

JAPAN INTERNATIONAL COOPERATION AGENCY

MUNICIPALITY OF PANAMA
THE REPUBLIC OF PANAMA

***THE STUDY ON
SOLID WASTE MANAGEMENT PLAN
FOR
MUNICIPALITY OF PANAMA
IN THE REPUBLIC OF PANAMA***

***Final Report
Volume III***

ANNEX

MARCH 2003



KOKUSAI KOGYO CO., LTD.



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03-22

The Study on Solid Waste Management Plan for Municipality of Panama in the Republic of Panama

List of Volumes

Volume I	Summary
Volume I (S)	Summary (Spanish Version)
Volume II	Main Report
Volume II (S)	Main Report (Spanish Version)
Volume III	Annex
Volume III (S)	Annex (Spanish Version)
Volume IV	Data Book
Volume IV (S)	Data Book (Spanish Version)

This is the Annex.

In this report, the project cost is estimated by using the May 2002 price and an exchange rate of U\$1.00=B/1.00(Balboa)=JP¥125.00.

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Annex C	Field Survey
Annex D	Current Situation of Municipal Solid Waste Management
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Annex I	Selection of an Optimum Technical System
Annex J	The Master Plan
Annex K	Feasibility Study and Pre-Feasibility Study for Priority Projects
Annex L	Conclusions and Recommendations

Abbreviations

ANAM	National Environmental Authority
ATP	Ability To Pay
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
C/P	Counterpart
DF/R	Draft Final Report
DIMAUD	Municipal Bureau for Urban and Household Cleansing
EIA	Environmental Impact Assessment
F/S	Feasibility Study
GTZ	German Technical Cooperation
HW	Hazardous Waste
ICB	Institutional Capacity Building
IC/R	Inception Report
IEE	Initial Environmental Examination
IDAAN	National Waterworks and Sewerage Institute
IDB	Inter-American Development Bank
IPAT	Panamanian Institute of Tourism
IT/R	Interim Report
IW	Industrial Waste
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
MEF	Ministry of Economy and Finances
MICI	Ministry of Trade and Industry
MIDA	Ministry of Agricultural Development
MINSA	Ministry of Health
MIVI	Ministry of Housing
M/M	Minutes of Meeting
MOP	Ministry of Public Works
M/P	Master Plan
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
MW	Medical Waste
O&M	Operation and Maintenance
PAHO	Pan-American Health Organization
POS	Public Opinion Survey
P/P	Pilot Project
PPP	Polluter Pay Principle
P/R	Progress Report
PRTR	Pollutant Release and Transfer Register
S/W	Scope of Work
SWM	Solid Waste Management
TDS	Total Dissolved Solids
T&M	Time and Motion Survey
T/S	Transfer Station
WACS	Waste Amount and Composition Survey
WTP	Willingness to Pay

Annex A

*Scope of Work and Minutes of
Meetings*

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A Scope of Work and Minutes of Meeting

A.1 English Version

A.1.1 Scope of Work

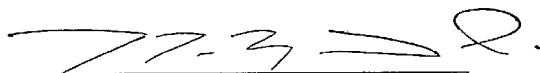
A-1 Scope of Work

ORIGINAL: ENGLISH

SCOPE OF WORK
FOR
THE STUDY
ON
SOLID WASTE MANAGEMENT PLAN
FOR
MUNICIPALITY OF PANAMA
IN
THE REPUBLIC OF PANAMA

AGREED UPON BETWEEN
MUNICIPALITY OF PANAMA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Panama City, August 7, 2001

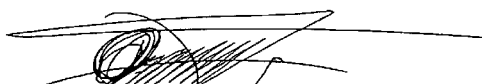


Mr. Juan Carlos NAVARRO
Mayor
Municipality of Panama



Dr. Hidetoshi KITAWAKI
Leader, Preparatory Study Team
Japan International Cooperation
Agency (JICA)

WITNESS:



Mr. Ruben Darío CAMPOS
Mayor
Municipality of San Miguelito

I INTRODUCTION

In response to the request of the Government of the Republic of Panama (hereinafter referred to as "Panamanian side"), the Government of Japan decided to conduct The Study on Solid Waste Management Plan for Municipality of Panama in the Republic of Panama (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of Panamanian side.

