

MINUTES OF MEETINGS
BETWEEN
THE JAPANESE SECOND PREPARATORY STUDY TEAM
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT
OF THE KINGDOM OF THAILAND
ON THE JAPANESE TECHNICAL COOPERATION
FOR
THE SEWAGE WORKS TECHNOLOGY CENTER PROJECT

The Japanese Second Preparatory Study Team (hereinafter referred to as “the Team”) organized by the Japan International Cooperation Agency (hereinafter referred to as “JICA”) and headed by Mr. Shigeru Miyahara visited the Kingdom of Thailand from June 10 to June 23, 2001 for the purpose of conducting a preparatory study on Japanese technical cooperation for the Sewage Works Technology Center Project (hereinafter referred to as “the Project”).

During its stay, the Team had a series of discussions and held workshops with the Thai authorities concerned with respect to the implementation of the Project.

As a result of the discussions, the Team and the Thai authorities concerned agree to recommend to their respective governments the matters referred to in the document attached hereto.

Bangkok, June 22, 2001

Mr. Shigeru Miyahara
Leader
Second Preparatory Study Team
Japan International Cooperation
Agency (JICA)

Mr. Virachai Naewboonnien
Director General
Public Works Department
Ministry of Interior

ATTACHMENT DOCUMENT

I FORMULATION OF THE PROJECT SUMMARY SHEET (PDM)

Both the Thai and Japanese sides held two days workshop on June 13 and 14, 2001 at Siam City Hotel to formulate the major project components and plans based on the approaches selected in the preceding workshop held in October 11 and 12, 2000. Participants of the workshop were shown in ANNEX 1. As the result of the workshop, a project summary sheet "Project Design Matrix (PDM)" was formulated as shown in ANNEX 2. The report on the workshop is attached in ANNEX 3.

Both sides confirmed the result of the workshop and agreed to prepare and implement the Project based on the PDM.

Both sides also agreed to apply the project cycle management (PCM) method for the Project, that people concerned to the Project would monitor and evaluate in accordance with the PDM.

II ORGANIZATION OF THE PROJECT

Both the Thai and Japanese sides discussed the organization responsible for each activity of the Project at the PCM workshop and confirmed that Public Works Department, Ministry of Interior (hereinafter referred to as "PWD-MOI") will coordinate Thai authorities concerned to sewage works for the smooth implementation of the Project. The result of the discussion is shown in ANNEX 4 and the draft organization chart of the Project is shown in ANNEX 5.

The Japanese side requested the Thai side to identify the counterpart personnel for each approach in accordance with QUESTIONNAIRE 1. The Thai side agreed to answer the questionnaire and send to JICA Thailand office before August 15, 2001.

III CRITERIA TO SELECT TARGET SEWAGE TREATMENT PLANTS

Both the Thai and Japanese sides agreed the criteria to select target sewage treatment plants as shown in ANNEX 6.

Both sides confirmed that PWD-MOI would answer to the questionnaire as shown in QUESTIONNAIRE 2, 3, 4 and 5 in cooperation with authorities concerned to sewage works in order to compile basic data and information for the appropriate selection of the target sewage treatment plants. Both sides agreed that PWD-MOI would send the answers to JICA Thailand office before July 31, 2001.

IV SELECTION OF TARGET SEWAGE TREATMENT PLANTS

Both the Thai and Japanese sides agreed that PWD-MOI will nominate target sewage treatment plants in cooperation with authorities concerned to sewage works in accordance with the above mentioned criteria and send the answer to JICA Thailand office before August 15, 2001. JICA will dispatch the third preparatory study team in September 2001 to conclude the target sewage treatment plants by taking Thai nomination into consideration.

V FORMULATION OF THE PROJECT DOCUMENT

Both the Thai and Japanese sides agreed to formulate the project document for the Project that contains essential facts regarding project formulation, including background, current situation of sewerage sector, problems of the sector, project strategy, project design and project justification. The table of contents of the project document is shown in ANNEX 7.

The Thai side agreed to collect data and information necessary for formulating the project document as shown in ANNEX 8.

The Japanese side proposed that JICA Thailand office would contract a consultant to promote the data and information collection and the Thai side agreed to collaborate with the consultant. Both sides confirmed that PWD-MOI guides and supports the consultant to collect data and information and authorities concerned to sewage works would support the data and information collection conducted by the consultant.

