

- Control of the generation of waste

Enterprises must also develop processes which would enable the treatment of industrial waste at generation source. A good example would be that of the enterprise Pollena-Lechia which examined the materials they use and made modifications. As a result, large amount of soaping mud was reduced. Conclusively, it is necessary that enterprises examine the raw materials they use and take the necessary steps that would mitigate the environmental pollution caused by their waste.

- Reduction through recycling

In Japan, guidelines, stating legal responsibilities which require the promotion of the utilization of recyclable material, are provided to 10 leading dischargers of industrial waste. These guidelines are meant to promote the implementation of the said responsibility collectively. All enterprises are required to plan the utilization of these recyclable materials, and to increase the means for their utilization. They are also required to fully equip themselves with the required machineries and to improve their techniques.

Similarly in Poland, it is also possible to promote the utilization of recyclable papers in the paper industry and residues from glass manufacturing companies, and to reuse concrete as raw material for construction work.

Furthermore, the introduction of a "manifest system" shall be also required to ensure the preservation of the environment by preventing improper treatment methods for industrial wastes and accidents during the implementation of these methods.

2) Administration and Organization

In Poland, the administrative organization for industrial wastes management is getting more structured, although other issues start surfacing in the actual operation.

- The Provincial governments have done almost nothing to accomplish their obligations concerning the plans that they must make with regard to industrial waste management, the supervision and guidance they should give to enterprises.
- The factory inspection procedures are inconsistent.

The necessity for a storage area for industrial waste and the method of storing data will be made known to the enterprises through the execution of factory inspections.

With regard to this, it will be essential to review the personnel disposition within the administration and organization and increase the staff responsible for industrial waste management, and then conduct necessary training courses.

Furthermore, in keeping with the EC standards, the administration is required to have technical knowledge (in discharge, treatment, recycling, disposal methods, etc.), collect information and develop new techniques. The administration has to transfer technical information to enterprises and provide them with technical aid through subsidies and other schemes.

3) Generation

Only few of the enterprises seem to introduce appropriate waste managerial measures by classifying industrial waste into groups according to degree of harmfulness.

Almost all enterprises have no complete information on the amount, composition and toxicity of industrial wastes generated from their factories.

- Improvement of inventory system

Every factory submits to the provincial government information on the characteristics and amount of industrial waste they generate. The amount of money charged for the use of the environment is registered. The information can be used for the management of industrial waste. Inventory system is effective for supervising ISWM.

Therefore, precise registration and continuous updating of inventories shall be implemented.

- Change of production process and primary materials

Manufacturers should adopt new production processes and change the primary materials they use to reduce industrial solid waste generation.

- Separation of industrial waste

Dischargers should try to separate hazardous wastes from non-hazardous ones in order to reduce the amount of hazardous industrial solid wastes to be disposed of and facilitate waste reuse and recycling.

- Reuse and recycling of waste

Manufacturers should try to reuse and recycle their industrial solid waste to reduce the amount to be disposed of.

4) Transportation

- Labelling on package

Hazardous waste to be transported should be packaged properly with appropriate labelling. Packaging and labelling standards should be set for each type of hazardous waste by the provincial government. Establishment of appropriate standards for collection vehicles to be used in the transportation of hazardous wastes is also important. Accidental mixing of non-compatible wastes should be avoided.

- Granting of Permission to transportation company

The companies which actually transport or plan to transport hazardous industrial solid wastes have to get a permit from the provincial government. To apply for the permit, the following information should be submitted:

- . Type of wastes to be transported
- . Equipment to be used
- . Name of personnel responsible for the service
- . Emergency procedure

- Manifest system

The manifest system is an effective method to precisely grasp the flow of the treatment of the industrial waste and to confirm that the wastes have been appropriately treated.

In this system, the manifests containing the routes from the forwarding location to the destination, matters to be noted when handling, etc., are attached to the cargoes so that the contents of the cargoes can be checked at each transit point to confirm whether a part or whole of the cargoes is missing or not and the necessary documents are signed and invoices received.

Basic treatment and final disposal methods for industrial wastes are chemical treatment such as neutralization, oxidation and reduction, thermal treatment such as incineration, and secured landfill. The characteristics of industrial solid waste are so variable that it is necessary to find out the best treatment and final disposal alternatives from a technical and economic point of view.

In many cases the most convenient treatment and final disposal method is secured landfill, because its cost is relatively low. The provincial government may be requested to construct such facility for the sake of environmental protection if it is very difficult for the private sector to acquire land and funds for such construction.