The present document sets forth the scope of work for the Study.

II OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. to formulate the master plan for solid waste management for Municipality of Panama ;
2. to conduct feasibility study on priority project(s) which will be selected from the master plan;
and
3. to pursue technology transfer to the counterpart personnel in the course of the Study.

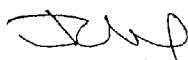
III STUDY AREA

The Study shall cover Municipality of Panama shown in the attached sheet of Appendix 1.

IV SCOPE OF THE STUDY

Phase I : Formulation of a master plan for solid waste management

1. Collection and analysis of the related data and information
2. Field Survey for present conditions of solid waste management
 - a. Amount of solid waste and its composition
 - b. Collection and transportation
 - c. Treatment
 - d. Disposal
 - e. Existing facilities
 - f. Environmental conditions
 - g. Public awareness
3. Basic strategy (framework for social, economic condition)



4. Facilities plan
5. Operation and maintenance plan
6. Institution and organization plan
7. Preliminary cost estimation
8. Initial environmental evaluation (IEE)
9. Evaluation
10. Implementation plan
11. Selection of priority project(s)
12. Formulation of pilot project(s)

Phase II : Feasibility study on priority project(s) and Implementation of pilot project(s)

A. Feasibility study on priority project(s)

1. Supplemental survey
2. Preliminary facilities design
3. Operation and maintenance plan
4. Institution and organization plan
5. Cost estimation
6. Environmental impact assessment (EIA)
7. Project evaluation
8. Implementation plan

B. Implementation of pilot project(s)

V SCHEDULE OF THE STUDY

The tentative schedule of the Study is shown in the attached sheet of Appendix 2.

VI REPORTS

JICA shall prepare and submit the following reports in English to Panamanian side:

1. Inception Report:

Twenty (20) copies at the commencement of the Study. This report will describe such as study schedule, methodology, and manning schedule.

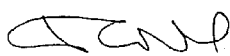
2. Interim Report:

Twenty (20) copies at the beginning of Phase II.


3 Draft Final Report:

Twenty (20) copies at the end of the Study in Panama.

Panamanian side shall submit their comments within one (1) month after the receipt of the Draft Final Report.



3



4. Final Report:
Twenty (20) copies.

VII UNDERTAKING OF PANAMANIAN SIDE

1. To facilitate the smooth conduct of the Study, Panamanian side will take the following necessary measures:

- (1) to secure the safety of the Japanese study team (hereinafter referred to as "the Team");
- (2) to permit the members of the Team to enter, leave and sojourn in Panama for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees;
- (3) to exempt the members of the Team from taxes, duties, fees and any other charges on equipment, vehicles, machinery and other materials brought into and out of Panama for the conduct of the Study;
- (4) to exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study;
- (5) to provide necessary facilities to the Team for remittance as well as utilisation of the funds introduced into Panama from Japan in connection with the implementation of the Study;
- (6) to secure permission for the Team to enter into private properties or restricted areas for the conduct of the Study;
- (7) to secure permission for the Team to take all data and documents (including photographs and maps) related to the Study out of Panama to Japan, and
- (8) to provide medical services as needed. Its expenses will be chargeable to the members of the Team.

2. Panamanian side shall bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the member of the Team.

3. Municipality of Panama shall act as a counterpart agency to the Team and also as a coordinating body in relation with other governmental and non-governmental organisations concerned for the smooth implementation of the Study.

4. Municipality of Panama shall, at its own expense, provide the Team with the following in cooperation with other organisations concerned:

- (1) available data and information related to the Study,
- (2) counterpart personnel,
- (3) suitable office space with necessary equipment in Panama City, and
- (4) credentials or identification cards to the member of the Team.