VI SCHEDULE OF PROJECT FORMULATION

Both the Thai and Japanese sides confirmed the schedule of the project formulation as shown in ANNEX 9.

VII PREPARATION FOR THE THIRD PREPARATORY STUDY

Both Thai and Japanese sides confirmed and agreed to conduct preparation for the third preparatory study team, that would be dispatched in middle of September 2001, as mentioned below.

1. Matters to be done by the Thai side

- 1) PWD-MOI, in cooperation with authorities concerned to sewage works, identifies the counterpart personnel for each activity of the Project in accordance with QUESTIONNAIRE 1 and sends the answers to JICA Thailand office before

August 15, 2001.

- 2) PWD-MOI, in cooperation with authorities concerned to sewage works, answers the QUESTIONNAIRE 2, 3, 4 and 5 for the selection of target sewage treatment plants and send the answers to JICA Thailand office before the end of July 2001.
- 3) PWD-MOI, in cooperation with authorities concerned to sewage works, negotiates with local municipalities and nominates target sewage treatment plants in accordance with the criteria agreed before August 15, 2001.
- 4) PWD-MOI collaborates with a consultant contracted by JICA to collect data and information in accordance with ANNEX 8. Also, PWD-MOI and authorities concerned to sewage works confirm the interim report developed by the consultant before arrival of the third preparatory study team.
- 5) PWD-MOI, in cooperation with authorities concerned to sewage works, arranges investigation for nominated sewage treatment plants for the third preparatory study team.

2. Matters to be done by the Japanese side

- 1) JICA Thailand office contracts a consultant to promote data and information collection before August 15, 2001 and request the consultant to collaborate with PWD-MOI as well as authorities concerned to sewage works.
- 2) The third preparatory study team initiates the Japanese draft of the target sewage treatment plants by taking the Thai nomination into consideration before the third preparatory study team is dispatched.
- 3) The third preparatory study team initiates the Japanese draft of inputs for the Project before the third preparatory study team is dispatched.

VIII OTHER MATTERS DISCUSSED

1. Reconsideration of the project title

The Japanese side proposed the Thai side to reconsider the current project title since

the current project title is not represent the contents of the Project. The Thai side recommended “Sewage Works Management Project” as a revised project title. Both sides agreed the revised project title would be decided at the period of the third preparatory study team by taking the recommendation into consideration.

2. Collaboration with local municipalities

The Japanese side requested the Thai side to confirm whether local municipalities try to allocate personnel and budget for improvement of their sewage treatment plants before nominating target sewage treatment plants. The Thai side agreed to select target sewage treatment plants by taking these factors into consideration.

LIST OF ANNEX AND QUESTIONNAIRE

ANNEX1: Participants of the Project Cycle Management workshop on June 13 and 14, 2001

ANNEX2: Project Design Matrix (PDM)

ANNEX3: Report on Project Cycle Management (PCM) workshop

ANNEX4: Organizations responsible for each activity of the Project

ANNEX5: Draft of the organization of the Project

ANNEX6: Criteria for selecting target sewage treatment plants

ANNEX7: Contents of project document for the Sewage Works Technology Center Project

ANNEX8: The list of data and information required for formulating the project document

ANNEX9: Schedule of project formulation

QUESTIONNAIRE 1 Allocation of counterparts and organization in charge of budgeting