PASTICHE, an organization for the disposal of industrial waste in Paznan city, was jointly established by nine enterprises and is trying to acquire land for disposal sites. The provincial government is expected to support the organization to accomplish the purpose.

Environmental impact assessment is a necessity prior to the construction of an industrial waste disposal site.

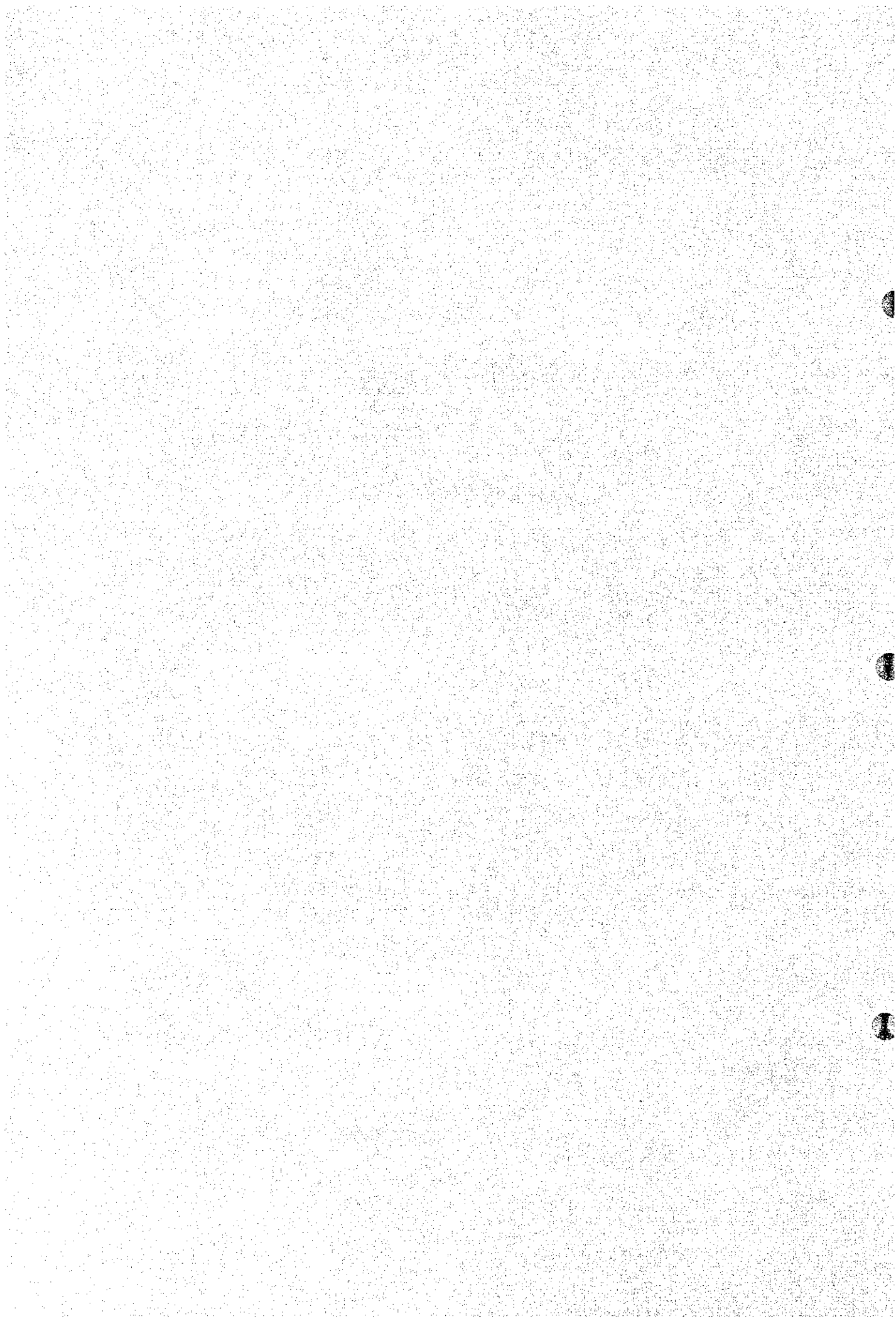
6) Supervision and advice

Appropriate supervision and sound advices from the provincial government are most important to steadily implement industrial solid waste management. It is, therefore, important to primarily analyze and improve administrative capacity, then conduct inspection and give advices on the operation of the storage, transportation and final disposal of industrial solid wastes.

Supervision and advice include the following duties:

- prepare the inventory of generators of industrial solid waste and update it continuously
- evaluate the permit applications of transporters and users of final disposal sites
- issue permits
- process manifests
- inspect and advise on the operation of storage, transportation and final disposal of industrial solid waste.

