type: none"> • Collection System: UDAA has been conducting the separate collection of infectious HCW for the Provincial hospital from August 2013 and negotiating with the Military hospital for separate collection services contract. • Treatment and Disposal System: UDAA has been conducting separate disposal of infectious HCW collected from the Provincial hospital but not for the waste from the Military hospital. <p><u>Education, Monitoring and Awareness Raising Activities on the Improvement of HCWM:</u></p> <ul style="list-style-type: none"> • The Provincial hospital organized seminars/workshops to instruct proper separation of infectious HCW in hospitals and its separate discharge. • Education and instruction videos on the separation of infectious HCW were produced and delivered to UDAA and target hospitals.
Evaluation and Achievement	<p><u>Status of Achievement:</u> The status of the PP indicators is as follows, thus the PP purpose was achieved. Indicator 1: Achieved. A healthcare waste collection, treatment and disposal plan (HCWM plan) for the target hospitals was formulated Indicator 2: Partly achieved. The separate collection and disposal of infectious HCW from Military hospital has not yet started as of the end of July 2015. In terms of the amount of separate collection and disposal 85% of the infectious HCW are separately collected and disposed of.</p> <p><u>Other Outputs:</u></p> <ul style="list-style-type: none"> • A discussion structure among UDAA, DONRE and Provincial hospital, which is the largest generator of infectious HCW, was created to improve HCWM in XYB. • This discussion structure became a foundation to establish a system to examine the introduction of incinerator for infectious HCW in XYB district. • The Infection Control Committees (ICC) of the Provincial hospital is taking an initiative to improve HCWM in XYB district.
Suggestion for the Post-Project Activities	<ol style="list-style-type: none"> 1. UDAA should make a contract with Military hospital on the separate collection and disposal service of infectious HCW and put it into force as soon as possible. 2. A reliable list of medical institutions in XYB should be prepared and the HCWM plan should be reviewed and modified when necessary using the list. 3. Based on the review of the HCWM plan, UDAA should formulate and implement a construction plan of an incinerator which has enough capacity to treat all IWs in XYB district. 4. UDAA should operate and maintain the HCW pit referring to the manual shown in Appendix 7, Supplement 3. 5. In order to introduce the incinerator UDAA shall learn the experiences of VTE Capital and LPB, and establish necessary legal tools. Then it shall ask fair fee to users. 6. UDAA shall also examine to construct the next infectious HCW disposal pit.

Strategy 5. Institutional system to support the above improvements is established.

XYB 5.1.1 Consensus building among stakeholders

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> To improve SWM in XYB District a lot of pilot projects (PPs) have been conducted based on the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. The purpose of this PP is to codify the responsibilities of each stakeholder regarding the PPs for SWM conducted in XYB District and build consensus among them. The PP has clarified the responsibilities of each stakeholder necessary for the PPs implementation and built consensus among them. When consensus was made, the PP tried to codify the contents of the consensus as much as possible in various forms from legislative documents to leaflets for distribution.
General Concept	<ul style="list-style-type: none"> To establish the project concept the PPs implementation body, which is chaired by deputy director general of DONRE and consists of members of UDAA and DOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System, and HCWM Improvement, DONRE, UDAA and MOH formulated the PP execution bodies in consideration of their roles and duties.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 2.
Plan of the PP	<p>Target Area: XYB District</p> <p>Activities: The clarification of roles and responsibilities of the stakeholders of the PPs for SWM improvement conducted based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p>Indicator: Regulation on the responsibilities of stakeholders for improved SWM is prepared and/or drafted.</p>
Implementation of the PP	The PPs for SWM improvement have been conducted in order to implement 4 strategies of the A/P, i.e. 1. Promotion of 3Rs, 2. Improvement of Collection System, 3. Improvement of Final Disposal System and 4. Improvement of Healthcare Waste Management. The roles and responsibilities of the stakeholders of the PPs are codified in Rule of UDAA, leaflet among stakeholders and others.
Evaluation and Achievement	<p>Status of Achievement: The PP purpose was achieved. The following UDAA rule was established in the PPs and other documents can serve for the future regulations. Strategy 3: Final Disposal System Improvement :</p> <ul style="list-style-type: none"> <u>121/UDAA 08/05/2013: Temporary Regulation on Management and Monitoring KM9 Disposal Site:</u> To establish rules to control the users of the KM9 disposal site and its waste pickers KM9, tipping fee and penalty of violator. <p>Other Outputs:</p> <ul style="list-style-type: none"> The roles and responsibilities of stakeholders on improvement of SWM became clear through the implementation of various PPs. Through the implementation of various PPs coordination system among MONRE, MOH and MPWT of central government and Province, District and Village of local government, and Residents have been established. The coordination system among relevant organizations was established to enforce the regulations on the improvement of HCWM.
Suggestion for the Post-Project Activities	<ul style="list-style-type: none"> “Basic Laws on SWM” should be established as soon as possible by the lead of MONRE. Following the “Basic Laws on SWM”, XYB Province in cooperation with XYB District should establish “Regulation on SWM in XYB” according to the situation of LPB District.