QUESTIONNAIRE 2 Information for selecting target sewage treatment plants

QUESTIONNAIRE 3 Information on each sewage treatment plant in Thailand

QUESTIONNAIRE 4 Personnel allocated for the sewage treatment plant

QUESTIONNAIRE 5 Annual management costs for each sewage treatment plant

Name	Ministry / Authority	Department Division	Status - position	Signature
Thammanat Chunsano	Bangkok Metro Administration	Dept of Drainage & Sewerage	Senior San. Engr.	
Sit'chai Sangkrasakul	Ministry of Interior	PWD		
SOBPHAN CHITANONT	Ministry of Interior	PWD / TTI	Human Resource Development officer	
Kitinan Wora-anuwattanakul	MOI	PWD / Planning Div.	Foreign Relation Officer	
COMERONG LORGRAILERS	MOI	PWD / TTI		
Jaroen Payungvivattanakul	MOI	TTI	SENIOR CIVIL ENGR.	
Mr. PORNSAK SEVASUWAN	MOI	MRD / PWD	SENIOR CIVIL Eng.	
Mr. Veerachon Nadesinghanand	MOI	TTI	SENIOR SCIENTIST	
Ms. Chenisa Poboon	OEPP / MOSTE	OEPP.	Human Resource Environmental official	
Ms. Sasima Aphaphirom	MOSTE / OEPP	OEPP	"	
Ms. Piyanon BOONPRAPOB	MOI	PWD / MRD	Scientist	
Toohikaru Takasugi	Japan Env. Consult.			
Miyahara Shigeru	JWETRC		Research Advisor	
Hakuei Yamamoto	JSWA			



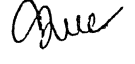

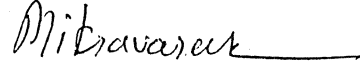
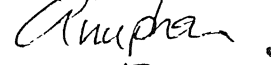



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ANNEX 1

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PCM Workshop 13. June 2001 @ Siam City Hotel

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ANNEX 1

Name	Ministry / Authority	Department Division	Status Position.	Signature.
Mr. Kitti Teerasoradech	MOSTE / WMA	Engineering	Engineer.	
Mr. Surajet kindsuk	WMA	planning policy	planning & develop policy	
Ms. Asnee Kulpradit	MOSTE / OEPP	Environmental Policy and Planning Division	Environmental Officers	
Ms. Sujanee Nuchaiyasit	← ————— →	← ————— →	← ————— →	
Ms. Mittravaran Karochada	DEQP / MOSTE	DEQP	Env. Technologist	
Mr. Anuphan Itharakana	MOSTE / PCD	PCD	Env. OFFICER	
Chaiapat Chairawat	DEQA MOI	DOCA	LG DAD	
Chatchawan Koonceunchoo	MOI / PWB	MED	MECHANICAL ENGINEER	
KAWAZOE Yasuhiro	JICA	Social Devt. coop. Dept.	Staff	

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ANNEX 1

PCM Workshop 13. June 2001 ~ Siam City Hotel

ANNEX 1

Name	Ministry / Authority	Department Division	Status Position	Signature
Mesale Milintawisamai	MOSTE/DEQP	DEQP/ERTC	Chief of Water Research Group	M. Milintawisamai
Mrs SIMKAT Kwanphak	MOSTE/DEQP.	DEQP/ERTC	Embassal Officer	
Ms. Tanyaporn Lastlaksana	DTEC.	Japan Sub-Division	Program Officer	Tanyaporn.
MR. JERAWAT ARNUPAVATHAM	WMA / MOSTE.		CHIEF, Project Development & Planning	Jerawat A.
MR Somchai Sornvane	DDS . MBA.	BDS.	Chief of Water analysis.	
Ms Apinan Janchaisakul	BMA.	DDS.		
Mr. Yuji TSUTSUI	EOJ			
Ms. Thunphan Thangprawat.	PWD / MOI	PWD	Chief Engineer	
Ms. Suehail Janyojarat	WMA	Coordination	Chief	
Ms Hatairat Likitampok	WMA			
Mr. Akrawut Wethayavastin	"	"	researcher	
IlhAI Tatsuya	JICA	Thailand Office	Staff	
* KAWAZOE Yasuhiro	JICA	Social Dev. coop. Dept.	Staff	