APPENDICIES

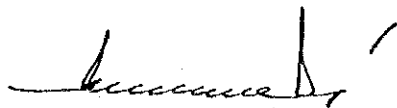


Appendix 1 : Scope of Work

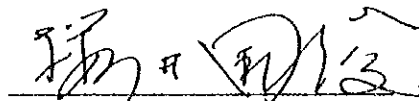
SCOPE OF WORK
FOR
THE STUDY
ON
THE SOLID WASTE MANAGEMENT
FOR
POZNAN CITY
IN
THE REPUBLIC OF POLAND

AGREED UPON BETWEEN
MINISTRY OF CONSTRUCTION AND MUNICIPALITY OF POZNAN CITY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

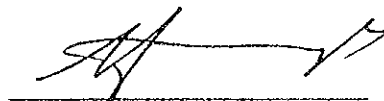
NOVEMBER 25, 1991
WARSAW, POLAND



MR. RYSZARD OLSZEWSKI, M. Sc. Eng.
VICE MAYOR,
POZNAN CITY



MR. KUNTOSHI SAKURAI, Dr. Eng.
LEADER,
PREPARATORY STUDY TEAM,
JAPAN INTERNATIONAL
COOPERATION AGENCY



MR. LECH JERCZYNSKI, Eng.
DIRECTOR,
DEPARTMENT OF HOUSING POLICY
AND URBAN ECONOMY,
MINISTRY OF CONSTRUCTION

I. INTRODUCTION

In response to the request of the Government of the Republic of Poland (hereinafter referred to as "Poland"), the Government of Japan has decided to conduct the Study on the Solid Waste Management for Poznan City in the Republic of Poland (hereinafter referred to as "the Study"), in accordance with the laws and regulations in force in Japan.

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

For the smooth conduct of the Study, the Ministry of Construction shall act as the coordinating body in relation with other relevant organizations, and the Municipality of Poznan City shall act as the counterpart agency to the Japanese study team (hereinafter referred to as "the Team").

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 a master plan for the improvement of the Municipal Solid Waste Management (hereinafter referred to as "MSWM") of Poznan City in the target year of 2010,
2. to make a recommendation for the future strategy on the Industrial Solid Waste Management (hereinafter referred to as "ISWM") of Poznan City,
3. to conduct a feasibility study for the priority project to be identified in the said master plan.

III. STUDY AREA

The study area covers whole area within the boundaries of Poznan City.

IV. SCOPE OF THE STUDY

In order to achieve the above objectives, the Study will cover the followings:

I. Basic Study

(1) Collection and review of existing data and informations on:

- a. Physical condition such as climate, topography, geology, etc.
- b. National policy and development plan related to MSWM
- c. Social and economic conditions and statistics
- d. Urban development plan and land use
- e. Road traffic system
- f. Legislation and institutional aspects on MSWM
- g. Financial condition of the City
- h. Present condition of MSWM
 - Discharge
 - Collection
 - Transfer
 - Transportation
 - Treatment
 - Disposal
 - Street sweeping
 - Composting
 - Resource recovery
 - Administration
 - Institution
 - Legal aspects
 - Finance
- i. Present condition of ISWM
- j. Review of on-going projects related to MSWM
- k. Social and environmental impact of the Solid Waste problem

(2) Field survey

- a. Amount of Municipal Solid Waste and its composition
- b. Geology, water quality and land use in existing dumping area and future landfill site
- c. Public consciousness on MSWM
- d. Environmental survey

2. Analysis of collected data

- (1) Present condition of MSWM
- (2) Present condition of ISWM

3. Identification and analysis of the problems

4. Forecast of future quantity and quality of Municipal Solid Waste

5. Formulation of the master plan (M/P) on MSWM

- (1) Confirmation of planning framework for the formulation of the master plan
 - a. Target year
 - b. Planning area
 - c. Service level
 - d. System components
- (2) Preparation of alternatives for future system components
- (3) Evaluation of alternatives from the viewpoint of public health, technology, economy, society, institution, environment and finance
- (4) Selection of the best alternative and formulation of the master plan
- (5) Implementation schedule of the master plan
- (6) Identification of the priority project