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VIII UNDERTAKING OF JAPANESE SIDE

For the implementation of the Study, Japanese side shall take the following measures:

1. to dispatch, at its own expense, the Team to Panama,
2. to pursue technology transfer to the counterpart personnel in the course of the Study.

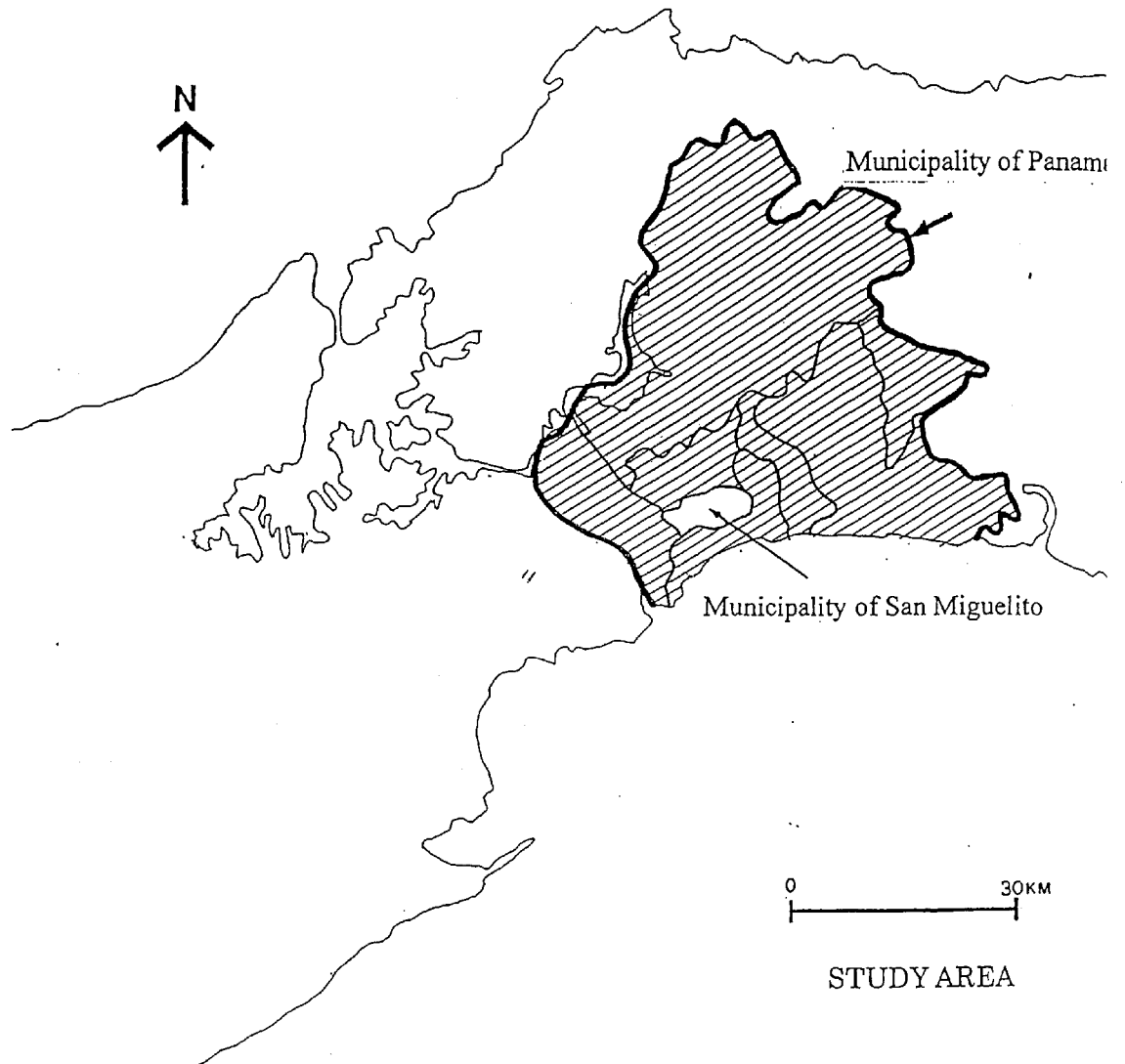
IX CONSULTATION

JICA and Municipality of Panama will consult with each other in respect of any matter that may arise from or in connection with the Study.