	<ul style="list-style-type: none"> • If “Basic Laws on SWM” of national level delays, XYB Province may need to establish “Regulation on SWM in XYB” with the cooperation of MONRE. • For the establishment of “Regulation on SWM in XYB” XYB Province and District should utilize the experiences of the PPs.
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XYB 5.2.1 Financial system improvement

Items	Description
Project Purpose and Summary	<ul style="list-style-type: none"> • The purpose of this PP is to improve the financial system necessary for SWM improvement through the implementation of the PPs under the strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management. • The financial system to be improved by the PP includes: (i) a system necessary for the implementation of the PPs for SWM improvement and (ii) a system necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE. • As for the former system (i), most proposals were regarding the operation and maintenance (O&M) cost shouldered by the Laotian side. In addition, most of them were actually implemented because of the necessity of implementation of the PPs. • For the latter system (ii), proposals regarding both O&M cost and investment were prepared.
General Concept	<ul style="list-style-type: none"> • The PP implementation body, which was chaired by deputy director general of DONRE and consisted of members of UDAA and DOH, was organized in the beginning of year 2012. SJET in cooperation with the implementation body made the concept of overall PP. • As for the PPs for Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and HCWM Improvement, DONRE, UDAA and DOH formulated the PP execution bodies in consideration of their roles and duties.
PP Period	From January 2012 to September 2015 implemented by LPPE. After October 2015 to be continued and expanded by the C/P organizations.
Situation before PP	<ul style="list-style-type: none"> • Situation before the PP is shown in the reports of each PP in Appendix 3, Supplement 3.
Plan of the PP	<p><u>Target Area:</u> XYB District</p> <p><u>Activities:</u> To prepare financial system improvement proposals necessary for SWM improvement through the implementation of the PPs based on the 4 strategies of the A/P, i.e. Promotion of 3Rs, Improvement of Collection System, Improvement of Final Disposal System and Improvement of Healthcare Waste Management.</p> <p><u>Indicator:</u> Proposal for financial system improvement necessary for SWM improvement is prepared.</p>
Implementation of the PP	<ul style="list-style-type: none"> • The proposals for the financial system improvement were prepared for the implementation of the PPs and they were mostly realized. • Proposals necessary for the continuation, dissemination and expansion of the PPs to be implemented by the Laotian C/Ps after termination of LPPE were prepared.
Evaluation and Achievement	<p><u>Achievement of PP:</u> The status of the PP indicator is as follows, thus the PP purpose was achieved.</p> <ol style="list-style-type: none"> 1. As for the proposals necessary for the implementation of the PPs for SWM improvement, the following documents were prepared and officially issued. <p>Strategy 2: Collection System Improvement :</p> <ul style="list-style-type: none"> • <u>No 1059/XYB.Pro.Gov 02/08/2013: Provision on Revenue and Fund to be used by Urban Development and Administration Authority (UDAA) of Xayaboury District</u> : Waste collection fee of XYB District is revised according to the current situation. <p>Strategy 3: Final Disposal System Improvement :</p> <ul style="list-style-type: none"> • <u>121/UDAA 08/05/2013: Temporary Regulation on Management and Monitoring KM9 Disposal Site</u>: Tipping fee of KM9 disposal site is established.