6. Preparation of general recommendation on ISWM

7. Preparation of a manual for the formulation and implementation of a MSWM master plan

8. Feasibility study (F/S) on the priority project

(1) Confirmation of the planning framework

- a. Target year
- b. Planning area
- c. Service level
- d. System components

(2) Supplemental basic study

(3) Technical examination of system components

(4) Preliminary design of facilities

(5) Investigation of necessary equipment

(6) Planning of operation and maintenance

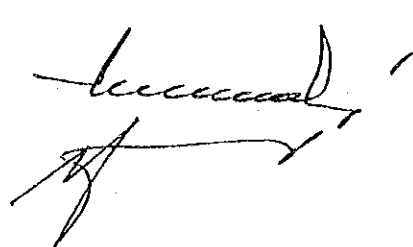
(7) Consideration of institutional and organizational development

(8) Cost estimation

(9) Project evaluation

- a. Socio-economic
- b. Financial
- c. Environmental

(10) Project implementation plan



V. STUDY SCHEDULE

The Study will be carried out in accordance with the tentative schedule attached in Annex 1.

VI. STUDY ORGANIZATION

For overall management of the Study, the Government of Poland will organize a Steering Committee consisting of authorities and organizations concerned, and JICA will organize an Advisory Committee.

The study organization is shown in Annex 2.

VII. REPORTS

JICA will prepare and submit the following reports in English to the Government of Poland.

1. Inception Report:

Thirty (30) copies at the beginning of the first work in Poland.

2. Progress Report (1):

Thirty (30) copies at the end of the first work in Poland.

3. Interim Report:

Thirty (30) copies at the beginning of the second work in Poland.

4. Progress Report (2):

Thirty (30) copies at the end of the second work in Poland.

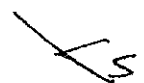
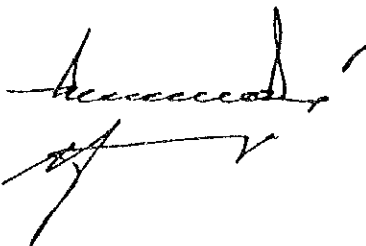
5. Draft Final Report:

Thirty (30) copies within three (3) months after completion of the second work in Poland.

The Government of Poland will present their comments to JICA within thirty (30) days after the receipt of the Draft Final Report.

6. Final Report:

Sixty (60) copies within two (2) months after JICA's receipt of the said comments on the Draft Final Report.



VIII. UNDERTAKING OF THE GOVERNMENT OF POLAND

In order to facilitate smooth and efficient conduct of the Study, the Government of Poland, through the Ministry of Construction and the Municipality of Poznan City, shall take necessary measures as follows:

1. The Ministry of Construction shall take the following necessary measures;

(1) to inform the members of the Team any existing risk and to take any measures deemed necessary to secure the safety of the Team,

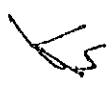
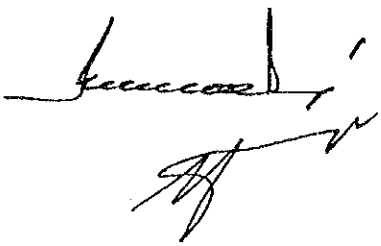
(2) to permit the members of the Team to enter, leave and sojourn in Poland for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,

(3) to exempt the members of the Team from taxes, duties, and any other charges on equipment, machinery and other materials brought into Poland for the conduct of the Study,

(4) to exempt the members of the Team from income taxes 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 conduct of the Study,

(5) to provide necessary facilities to the Team for the remittances as well as utilization of funds introduced into Poland from Japan in connection with the conduct of the Study,

(6) to secure permission for the Team to take all data, documents and maps (including photographs) related to the Study out of Poland to Japan,



(7) to bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team, and,

(8) to provide the Team with necessary information, data, documents and materials owned by the Ministry of Construction related to the Study.

2. The Municipality of Poznan City shall take the following necessary measures;

(1) to inform the members of the Team any existing risk in the study area and to take any measures deemed necessary to secure the safety of the Team,

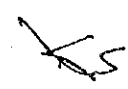
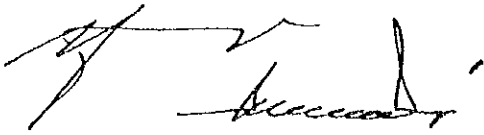
(2) to secure permission for entry into private properties or restricted area for the conduct of the Study,

(3) to provide the Team with necessary information, data, documents and materials owned by the Municipality of Poznan City related to the Study,

(4) to install equipment to be supplied by the Team at the expense of the Municipality of Poznan City and provide necessary utilities for the equipment, and,

(5) to provide medical services as needed. Its expenses will be chargeable on members of the Team.