X OTHERS

The Scope of Work is prepared in English and Spanish, and both versions are signed by the both partners. In case any doubt arises in interpretation, the English text shall prevail.

Appendix 1



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Appendix 2

TENTATIVE STUDY SCHEDULE

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STUDY																		
REPORT PRESENTATION	△							△							△			△
	IC/R							IT/R							DF/R			F/R

IC/R : Inception Report
IT/R : Interim Report
DF/R : Draft Final Report
F/R : Final Report

A-II Minutes of Meeting

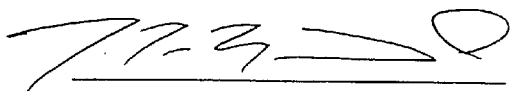
ORIGINAL: ENGLISH

**MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE STUDY
ON
SOLID WASTE MANAGEMENT PLAN
FOR
MUNICIPALITY OF PANAMA
IN
THE REPUBLIC OF PANAMA**

**AGREED UPON BETWEEN
MUNICIPALITY OF PANAMA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY**

“

Panama City, August 7, 2001



Mr. Juan Carlos NAVARRO
Mayor
Municipality of Panama



Dr. Hidetoshi KITAWAKI
Leader, Preparatory Study Team
Japan International Cooperation
Agency (JICA)

WITNESS:



Mr. Ruben Dario CAMPOS
Mayor
Municipality of San Miguelito

In response to the request of the Government of Republic of Panama (hereinafter referred to as "Panamanian side"), the Preparatory Study Team (hereinafter referred to as "the Team") was sent by Japan International Cooperation Agency (hereinafter referred to as "JICA") to discuss the Scope of Work for The Study on Solid Waste Management Plan for Municipality of Panama in the Republic of Panama (hereinafter referred to as "the Study") with Municipality of Panama and the concerned officials of Panamanian side.

A series of discussions and field survey in the study area were held from July 31 to August 7, 2001. The main issues on the discussions regarding the Scope of Work are as follows:

1. Title

Both sides agreed that the title of the Study would be "The Study on Solid Waste Management Plan for Municipality of Panama in the Republic of Panama" as described in the Scope of Work.

2. Target year

Both sides agreed that the target year for the master plan would be the year 2015.

3. Types of solid waste

Both side agreed that the types of solid waste to be studied would be domestic waste, industrial waste and medical waste.

Problem identification would be carried out as for industrial waste and medical waste.

4. Contents of master plan, feasibility study and pilot project(s)

Panamanian side tentatively requested the Team to examine the following contents for master plan, priority project(s) for feasibility study and pilot project(s);

1) Master plan

- a) Improvement of collection system
- b) Tariff collection system
- c) Improvement and expansion of street cleaning system
- d) Improvement of maintenance system

2) Feasibility study

- a) Transfer station including small recycling system
- b) Recycling plant

3) Pilot projects

- a) Education program in communities and schools
- b) Collection experiment (collection route, frequency)
- c) Separate collection
- d) Separate disposal area in Cerro Patacon (hazardous, medical, etc)
- e) Participatory improvement of solid waste management

The highest priority was placed on a), followed by b), c), d), e).

The team explained that the contents of the study would be selected, within the capacity of the study team, over the discussion between Panamanian side and Japanese side.



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5. Cooperation of municipality of San Miguelito

Panamanian side agreed that municipality of San Miguelito shall provide necessary cooperation for the study such as submission of data and information, permission for the field survey of the study team.

6. Steering committee

Panamanian side assured that for the smooth implementation of the study and effective use of the study results the steering committee be organized at the commencement of the Study upon consultation with the study team. The steering committee would be chaired by municipality of Panama, and composed of representatives of organizations concerned such as follows.