	<p>Strategy 4: HCWM Improvement :</p> <ul style="list-style-type: none"> • <u>No 299 /XYB.PH 13/08/2013: Munute of Meetng on HCWM at Provincial Hospital:</u> The fee for the separate collection and disposal of infectious HCW discharged from the Provincial hospital is set and agreed at 25,000 kip per a container. <p>2. The financial proposals for continuation, dissemination and expansion of the PPs were prepared.</p> <p>Other Outputs:</p> <ul style="list-style-type: none"> • Through the implementation of various PPs, needs of financial system improvement plan with fair financial burden for each stakeholder on improvement of SWM became clear. • In order to prepare and implement financial system improvement plan, the coordination system among MONRE, MOH and MPWT of central government and Province, District and Village of local government, and Residents have been established through the implementation of various PPs.
<p>Suggestion for the Post-Project Activities</p>	<ul style="list-style-type: none"> • It is recommended to examine O&M cost for SWM improvement based on the beneficiaries- bear principle. • As for the investment, it is also recommended to apply the beneficiaries- bear principle in general. In case where large investment for equipment and facility is needed, however, it is recommended to ask budget from the Central and Provincial governments and financial cooperation of donors and enterprises promoting CSR (cooperate social responsibility). • As for the preparation of financial proposals it is recommended to utilize the experiences of various PPs as much as possible. Especially for the financial system improvement plan for the continuation, dissemination and expansion of the PPs, it is recommended to refer to the table of " Results of Financial Burdens for PP Implementation in XYB District and Proposal of Financial Burdens for Continuation, Dissemination and Expansion of PPs", shown in Appendix 3, Supplement 3.

Activity 2-4 The results of the pilot projects are presented.

The opportunities to present the results of the PP were three times: August 2013 in LPB, June 2014 in VTE and May 2015 in XYB. The program of the workshops included the presentation of each PP by the C/P in three cities, site visits and group discussions, and the C/Ps understood and built consensus on the issues, successful factors of good practices and tasks to be done.

At the first and second workshops, most of the PPs were shifted from the starting stage to the continuation stage. Therefore, the opinions were mostly about the problems caused from the difficulties of continuation. Particularly, two issues were stressed. One is the requirement for finance and man power for awareness raising as there are still some people who did not well understand the purpose and methodology of the PP. The other is the necessity of training for counterpart officers.

The third workshop was held only some months before the termination of LPPE. There were proposals for project continuation and expansion afterward such as the securing the budget by collection service expansion, regulatory enforcement by legal system development, provision of incentives such as Eco-stay certificate and a compost product purchasing system.

3. Activities for Output 3

Activity 3-1 The best practices of community-based UEM in Laos are reviewed.

In the course of Activity 1-1, the team collected information on the practices of community-based UEM in 3 cities from the C/Ps and schools which results were compiled as a list shown in the appendix of Progress Report 1.

Activity 3-2 The best practices of Community-based UEM in ASEAN Countries are reviewed and their applicability to Laos is analyzed.

The SJET collected information mostly on the Internet. It attempted to collect the same information from the ASEAN Secretariat through LPPO, but there were no information available at the secretary.

The SJET compiled gathered information and analyzed applicability of each practice which results were shown in the appendix of Progress Report 1 and had been utilized in the pilot projects of community-based SWM.

Activity 3-3 The environmental education and awareness (EEA) programs for SWM improvement in the pilot cities are formulated.

Introductory meetings were held in 3 cities with C/Ps, Women’s Union, Youth Union and other local representatives in regard to environmental education and awareness.

The SJET drafted the environmental education and awareness programs for 3 cities based on the discussion results and the National Strategy and Action Plan for Environmental Education and Awareness. After some modifications, the programs were agreed as shown in Progress Report 2.

Activity 3-4 The EEA pilot projects to facilitate Activity 2-3 are planned.

The pilot projects for SWM were outlined in Activity 2.2. SJET had discussions with C/Ps, village leaders and village environment unit members in order to facilitate community participation in those SWM pilot projects.

The activities for community participation were planned for the 3Rs pilot projects and waste collection pilot projects, because those projects needed understanding and behavior change of the residents.

Activity 3-5 EEA Tools for SWM are developed and the implementation system is enhanced.

The EEA tools, such as manuals, leaflets and audio visual aids for the PPs were produced. Also, some documents including service contracts and rules were prepared. They are listed below.