3. The Municipality of Poznan City shall, at its own expense, provide the Team with the followings in relation with other related organizations;



(1) counterpart personnel,

(2) suitable office with furniture, telephone and other necessary materials for the Study in Poznan,

(3) credential or identification cards to the members of the Team and,

(4) appropriate number of vehicles with drivers.

[Handwritten signature]

[Handwritten mark]

IX. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following necessary measures;

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

X. CONSULTATION

JICA and the Ministry of Construction, the Municipality of Poznan City shall consult each other in respect of any matter that may arise from or in connection with the Study.

[Handwritten signature]

Annex 1

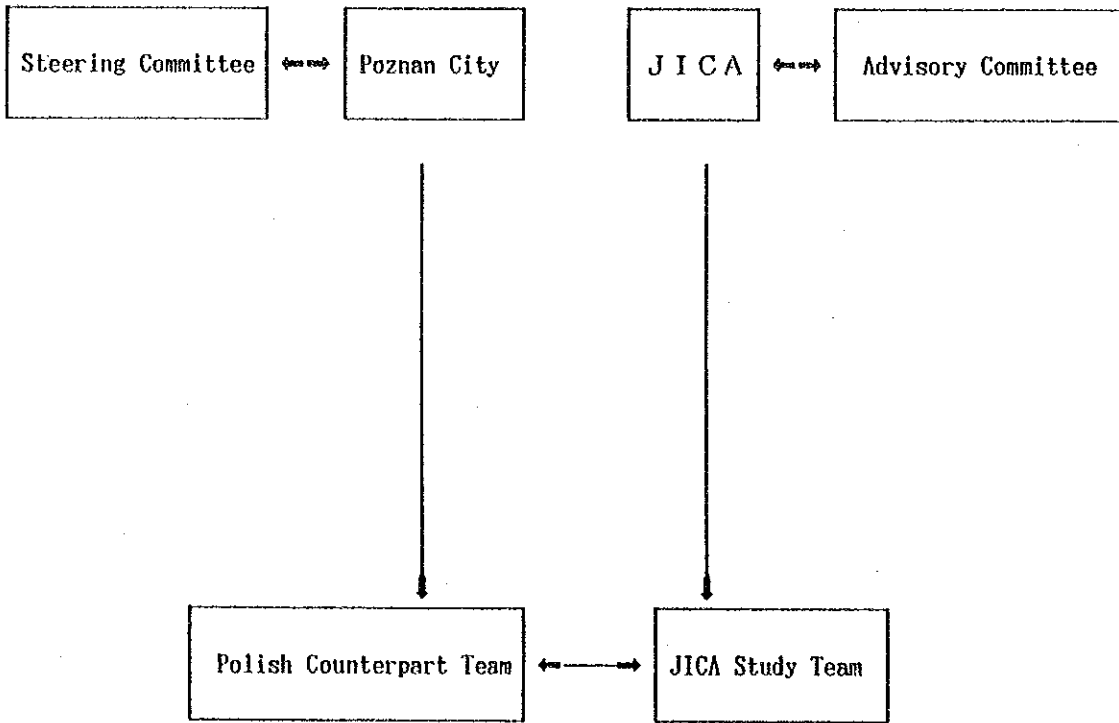
TENTATIVE STUDY SCHEDULE

MONTH DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	PHASE - I (M/P)								PHASE - II (F/S)									
W O R K I N P O L A N D																		
W O R K I N J A P A N																		
R E P O R T P R E S E N T A T I O N																		

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

[Handwritten mark]

STUDY ORGANIZATION

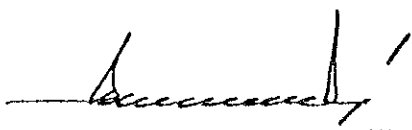


[Handwritten signature]

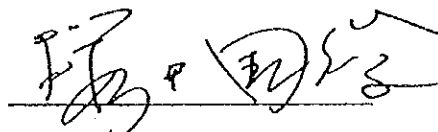
[Handwritten initials]