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ANNEX 1

PCM WORKSHOP

14 June 2001 @Siam City Hotel

Name	Authority	Department/Division	Position	Signature
Shigeru Miyahara				
Hakuei Yamamoto	JSWA			
KAWAZOE Yasuhiro	JICA	Social Dept. Coop. Dept.	Staff	<i>Y. Kawazoe</i>
Toshiharu Takasugi	Japan Env. Consult.	Consulting Div.	Staff	<i>T. Takasugi</i>
JINDAKAT Rungchokkiet	DEEP/MOSTE	ERTC	Environment Officer	<i>J. Jindakatt</i>
Piyaphan BOONRAPOB	MOI/PWD	Scientist MRD	Scientist	<i>P. Boonrapob</i>
Ms. SASTMA APHAPHIROM	MOSTE	OEPP	Environmental Officer	<i>Sastma</i>
MR. Somchai Soornuanee	MBA	DDS	Scientist	<i>S. Soornuanee</i>
MS. SUYANEE NACHAIYASIT	OEPP/MOSTE	Div. of Env. Policy & Planning	Envi. Officer	<i>Suyanee N.</i>
MS. ASNEE KULPRADIT	OEPP			<i>Asnee</i>
MS. Kitiman Wora-ananattanakul	PND / Planning	Div.	Foreign Relation Officer	<i>K. Wora-ananattanakul</i>
MS. SOBPHAN CHITANONT	TTI/PND	Inspection	Human Resource Development	<i>Sobphan</i>
Mr. Jareen Payungvivanakul	TTI/PND	PND	Engineer	<i>Jareen</i>
Chaipat Chaisawat	DOLA	LG DAD	Chief Env Coordinator	<i>Chaipat</i>

Sub-Program

ANNEX 1

PCM WORKSHOP

14 June 2001 @Siam City Hotel

Name	Authority	Department/Division	Position	Signature
MR. CAMERON LOGRAILERS	TTI	MOI/PWD	SENIOR CIVIL ENGR.	<i>AW.</i>
Ms. Mitrawarun Kaeochada	MOSTE	DEEP	Env. Technologist	<i>Mitrawarun</i>
Mr. Suchai Jampojan	WMA	Coordination	Chief	<i>Suchai</i>
Ms. Natnait Likitkumpak	WMA	Wastewater management.	chief	<i>Natnait</i>
Mr. Kitti Teerasavadech	WMA	Engineering / MOSTE	Engineer	<i>Kitti</i>
Mr. Surajet Kirdsak	WMA	planning and develop policy	Planning and develop policy office	<i>Surajet</i>
Ms. Tanjaron Leethoan	DTEC	Japan Sub-Division	Programs Officer	<i>Tanjaron</i>
Ms. Somjit Piyasit	MOI MOI	PWD PWD/SED	Engineer	<i>Somjit</i>
Mr. Veerachon Natesingharn	TTI	MOI/PWD	Human Resource	<i>Veerachon</i>
Miss Wilasinee Saktaywin	PCD	PCD / MOSTE	Environmental official	<i>W. Saktaywin</i>
Mr. Akrawat Wuttayarat	WMA	Research Div	Researcher	<i>Akrawat</i>
Mr. FORNSAK JEVASUNAN	MOI MOI MRD/PWD	MRD/PWD	SENIOR SCIENTIST	<i>Fornsak</i>

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Project Design Matrix (PDM)

ANNEX 2

Project Name: Sewage Works Technology Center Project

Duration: 1st Apr 2002 to 31st Mar 2007

Target Area: Target STPs

Target Group: Central and Local government officials in wastewater management plants