Table 10. EEA Tools and Documents Prepared by the PPs

Pilot Projects	Tools and Documents
Strategy 1: 3Rs Promotion	
<ul style="list-style-type: none"> Reduction of kitchen waste and garden waste at households (On-site Composting) 	<ul style="list-style-type: none"> On-site composting leaflet Worm composting dissemination video
<ul style="list-style-type: none"> Recyclable waste separation project at households 	<ul style="list-style-type: none"> Primary collection leaflet
<ul style="list-style-type: none"> School recycling project 	<ul style="list-style-type: none"> School recycling leaflet School recycling dissemination video
<ul style="list-style-type: none"> Avoidance of the use of excess packages, Eco-basket project 	<ul style="list-style-type: none"> Eco-basket leaflet
<ul style="list-style-type: none"> Avoidance of the use of excess packages, Eco-bag project 	<ul style="list-style-type: none"> Eco-bag leaflet
<ul style="list-style-type: none"> Reduction of kitchen waste from hotels and restaurants 	<ul style="list-style-type: none"> Off-site composting education leaflet Off-site composting dissemination video
Strategy 2: Collection System Improvement	

<ul style="list-style-type: none"> Improvement of existing collection and discharge system, Primary collection system project 	<ul style="list-style-type: none"> Primary collection education leaflet
<ul style="list-style-type: none"> Waste collection service expansion 	<ul style="list-style-type: none"> Standard contract agreement of collection service
<ul style="list-style-type: none"> Waste collection service expansion by using 5m³ containers 	<ul style="list-style-type: none"> Contract agreement of collection service
<p>Strategy 3: Final Disposal System Improvement</p>	
<ul style="list-style-type: none"> Proper management of existing final disposal site 	<ul style="list-style-type: none"> Rules and penalty of KM32 disposal site users in VTE Capital Rules of KM9 disposal site in XYB district
<ul style="list-style-type: none"> Proper management of waste pickers and improvement of their working conditions 	<ul style="list-style-type: none"> Rules of and penalty of KM32 disposal site waste pickers in VTE Capital Rules of KM8 disposal site in LPB district Rules of KM9 disposal site in XYB district
<p>Strategy 4: HCWM Improvement</p>	
<ul style="list-style-type: none"> HCW collection system establishment 	<ul style="list-style-type: none"> Contract agreement of separate collection service with MIs VUDAA in VTE Capital, UDAA in LPB district and in XYB district Video for the proper HCW management
<ul style="list-style-type: none"> HCW treatment and disposal system establishment 	

Activity 3-6 The EEA pilot projects are implemented

The C/Ps gave necessary educations and instructions to participating households and students by organizing several workshops and carrying out individual visits to households to monitor and give advises using the tools developed by Activity 3-5.

Content of Activity 3-6 was reported in the section of Activity 2-3.

Activity 3-7 The results of the EEA pilot project are analyzed.

The results and progress of the EEA pilot projects were reviewed and analyzed prior to the T/Cs and the experience sharing workshops. The result of analysis was reported in the section of Activity 2-3.

Activity 3-8 The EEA pilot projects are presented in collaboration with Activity 2.4

At the workshops described in Activity 2-4, the EEA pilot projects were presented. Also, EEA pilot project sites observation tour was organized. As the workshops were held three cities in turns, the site visits encouraged mutual comparison and mutual learning.

3.3 Records of T/C

T/C was held twice a year, or 8 times in total. The main points of discussion are summarized in the table below. The M/M of each T/C is shown in Appendix 1, Supplement 4.