MINUTES OF MEETING
FOR
THE STUDY
ON
THE SOLID WASTE MANAGEMENT
FOR
POZNAN CITY
IN
THE REPUBLIC OF POLAND

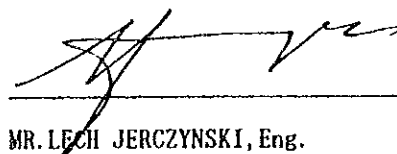
NOVEMBER 25, 1991
WARSAW, POLAND



MR. RYSZARD OLSZEWSKI, M. Sc. Eng.
VICE MAYOR,
POZNAN CITY



MR. KUNITOSHI SAKURAI, Dr. Eng.
LEADER,
PREPARATORY STUDY TEAM,
JAPAN INTERNATIONAL
COOPERATION AGENCY



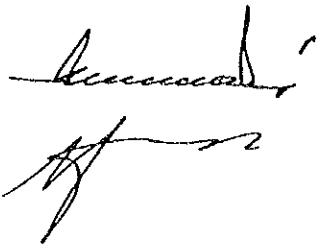
MR. LECH JERCZYNSKI, Eng.
DIRECTOR,
DEPARTMENT OF HOUSING POLICY
AND URBAN ECONOMY,
MINISTRY OF CONSTRUCTION

In response to the request of the Government of the Republic of Poland, the Preparatory Study Mission(hereinafter referred to as "the Mission") sent by Japan International Cooperation Agency (hereinafter referred to as "JICA"), to discuss, with the authorities concerned of the Republic of Poland, the Scope of Work for the Study on the Solid Waste Management for Poznan City (hereinafter referred to as "the Study").

The members of the Mission headed by Dr. Kunitoshi SAKURAI stayed in Poland from November 16 to 26, 1991. During their stay in Poland, the Mission carried out field reconnaissance in the study area, received available information and held a series of interviews with officials and local technicians.

The Meeting was held on November 18 and 22, 1991 in Warsaw to have discussions on the Scope of Work and those who attended that meeting is shown in the Appendix. The Draft Scope of Work proposed by the Mission was discussed in detail between the Mission and the Polish side. Both sides agreed upon the Scope of Work after relevant modifications with the following understandings:

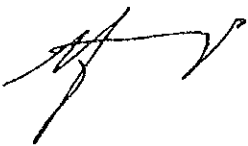
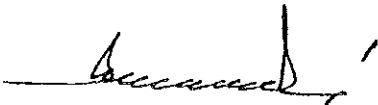
1. The municipal solid wastes mentioned in the Scope of Work include household wastes, market wastes, commercial wastes, street sweeping wastes and institutional wastes. They do not include, however, medical wastes. As for the industrial solid wastes, a rapid diagnosis study on them will be carried out based on the existing informations and data followed by the preparation of general recommendations for the improvement of industrial solid waste management in Poznan City.
2. The identification of the priority project will be done through a series of meetings between Japanese and Polish sides, and it will be finalized at the time of submission of Interim Report. As for the identification of the facility site(s) for the priority project, it will be completed by the Polish side with the same deadline.
3. The study area consists of the whole area within the boundaries of Poznan City. The future landfill site and its environs, however, will be included in the study area even in the case of its siting outside Poznan City.



4. In Poland, there are several cities with more than half million population where the improvement of Municipal Solid Waste Management is an urgent task. As such the Ministry of Construction hopes to use Poznan City as a model for such cities. Therefore, a manual should be prepared in English, as the result of the Study, on formulation and implementation of the municipal solid waste management master plans taking into account the local conditions which differ from city to city. The draft manual must be ready by the time of submission of Interim Report. When it is ready, its applicability to other Polish cities will be checked using the City of Lublin as a test case during the second work in Poland. Then necessary modifications will be made to the manual. As the result of this testing, recommendations for the improvement of municipal solid waste management in the City of Lublin will be prepared and presented to the Municipality of Lublin.

5. With the aim of exchanging opinions on the existing problems in Solid Waste Management in Poland as well as the future direction of Solid Waste Management to overcome such problems, a meeting will be held at the time of submission of the Progress Report (1) inviting the people and the institutions concerned. In addition, a one-day seminar will be organized in Poznan (or Warsaw), at the time of submission of Draft Final Report, inviting agencies related with the implementation of the municipal solid waste management master plan for Poznan City as well as the representatives of other cities with the aim of publishing the said master plan and encouraging the formulation and implementation of similar master plans in other cities. As for the necessary cost for the seminar, the Polish side will bear the trip and accommodation cost of the Polish participants, and the Japanese side will bear other necessary cost.

6. The Polish side requested that the Japanese side prepare, using the local consultants, the Polish version of the summary of Draft Final Report and the above-mentioned manual so that they could be distributed and utilized in the seminar. The Japanese side stated that this request would be conveyed to JICA Headquarters.



7. Environmental evaluation of the priority project mentioned in IV.8. (9).c of the Scope of Work will be carried out taking into account the existing EC (European Communities) environmental legislations and /or guidelines. This evaluation will include in its scope (1) air pollution (including odour problem), (2) surface and /or ground water pollution and (3) noise problem to be caused by the priority project. As for other environmental aspects, they will also be included in the scope of evaluation if both the Japanese and the Polish sides so agree in the course of the Study.