Ministry of Economy and Finance
Ministry of Health
National Environmental Authority
Municipality of San Miguelito

7. Reports

Panamanian side requested the Team to prepare the same number of copies in Spanish for each report for better understanding of the study result as a reference. The Team assured to convey the request to JICA Headquarters for further consideration. Panamanian side also agreed that in case any doubt arises in interpretation, the English version shall prevail.

Panamanian side agreed that the reports would be open to the public.

8. Vehicles

Municipality of Panama agreed to make endeavour to provide necessary number of vehicles with drivers as situation permits. The Team agreed to convey the situation to JICA Headquarters.

9. Technology transfer

Panamanian side requested the Team to provide counterpart training in Japan and to hold a seminar during the study to transfer technology. The Team agreed to convey the request to JICA Headquarters.

The list of attendants at discussion and signing of the Scope of Work is shown in Appendix 1.



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Appendix 1

List of Attendants

(Panamanian side)

Ministry of Foreign Affairs

Ms. Iana QUADRI de Ballard	Director General, Legal Affairs and Convention
Mr. Francisco MATOS	Chief of Technical Cooperation of International Economic Relations
Ms. Gisele BOTELLO	Lawyer of Convention Department

Ministry of Economy and Finance

Dr. Fernando GOMEZ	Advisor to the Mayor
Mr. Alfredo BROCE	Chief of International Technical Cooperation Department
Ms. Eira ROSAS	Coordinator of CITI-JICA

Ministry of Health

Dr. Fernando GRACIA	Minister
Dr. Esteban MORALES	National Health Director
Mr. Raul DE SAINT MALO	National Director of International Affairs

National Environmental Authority

Dr. Donaldo SOUSA	Director of International Affairs
Ms. Maria Eugenia AYALA	Chief of Environmental Quality
Mr. Rodolfo BATISTA	Chief of Department of Control and Environmental Quality
Mr. Carmen LAY	Evaluation of Program and Environmental Management
Ms. Regina LOGREIRA	Assistant of International Affairs
Mr. Octavo SMITH	System of Information Territory

Municipality of San Miguelito

Mr. Ruben Dario CAMPOS	Mayor
------------------------	-------

Municipality of Panama

Mr. Juan Carlos NAVARRO	Mayor
Dr. Edgar SPENCE	Advisor to the Mayor for International Affairs
Mr. Miguel LECARO	Chief of Municipal Protocol and Ceremonial Department
Mr. Pedro CASTILLO	Assistant of International Relations
Mr. Jorge SAENZ M.	Director General, Municipal Direction of Domiciliary Cleaning(DIMAUD)
Mr. Emilio PALOMERAS	Deputy Director, DIMAUD
Mr. Mario CONTE	Advisor to the DIMAUD
Ms. Betzaida VALVERDE	Technician of Technical Services Department, DIMAUD
Mr. Erig PARDO	Chief of Legal Advising Department, DIMAUD
Mr. Alvis MORALES	Chief of Collection Zone B, DIMAUD
Mr. Julio DAVIS	Chief of Technical Services Department, DIMAUD
Mr. Roberto FIERO	Chief of Collection Zone A, DIMAUD
Ms. Ana TENAS	Chief of Female Sweeping, DIMAUD
Mr. Ricardo GARAY	Chief of Sanitary Landfill, DIMAUD
Mr. Javier ORTEGA	Chief of Protocol, DIMAUD

(Japanese side)

Embassy of Japan in Panama
Mr. Masato MATSUI
Mr. Kimihiro ISHIKAWA

In charge of Interim Ambassador in Panama
Second Secretary

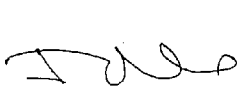
JICA Panama Office
Mr. Yoshitaka MISAWA
Ms. Rieko SAKAI

Resident Representative
Director of Technical Cooperation

Preparatory Study Team

Dr. Hidetoshi KITAWAKI
Mr. Hiroto KOMODA
Mr. Takafumi YASUMOTO
Mr. Shungo SOEDA
Mr. Mamoru SHIBATA
Mr. Hideharu SUGAWARA