Table 11. Records of T/C

	Place	Date	Main Discussion Points
1	XYB	November 15, 2011	<ul style="list-style-type: none"> • Plan of the project implementation • Approval of PDM/PO ver.0
2	LPB	March 13, 2012	<ul style="list-style-type: none"> • Approval PDM/PO ver.1 • Approval of Draft ESC Guidelines • Approval of ESC Visions and A/Ps for 3 cities
3	VTE	August 31, 2012	<ul style="list-style-type: none"> • Activities and responsible organizations of PP
4	XYB	February 14, 2013	<ul style="list-style-type: none"> • Approval of PDM/PO ver.2
5	LPB	August 20, 2013	<ul style="list-style-type: none"> • Approval PDM/PO ver.3
6	VTE	March 6, 2014	<ul style="list-style-type: none"> • Approval of PDM/PO ver.4
7	XYB	August 7, 2014	<ul style="list-style-type: none"> • Approval of PDM/PO ver.5
8	LPB	January 22, 2015	<ul style="list-style-type: none"> • Approval of PDM/PO ver.6

4 Record of Inputs

4.1 Input from the Japanese Side

4.1.1 Short-term Japanese Expert Team (SJET)

Short-term Japanese experts were dispatched as below. Their actual work period is shown in Appendix 2, Supplement 4.

Table 12: Assignment of Short-term Japanese Experts (in Lao)

Period	Title/Field in Charge	Name	Days (M/M)
08/2011 -03/2012 (First Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	91 (3.03)
	2. Deputy Team Leader/Waste Intermediate Treatment and Final Disposal	Naofumi SATO	161 (5.37)
	3. Water Environment Management	Kanehiro MORISITA	90 (3.00)
	4. Waste Collection and Transport	Ikuo MORI	54 (1.80)
	5. Community-based Urban Environmental Management (1)/ Environmental Education	Noriko OTSUKI	60 (2.00)
	6. Baseline Survey on Urban Environment Management	Shinya KAWADA	115 (3.83)
	7. Healthcare Waste Survey/ Healthcare Waste Management	Shinnosuke ODA	45 (1.50)
04/2012 -09/2013 (Second Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	174 (5.80)
	2. Deputy Team Leader/Waste Intermediate Treatment and Final Disposal	Naofumi SATO	288 (9.60)
	3. Waste Collection and Transport	Ikuo MORI	29 (0.97)
	4. Community-based Urban Environmental Management (1)/ Environmental Education	Noriko OTSUKI	60 (2.00)
	5. Community-based Urban Environmental Management (2)/ Pilot Projects	Shinnosuke ODA	231 (7.70)
	6. Healthcare Waste Survey/ Healthcare Waste Management	Noriko OTSUKI	80 (2.67)
10/2013 -02/2015 (Third Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	181 (6.03)
	2. Deputy Team Leader/ Final Disposal (1)	Naofumi SATO	28 (0.93)
	3. Waste Intermediate Treatment/ Final Disposal (2)	Tamotsu Suzuki	135 (4.50)
	4. Community-based Urban Environmental Management (1)/ Environmental Education	Noriko OTSUKI	62 (2.07)
	5. Waste Collection and Transport/ Community-based Urban Environmental Management (2)/ Pilot Projects	Shinnosuke ODA	260 (8.67)
03/2015 -09/2015 (Fourth Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	150 (5.00)
	2. Deputy Team Leader/ Final Disposal (1)	Naofumi SATO	50 (1.67)
	3. Waste Intermediate Treatment/ Final Disposal (2)	Tamotsu Suzuki	89 (2.97)
	4. Community-based Urban Environmental Management (1)/ Environmental Education	Noriko OTSUKI	40 (1.33)
	5. Waste Collection and Transport/ Community-based Urban Environmental Management (2)/ Pilot Projects	Shinnosuke ODA	105 (3.50)
Total			2,578 (85.93)

Table 13: Assignment of Short-term Japanese Experts (in Japan)

Period	Title/Field in Charge	Name	Days (M/M)
08/2011 -03/2012 (First Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	3 (0.1)
	2. Deputy Team Leader/ Final Disposal (1)	Naofumi SATO	3 (0.1)

04/2012 -09/2013 (Second Project Year)	1. Training in Japan (1)	CHO Heejung	10 (0.33)
	2. Training in Japan (2)	Naofumi SATO	4 (0.13)
	3. Training in Japan (3)	Shinnosuke ODA	10 (0.33)
10/2013 -02/2015 (Third Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	3 (0.15)
03/2015 -10/2015 (Fourth Project Year)	1. Team Leader/Urban Environmental Management	Susumu SHIMURA	10 (0.5)
	2. Deputy Team Leader/ Final Disposal (1)	Naofumi SATO	10 (0.5)
Total			53 (2.15)

4.1.2 Equipment Procured by the SJET

A list of equipment and facility which were procured by the SJET is found at Appendix 2, Supplement 4.