Date: 14th June 2001

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<p>Overall Goal</p> <p>1. Cost recovery is sustained for target STPs</p> <p>2. Effluent from sewage treatment plants is improved</p> <p>(Super Goal: The water quality of public water bodies is improved)</p>	<p>1 ()% of the Operation and maintenance cost is recovered at target STPs.</p> <p>2-1 ()%* of STPs in Thailand are operated in the line with the guideline developed</p> <p>2-2 Quality of effluent from STPs is below the national standard by 2007 (e.g. BOD become less than 20 mg/l)</p>	<p>1 Project records / reports</p> <p>2-1 Project records / reports</p> <p>2-2 Project reports</p> <p>* ()% shall be decided after baseline survey</p>	<p>People are willing to pay</p>
<p>Project Purpose</p> <p>Sewage Treatment Plants (STPs) work efficiently and effectively</p>	<p>1. The amount for sewage fee which the target community is willing to pay increase at 50% by 2007</p> <p>2. All target STPs have daily management record in 2007</p> <p>3. Influent level between 80-120% of target STPs is achieved</p> <p>4. Operating unit cost is reduced at ()%</p>	<p>1. Questionnaire survey (before and after)</p> <p>2. Project reports</p> <p>3. Project reports</p> <p>4. Project reports</p>	<p><input type="checkbox"/> STPs have enough budget</p> <p><input type="checkbox"/> STPs have the influent standards</p> <p><input type="checkbox"/> Government supports STPs in terms of budget regulation</p>
<p>Outputs</p> <p>1. Guideline (O&M, P&D) at sewage system are developed</p> <p>2. Public awareness for sewage works is improved</p> <p>3. Personnel for sewage system are allocated at STPs</p> <p>4. Operation and maintenance information is exchanged among local governments and STPs</p>	<p>1-1 Guideline for target STPs is fully developed by year 2007</p> <p>2-1 50% of population have willingness to pay for wastewater fee by 2007</p> <p>2-2 70% of target population have knowledge on wastewater</p> <p>3-1 All trainers in target STPs are trained by year 2003</p> <p>3-2 80% of personnel at target STPs are trained by 2007</p> <p>4-1 One STP information center is developed and shared by the target STPs by 2007</p> <p>4-2 Information system of each target STPs are developed by 2007</p>	<p>1-1 Number of target STPs utilizing guideline, Guideline developed</p> <p>2-1 Questionnaire survey (before and after)</p> <p>2-2 Questionnaire survey (before and after)</p> <p>3-1 Training record</p> <p>3-2 Training record</p> <p>4-1 Field survey, Project reports</p> <p>4-2 Project reports</p>	<p>1-1 Counterpart is secured for the project</p> <p>1-2 Guideline development methodology is accepted by the concerns agencies</p> <p>2-1 Concerned staff have capacity to utilize public relation material developed</p> <p>2-2 People in STPs give good cooperation in fee collection and project activities</p> <p>3 The government budget are sufficient for training</p> <p>4 Tools for information exchange are available</p>
<p>Activities</p> <p><u>1. Guideline (O&M, P&D) at sewage system are developed</u></p> <p>1-1 Collect data / analyze problems affecting the operation of the plant</p> <p>1-2 Clarify factors contributing to each problems</p> <p>1-3 Set the target of operation and maintenance (e.g. BOD, sludge, equipment)</p> <p>1-4 Improve the target treatment plants</p> <p>1-5 Test / run the improved system and evaluate data</p> <p>1-6 Set the guideline for operation and maintenance</p> <p>1-7 Set strategies to disseminate the guidelines</p> <p><u>2. Public awareness for sewage works is improved</u></p> <p>2-1 Conduct awareness survey on sewage works</p> <p>2-2 Survey the attitude of the people in the target area</p> <p>2-3 Study the socio-economic background and attitude of the target community</p> <p>2-4 Plan the strategy to increase public awareness</p> <p>2-5 Develop material for public on sewage works</p> <p>2-6 Prepare draft guideline and methodology</p> <p>2-7 Implement public relation on sewage works</p> <p>2-8 Implement awareness campaign of Polluter-Pay Principle to the target population</p> <p>2-9 Conduct workshop seminar for councillors and executives to pay much attention on sewage works</p> <p>2-10 Evaluate the result of the implementation</p> <p>2-11 Establish guideline methodology on public relation on sewage works based on the result of the activities</p> <p><u>3. Personnel for sewage system are allocated at STPs</u></p> <p>3-1 Develop training guideline for municipality staff in STPs.</p> <p>3-2 Develop material for trainees</p> <p>3-3 Develop material for trainers</p> <p>3-4 Train trainers for OJT and Training course</p> <p>3-5 Conduct OJT and training course</p> <p>3-6 Evaluate the training</p> <p>3-7 Develop qualification standards of managers and operators for the project that should be achieved by the training</p> <p>3-8 Establish human resource bank of sewage works (this requires further information and clarification to be set up as a project activity)</p> <p><u>4. Operation and maintenance information is exchanged among local governments and STPs</u></p> <p>4-1 Collect operation and maintenance data report (daily report, quarterly reports, yearly report) from local government by central government</p> <p>4-2 Collect completed document (Construction drawings, plants specifications, As-built drawings)</p> <p>4-3 Make information system (e.g. stand-alone, local LAN, Internet)</p>	<p>Input</p> <p><u>Japanese Side</u></p> <p>Personnel:</p> <p><input type="checkbox"/> Experts ()M/M (M/M and field of experts shall be decided in later stage)</p> <p>Equipment and Material:</p> <p><input type="checkbox"/> Equipment necessary for technical cooperation</p> <p><input type="checkbox"/> Training material</p> <p>Counterpart Training</p> <p><u>Thai Side</u></p> <p>Personnel:</p> <p><input type="checkbox"/> Counterpart staff</p> <p><input type="checkbox"/> Secretary</p> <p>Facilities:</p> <p><input type="checkbox"/> Target STPs</p> <p><input type="checkbox"/> Office for Japanese experts</p> <p><input type="checkbox"/> Equipment for STPs</p> <p>Local Cost:</p> <p><input type="checkbox"/> Project operation cost</p>	<p>Pre-conditions</p> <p><input type="checkbox"/> Thai authorities related to sewage water treatment build a consensus to implement this project</p> <p><input type="checkbox"/> Local government that operate target STPs agree to and accept the project</p> <p><input type="checkbox"/> Existing and functioning STPs are available</p> <p><input type="checkbox"/> Target STPs are properly selected</p> <p><input type="checkbox"/> Working group meeting between central government and local government is set up</p>	