8. Although the Polish side originally requested through the Terms of Reference for the Study that JICA would finish the Study within ten (10) months counting from its commencement, sixteen (16) months will be adopted as the study period in order to facilitate the establishment of reliable study organization including the deployment of local consultants and achieve the required quality of the Study.

9. The Polish side will organize a steering committee for the Study with the following members:

- Representative of Poznan Municipality
(Chairman of the Steering Committee)
- Representative of Poznan Provincial Government
- Representative of the Ministry of Construction
- Representative of the Ministry of Environment

The Steering Committee will convene a meeting together with the JICA Advisory Committee at the time of submission of Inception Report, Interim Report and Draft Final Report mentioned in XII. of the Scope of Work in order to make strategic decisions related with the Study and reach a consensus on the future municipal solid waste management system for Poznan City among Polish agencies concerned.

10. Since the IBRD (the World Bank) is regarded as one of the possible financial sources of the priority project, the study report will be prepared in such a manner that it will satisfy the IBRD loan requirements.

11. Concerning the item VIII.1. (3) of the Scope of Work, the Japanese study team to be dispatched to Poland according to the item IX.1 of the Scope of Work (hereinafter referred to as the "Team") will apply to the Polish Custom Authority through the Polish side for the duty exemption of the equipment brought into Poland filling the relevant forms with all the informations requested including the dates of shipping in and out of Poland. In case that the Team has the necessity to keep the equipment in Poland beyond the initial shipping out date, the Team will inform the Polish Side of that necessity and ask the Polish Side to make necessary transactions on behalf of the Team.

12. The item VIII.1. (4) of the Scope of Work, namely the tax exemption, is not applied for the nationals of Poland.

13. Concerning the item VIII.1. (5) of the Scope of Work, the Ministry of Construction and the Municipality of Poznan City will arrange the opening of bank accounts for the Team in Warsaw and Poznan Cities respectively.

14. Concerning the item VIII.1. (7) of the Scope of Work, JICA will get the members of the Team to insure against the damages that they may cause in the course of the Study.

15. Concerning the item VIII.2. (4) of the Scope of Work, the Municipality of Poznan City will cover, in addition to the installation cost, the taxes and charges of any kind imposed on or in connection with the purchase and installation of a weighbridge mentioned in the item 18 infra of these Minutes of Meeting.

16. To guarantee the smooth conduct of the Study and promote technology transfer through on-the-job training, the Polish side has designated tentatively the following counterpart team:

- Mr. Jan Lemanski, Solid Waste Management Specialist, Department
(full-time) for Investment Affairs, Poznan Municipality
(Leader of the counterpart team)
- Mr. Boleslaw Stawicki, Director of the Department for Investment
(part-time) Affairs, Poznan Municipality
- Mr. Arkadiusz Blochowiak, Department Director,
(part-time) Poznan Provincial Government
- Mr. Aleksander Grzeszczak, Senior Inspector for Solid Waste Management,
(part-time) Poznan Provincial Government

17. Both sides have recognized that the utilization of local consultants is indispensable for successful conduct of the Study within a limited study period and for making the master plan compatible with local conditions. As such, the Japanese side requested that the Municipality of Poznan City employ at its own expense a team of Polish local consultants. The Polish side, however, explained its financial difficulty to employ them and requested that JICA would cover the necessary cost for it. The Japanese side stated that this request from the Municipality of Poznan would be conveyed to JICA Headquarters. Utilization of local consultants will facilitate the transfer of planning know-how and the development of human resources required in the application of experiences to be acquired in Poznan to other Polish cities.
18. The Japanese side requested the Municipality of Poznan City to procure and install, at its own expense, an electronic-type weighbridge at the entrance of Biedrusko landfill, and also provide the team with two vehicles and drivers. The Municipality of Poznan City, however, explained its financial difficulties to respond to the first request except for installation of the weighbridge and asked JICA to cover other necessary cost for the procurement of the weighbridge. The Japanese side stated that this request would also be conveyed to JICA Headquarters. As far as the second request is concerned, the Municipality of Poznan City said that they would provide two vehicles and drivers as long as they are used for the conduct of the Study.
19. The Polish side requested the counterpart training in Japan. The Japanese side stated that this request would also be conveyed to JICA Headquarters.
20. The Japanese side requested the Polish side to inform the former of the plan and the progress of all the international cooperation activities for Poland in the field of Solid Waste Management in order to avoid the possible duplication of efforts.