4.1.3 Equipment and Facility Procured by the JICA

A list of equipment and facility which were procured by JICA is found at Appendix 2, Supplement 4.

4.1.4 Counterpart Trainings

Counterpart training was organized five times in Japan and ASEAN countries as summarised below. Further details are shown in Appendix 2, Supplement 4.

Table 14: Counterpart Trainings

Training Field/Contents	Place	Period	Participants
1. Solid and healthcare waste management	Hanoi, Vietnam	10 – 15 May, 2012 (6 days)	13 C/Ps + 1 Expert and 1 LPPE assistant
2. Solid waste management, recycling by a private company, 3R activities at community level	Phitsanulok, Thailand	6 – 10 August, 2012 (5 days)	27 C/Ps + 1 Expert and 1 LPPE assistant
3. Visit to ASEC Environment Section and SWM activities in Surabaya	Jakarta, Surabaya, Indonesia	9 – 16 December, 2012 (8 days)	10 C/Ps + 1 Expert + 2 other staff
4. Solid waste management training for high-ranked officers	Tokyo and Saitama, Japan	23 – 30 March, 2013 (8 days)	11 C/Ps + 1 Expert
5. Solid waste management training for practical officers	Tokyo and Kagoshima, Japan	14 – 31 May, 2013 (18 days)	11 C/Ps + 1 Expert

4.1.5 Expenditure by JICA for the Local Activities

The expenditure by JICA for the local activities such as domestic travels and employment of local staff was summarized below.

Table 15: Expenditure by JICA for the Local Activities

Period	08/2011 -03/2012 (First Year)	04/2012 -09/2013 (Second Year)	10/2013 -02/2015 (Third Year)	03/2015 -09/2015 (Fourth Year) *	Total
Amount (1,000 JPY)	9,575	42,879	26,271	(16,146)	94,871
Amount (USD in present exchange rate)	80,442	360,237	220,709	(135,646)	797,034

* Planned budget.

In addition to these, some works were contracted out to local contractors during the first and second year as shown below.

Period	08/2011-03/2012 (First Year)	04/2012-09/2013 (Second Year)	Total
Amount (1,000 JPY)	5,091	20,609	25,700
Amount (USD in present exchange rate)	65,216	210,686	275,902
Content	1. Surveying of the final disposal sites (three cities) 2. Construction of incineration houses (VTE, LPB)	1. Development of septic sludge treatment facilities (three cities) 2. Development of composting facility (LPB)	301,602

4.2 Input from the Lao Side

4.2.1 Counterpart

The assignment of the counterpart was already shown in Section 1.3.2 c.

4.2.2 Office space

MONRE provided a space in the MONRE's main building for the project office. It was next to Pollution Control Department, which most of MONRE counterparts belonged to. The office furniture such as desks and chairs and utilities were born by MONRE.

5 Suggestions for Post-project Activities

In usual technical cooperation projects of JICA, not only the project purpose, which is expected to be achieved at the end of the project period, but also the overall goal, which the project is expected to contribute after the project, are set out. As a general practice, recommendations toward the overall goal are presented at the end of the project.

LPPE, however, is unique as it is one component of LPP, and is not designed with an overall goal.

Accordingly, recommendations for post-project activities towards “Promotion of ESC in Lao PDR” are presented in this chapter, instead of recommendations for the overall goal with the following reasons.

- LPPE’s project purpose (Promotion of ESC in Laos is enhanced based on the ASEAN Initiative on Environmental Sustainable Cities (AIESC) can be a challenge significant enough to be considered as an overall goal. Although LPPE has achieved the indicator of the project purpose (The ESC Guidelines are widely used.), the promotion of ESC requires continuous and ceaseless efforts of relevant personnel.
- The implementation of LPPE is Activity 2.2 of LPP, hence LPPE is assumed to contribute to the achievement of LPP’s overall goal “The Development Gap towards ASEAN Integration is narrowed and regional integration is promoted”. The promotion for narrowing the development gap, as the overall goal states, can be rephrased as “the suppression of negative influences to the environment from socio-economic development in Lao cities” in the context of LPPE. This can be approached by ESC promotion.