REPORT ON PROJECT CYCLE MANAGEMENT (PCM) WORKSHOP

1. Backgrounds and Purpose of Participatory Planning Workshop

Participatory planning workshop was held jointly among Thai officials concerned and JICA mission team on June 13 and 14, 2001 at Siam City Hotel, to elaborate the project design for the Sewage Works Technology Center Project. The workshop was continuation of the one held on October 11 and 12, 2000, in which the problem analysis, objective analysis, and the selection of approaches were made. The main purpose of the workshop was to formulate the major project components and plans based on the approaches selected in the preceding steps.

2. Methodology Applied in the Participatory Planning Workshop

In order to formulate project design in a participatory manner with Thai and Japanese side, Project Cycle Management (PCM) methods was employed in the workshop, and the project design elaborated thorough the discussion and exchanging the views and idea of participants in the workshop was summarised in the Project Design Matrix (refer to ANNEX 2), based on the result of objective analysis and selection of approaches made in the previous workshop.

3. Procedure of the Participatory Planning Workshop

Analysis made on the problems and objectives in the form of Project Tree and Objective Tree developed in the previous workshop are reviewed in the first session of the workshop. Confirmation and consensus were built among the participants on those analyses, as well as on the approaches selected at the project components. After reviewing the previous workshop, PDM was formulated, which is composed of 1) Narrative Summary on Project Information, Overall Goal, Project Purpose, Output, and Activities, and 2) Objectively Verifiable Indicators, 3) Means of Verification, 4) Important Assumption, and 5) Input.

The Narrative Summary in PDM, which is given to Project Information, Overall Goal, Project Purpose, and Activities, are compiled by the participants deriving the main elements from the Objective Tree. After compiling the Narrative Summary, Important Assumption, Objectively Verifiable Indicators, Means of Verification, and Input were identified by the participants through the discussing the idea and views of participants and building the consensus. The results were summarized in the PDM format.

4. Participants of Workshop (refer to Annex 1)

Followings are the organizations to which participants of the workshop are belonging;

- 1) Department of Drainage and Sewage (DDS) / Bangkok Metropolitan Administration (BMA)
- 2) Department of Environmental Quality Promotion (DEQP) / Ministry of Science, Environment and Technology (MOSTE)
- 3) Department of Local Administration (DOLA) / Ministry of Interior (MOI)
- 4) Department of Technical and Economic Cooperation (DTEC) / Office of Prime Minister
- 5) Office of Environmental Policy and Planning (OEPP) / MOSTE
- 6) Pollution Control Department (PCD) / MOSTE
- 7) Public Works Department (PWD) / MOI
- 8) Wastewater Management Authority (WMA) / MOSTE

(in alphabetical order)

5. The master plan of the Project

The results of the participatory planning workshop is summarized in the first version of Project Design Matrix (PDM) (refer to Annex2). The main elements of the Project is described as follows:

(1) Project Identification

Project Title: Sewage Works Technology Center Project
 Duration: 1st April 2002 – 31st March 2007
 Target Area: Target Sewage Treatment Plants
 Target Group: Central and local government officials in wastewater management Plans

In addition to the above-described project identification, the term of Sewage Treatment Plants (STPs) was defined as the sewage treatment facilities which are composed of sewage treatment station, pump and pipeline network.