Leader /Solid Waste Management Planning
Solid Waste Management Administration
Study Planning
Collection and Transportation, Disposal / EIA
Social Issue / Organization and Institution
Interpreter



5



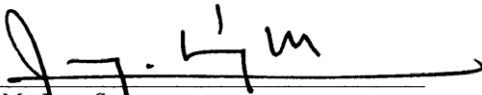
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A.1.2 Inception Report

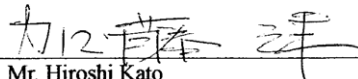
**MINUTES OF MEETINGS
ON THE INCEPTION REPORT
OF
THE STUDY
ON
SOLID WASTE MANAGEMENT PLAN
FOR
MUNICIPALITY OF PANAMA
IN
THE REPUBLIC OF PANAMA**

**AGREED UPON BETWEEN
MUNICIPALITY OF PANAMA
AND
JICA STUDY TEAM**

Panama City, December 11, 2001



Mr. Jorge Sacnz
Director
Municipal Direction of Domiciliary
Cleansing (DIMAUD)
Municipality of Panama



Mr. Hiroshi Kato
JICA Study Team Leader

1. INTRODUCTION

- 1.1 The Study Team has submitted the Inception Report (IC/R, twenty (20) copies of English version and twenty (20) Spanish version respectively) to Municipality of Panama. Consequently a series of meetings were held from December 5th to 11th in Panama, the Republic of Panama, to discuss the contents of the IC/R. A list of officials attending to the above meetings is given in the appendix.

2. ISSUES AND DECISIONS

- 2.1 Various issues were discussed and clarifications on the Inception Report (IC/R) were made. Subsequently appropriate consensus was reached during the meetings. These issues, clarification and consensus are outlined in the following paragraphs.

2.2 Counterpart Team

Panamanian side has nominated the following persons for respective specialties.

Leader	Mr. Mario Conte
Collection/Transport	Mr. Alvis Morales
Waste Amount/Waste Composition	Mr. Alonso Filós
Treatment/Disposal	Mr. Ricardo Garay
Recycling	Mr. Lorenzo Tejeira
Education/Public Communication	Mr. Frank Quintero
Sociology	Ms. Patsy Arcia
Organization Management	Mr. Amado Cantoral
Institution/Legislation	Mr. Erick Prado
Financial Management/Accounting	Mr. Franklin Alba
Environment	Mrs. Bethzaida Valverde
Urban Planning	Ms. Berta Donoso de Velasquez

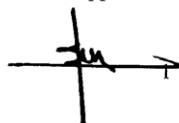
2.3 Steering Committee

During the discussion, the Panamanian side has promised to dispatch persons as members of the Steering Committee from the following institutions:

Ministry of Economy and Finance
Ministry of Health
National Environmental Authority
Municipality of Panama (Chairman)
Municipality of San Miguelito

2.4 Assignment of Office

The Study Team confirmed and appreciated the office assigned for the Study Team.



2.5 Priority Project(s)

Priority project(s) that are subject to the Feasibility Study will be preliminary decided by the middle of March 2002 through mutual discussion between the Panamanian side and the Study Team. Then, the JICA Headquarters will finally decide priority project(s) by the end of May 2002.

2.6 Pilot Project(s)

Pilot project(s) that are carried out during the second study in Panama will be preliminary decided by the middle of March 2002 through mutual discussion between the Panamanian side and the Study Team. Then, the JICA Headquarters will finally decide pilot project(s) by the end of May 2002.

2.7. Technology Transfer

a) Technology discussion

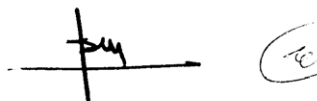
The Study Team proposed to have a meeting every two weeks for promoting the joint study and technology transfer, and requested the Panamanian side to provide the continuous participation of the same counterpart members throughout the study period

b) Technology transfer seminar

In response to the Panamanian side's request made during the Preparatory Study, JICA Headquarters decided to carry out two seminars: the first to be held in the beginning of June 2002, and the second one by the end of January 2003.