The recommendations are presented below both for ESC promotion in three pilot cities and for ESC promotion in cities other than the pilot cities.

a. For ESC Promotion in Three Pilot Cities

ESC Guidelines state that an ESC Unit should be established in each city as an implementation body at the start of ESC promotion, and LPPE’s C/P of the three pilot cities worked as the ESC Unit. To further promote ESC in the three pilot cities, the ESC Unit of each city is requested to conduct the following activities:

a.1 For Improvement of SWM Sub-sector

1. **Continuation, Dissemination and Expansion of PP:** To continue, disseminate and expand the PPs being implemented at present, the ESC unit shall follow the “Suggestion for the Post-Project Activities” shown in Section 3.2 of this report which contains the summary tables outlining each PP. In addition, the ESC Unit shall make a consensus among stakeholders on the financial burden necessary for PP implementation in accordance with the “Results of Financial Burdens for PPs and Proposal of Financial Burdens for Continuation, Dissemination and Expansion of PPs”, which is the output of the Financial System Improvement PP described in Appendix 3 of supplements 1, 2 and 3 for each city.
2. **Application of Experiences and Lessons of LPPE:** To further improve SWM sector, the ESC Unit should apply experiences and lessons obtained from the implementation of PPs in LPPE. At first the ESC Unit initiates the evaluation of the PPs carried out. From the results of the evaluation, the issues and problems of the sub-sector are examined and proposals are made for the improvement of the issues and problems. Based on the proposals, the Action Plan is revised and priority projects are selected. After selected, the priority projects are implemented based on the experiences of the LPPE’s PPs according to the procedure of

Process E of ESC Guidelines.

a.2 For Improvement of Sub-sectors Other than SWM

1. **Expansion of ESC Unit:** For the improvement of sub-sectors other than SWM and further promotion of ESC, DONRE attempts to strengthen and expand the ESC Unit, initially organized to conduct LPPE activities, by involving the relevant personnel of other sub-sectors.
2. **Application of Experiences and Lessons of LPPE:** For the improvement of sub-sectors other than SWM, the ESC Unit fully applies experiences and lessons obtained by the implementation of PPs in LPPE as follows:
 - Another priority sub-sector is selected according to the procedure as described in the ESC Guidelines.
 - From the results of the evaluation of the priority projects implemented, the applicable lessons to the newly selected sub-sector are examined and proposals are made for the improvement of the selected sub-sector.
 - Based on the proposals, the A/P of the selected sub-sector is formulated. Through Process E of the ESC Guidelines, priority projects are selected, planned and implemented.

b. For ESC Promotion in Cities Other Than Pilot Ones

For ESC promotion in cities other than pilot ones, PCD/MONRE is requested to conduct the following activities:

b.1 Dissemination of the ESC Guidelines

The experiences and lessons learnt by the ESC Unit, that formulates ESC Vision and improves the priority sub-sector by applying the ESC Guidelines, should be shared with PCD and the GL is disseminated as follows.

1. During the application of the ESC Guidelines, the ESC Unit may find some issues such as unclear points and difficulties. Those issues associated with ESC Guidelines application are reported to PCD.
2. PCD takes account of those issues in its activities of ESC Guidelines dissemination to promote the understanding by the local authorities. If necessary, the ESC Guidelines are modified to be more useful and easy-to-understand.

b.2 Accumulation and Utilization of Technical Information for ESC Promotion

Considering the current limitation of resources available for the local authorities, it is important for PCD to support them to promote ESC. One of the most important supporting works is to provide technical information useful for the promotion of ESC. The PCD acts as technical information hub, which collects and delivers technical information when it is required by the local authorities.

The technical information necessary for the local authorities to promote ESC is as follows:

1. Information on overall ESC promotion:

This includes such information as the experiences of ESC unit formation and examples of visions for ESC. It will be useful for the local authorities in the initiation stage.
2. Information on the improvement of sub-sectors:

This includes, for example, procedures and methodologies of priority projects selection of

different sub-sectors and outputs produced through project implementation. It will be of help for the local authorities to conduct similar projects.

In case of LPPE, various pilot projects have been implemented as priority projects of the SWM sector and produced the tools and model documents by Activities 3.5. They are listed in Section 3.2 in this report.