(2) Overall Goal

- 1) Cost recovery is sustained for target STPs
- 2) Effluent from sewage treatment plants is improved

(3) Project Purpose

Sewage Treatment Plants (STPs) work efficiently and effectively

(4) Outputs

- 1) Guideline (O&M, P&D) for sewage system are developed
- 2) Public awareness for sewage works is improved
- 3) Personnel for sewage system are allocated at STPs
- 4) Operation and maintenance information is exchanged among local governments and STPs

(5) Activities

1) For Guideline (O&M, P&D) for sewage system are developed

- Collect data / analyse problems affecting the operation of the plant
- Clarify factors contributing to each problems
- Set the target of operation and maintenance (e.g. BOD, sludge, equipment)
- Improve the target treatment plants
- Test / run the improved system and evaluate data
- Set the guideline for operation and maintenance
- Set strategies to disseminate the guidelines

2) For public awareness for sewage works is improved

- Conduct awareness survey on sewage works
- Survey the attitude of the people in the target area
- Study the socio-economic background and attitude of the target community
- Plan the strategy to increase public awareness
- Develop material for public on sewage works
- Prepare draft guideline and methodology

- Implement public relation on sewage works
- Implement awareness campaign of Polluter-Pay Principle to the target population.
- Conduct workshop seminar for councillors and executives to pay much attention on sewage works
- Evaluate the result of the implementation
- Establish guideline methodology on public relation on sewage works based on the result of the activities

3) For personnel for sewage system are allocated at STPs

- Develop training guideline for municipality staff in STPs
- Develop material for trainees
- Develop material for trainers
- Train trainers for OJT and Training course
- Conduct OJT and training course
- Evaluate the training
- Develop qualification standards of personnel for the project that should be achieved by the training
- Establish human resource bank of sewage works (this requires further information and clarification to be set up as a project activity)

4) For operation and maintenance information is exchanged among local governments and STPs

- Collect operation and maintenance data report (daily report, quarterly reports, yearly report) from local government by central government
- Collect completed document (Construction drawings, plants specifications, As-built drawings)
- Make information system (e.g. stand-alone, local LAN, and Internet)

6. Matters to be considered in PDM

1) Super Goal

Overall Goal was set in the workshop as “Cost recovery is sustained for the target sewage treatment plants” and “Effluent from sewage treatment plants is improved”. In Overall Goal, the significance and positive impacts effected by the achievement of the Project Purpose shall be described, so that the relevance on the implementation of the project is convinced. In order to refer to the significance and relevance of the project implementation, it is suggested by Japanese side to set up the Super Goal, which describe the long-term effect to be achieved by the Overall Goal, as “The water quality of public water bodies is improved”.

2) Objectively Verifiable Indicator for the Output of “Personnel for sewage system are allocated at STPs”

Objectively Verifiable Indicator for the Output of “Personnel for sewage system are allocated at STPs” was identified as “All trainers in target STPs are trained by year 2003” as well as “80% of personnel at target STPs are trained by 2007”. However, the indicator to measure the quantity and quality of personnel to be allocated at STPs was not set up. Thus, further consideration shall be given to develop the indicators to allow the

measurement on quantity and quality of personnel to be allocated.

3) Objectively Verifiable Indicator for the Output of "Operation and maintenance information is exchanged among local governments and sewage treatment plants"

Objectively Verifiable Indicator for the Output of "Operation and maintenance information is exchanged among local governments and sewage treatment plants" was set as "One STP information center is developed among the target STPs by 2007" and "Information system of each STPs are developed by 2007". However, the indicator which allows measurement on how much and often the information is exchanged is missing. There is need to develop the other Objectively Verifiable Indicators for this Output to enable the measurement on the quantity and frequency of information exchanged among local governments and sewage treatment plants.

7. Organisation responsible for each activity of the project (refer to Annex 4)

Completing the Project Design Matrix (PDM) in the participatory planning workshop, the organization responsible for each activity set in the PDM was attempted to be clarified by the participants. The results was summarized in the matrix shown in the Annex 2, revealing the leading organization in charge for each activities, organization in charge for budgeting, as well as other collaborating organizations.

The opinion was expressed among the participants that the Public Works Department (PWD) should be the leading organization in charge for all the project activity, while all the PCD, OEPP, DEQP, WMA, BMA, DOLA and target local government shall be the organization in collaboration for the implementation of all the activities. However, further clarification on the collaborating organization assigned for "each activity" was not given in the workshop because the activities should be implemented through collaboration of related organizations.