3. Conclusion

3.1 With the above clarifications and modification, the IC/R was approved by the Panamanian side.

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Appendix

List of Attendants

(Panamanian Side)

Ministry of Economy and Finance

Dr. Aurelio A. Mejía R. (Economic Assessor for the Minister)
Ms. Daria Cohen de Ruiz (Chief of Department of Technical Cooperation, DCTI)
Ms. Eira Rosas (Coordinator of Bilateral Cooperation, DCTI)

Ministry of Health

Mr. Raúl de Saint Malo Arias (National Director of International Affairs)
Dr. Elda Velarde (Environmental Health General Sub-director)
Mr. Felipe Castillo (Chief of External Cooperation)
Ms. María Inés Esquivel (Chief of Department of Environmental Sanitary Quality)
Ms. María E. Ulloa (Chief of Section of Non-hazardous Waste)

National Environmental Authority

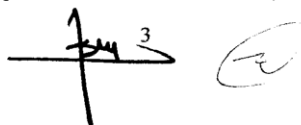
Ms. Rosario de Icaza (Chief of Direction of International Technical Cooperation)
Mr. Rodolfo E. Batista S. (Chief of the Department of Environmental Control and Quality)
Ms. Regina Logreira (Coordinator of Technical Cooperation, Direction of External Affairs)
Mr. Denis González (National Direction for Environmental Evaluation and Regulation)
Ms. Carmen Lay (Official for the Department of Environmental Control and Quality)

Municipality of San Miguelito

Mr. Heracio Barahona (Vice-mayor)
Mr. Hernan Quintero (Engineering)
Mr. Roberto García Fuentes (Planning)
Mr. Javier Rodríguez (Legal Department)
Mrs. Anielka Adames (Institutional Image)

Municipality of Panama

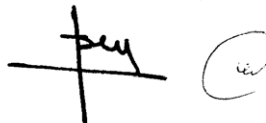
Mr. Juan Carlos Navarro (Mayor)
Dr. Edgard Spence (Assessor for the Mayor on International Affairs)
Mr. Pedro Castillo (Assistant for International Relations)
Mr. Jorge Saenz (Director of DIMAUD)
Mr. Emilio Palomeras (General Sub-director for DIMAUD)
Mr. Mario Conte (Assessor for the Mayor/Team leader for Panamanian Counterpart)
Mr. Julio Davis (Chief of Department of Technical Services, DIMAUD)
Ms. Bethzaida Valverde (Department of Technical Services, DIMAUD)

Handwritten signature and initials, possibly representing the Mayor or a representative of the Municipality of Panama.

Mr. Alvis Morales	(Chief of Collection, Zone B, DIMAUD)
Mr. Alonso Filós	(Department of Technical Services, DIMAUD)
Mr. Lorenzo Tejeira	(Department of Technical Services, DIMAUD)
Mr. Germán Bejarano	(Department of Collection, DIMAUD)
Ms. Ana Tenas de Bonilla	(Chief of Street Sweeping Section, DIMAUD)
Mr. Eric Prado	(Chief of Legal Counseling, DIMAUD)
Mr. Jorge Jordán	(Legal Counseling, DIMAUD)
Ms. Berta Donoso de Velasquez	(Urban Planning, DIMAUD)
Mr. Frank Quintero	(Education/Public Communication, DIMAUD)

(Japanese Side)

Mr. Yoshitaka Misawa	(Permanent Representative, JICA Panama Office)
Ms. Rieko Sakai	(Chief of Technical Cooperation, JICA Panama Office)
Mr. Carlos E. Zambrano	(Economic and Technical Cooperation Assessor, JICA Panama Office)
Mr. Hiroshi Kato	(Team Leader)
Mr. Ikuo Mori	(Team Vice-Leader)
Mr. Victor Ojeda	(Institutional and Organizational Plan)
Mr. Mario Valle	(Interpreter)
Ms. Yumiko Asari	(Administrative Coordinator)

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