Appendix

LIST OF THE ATTENDANTS

MINISTRY OF CONSTRUCTION:

Mr. Lech Jerczynski, Eng.	Director, Department of Housing and Urban Economy, Ministry of Construction
Mr. Zbigniew Rydzicki	Department Head Ministry of Construction
Ms. Zdzislawa Krzeminska	Chief Specialist Ministry of Construction

MINISTRY OF ENVIRONMENTAL PROTECTION:

Mr. Jan Klopotoski	Vice Director, Department of Air and Land S.P. Ministry of Environmental Protection, Natural Resources and Forestry
Mr. Jan Korytkowski	Chief Specialist, Department of Air and Land Surface Protection, Ministry of Environmental Protection, Natural Resources and Forestry

MUNICIPALITY OF POZNAN CITY:

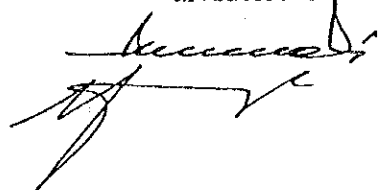
Mr. Ryszard Olszewski, M. Sc. Eng.	Vice Mayor, Municipality of Poznan City
------------------------------------	---

JICA PREPARATORY STUDY TEAM:

Dr. Kunitoshi Sakurai	Development Specialist Institute for International Cooperation, Japan International Cooperation Agency
Mr. Hajime Kanai	Official Economic Cooperation Bureau, Ministry of Foreign Affairs
Mr. Yoshio Yagi	Deputy Director Water Supply & Environmental Sanitation Department, Ministry of Health & Welfare
Mr. Osamu Kawashima	Technical Advisor Water Supply & Environmental Sanitation Department, Ministry of Health & Welfare
Mr. Satoru Hagiwara	Staff Social Development Study Department, Japan International Cooperation Agency
Mr. Hirochika Manabe	Manager International Department, Yachiyo Engineering Co.; Ltd.
Ms. Michi Tsukada	Interpreter Japan International Cooperation Service Center

EMBASSY OF JAPAN:

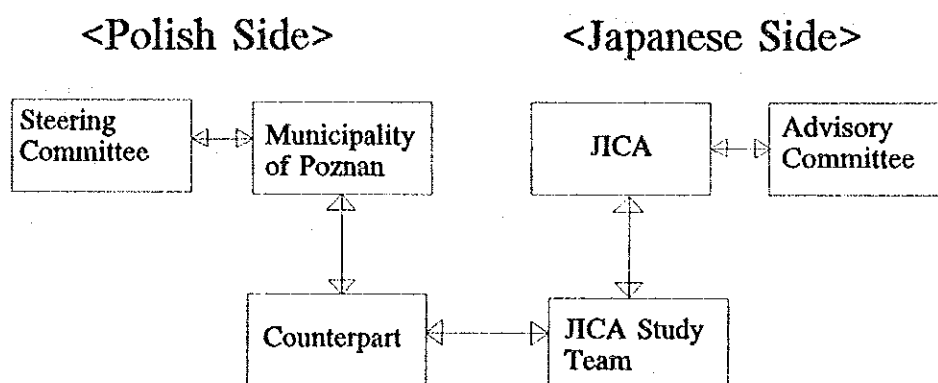
Mr. Satoru Takahashi	Second Secretary, Embassy of Japan
----------------------	------------------------------------



Appendix 2 : Study Organization and Persons Involved

2.1 Study Organization

The Study was conducted under the organization as shown in the figure below:



2.2 Persons Involved

1) Members of Polish Steering Committee

Chairman	Mr. Lech Jerczynski	Director, Department of Housing Policy and Urban Economy, Ministry of Construction
Vice Chairman	Mr. Ryszard Olszewski	Vice Mayor, Municipality of Poznan
Member	Dr. Leszek Borbrzyk	Mayor, Municipality of Lublin
Member	Mr. Jan Klopowski	Vice Director, Department of Air and Land Surface Protection, Ministry of Environmental Protection, Natural Resources and Forestry
Member	Mr. Zbigniew Rydzicki	Division Head of Housing Policy and Municipal Management, Ministry of Construction
Member	Dr. Stefan Zynda	Professor, A. Mickiewicz University

2) **Members of Polish Counterpart**

Leader	Mr. Jan Lemanski	Solid Waste Management Specialist, Department for Investment Affairs, Poznan Municipality
Counterpart	Mr. Boleslaw Stawicki	Director of the Department for Investment Affairs, Poznan Municipality
	Mr. Aleksander Grzeszczak	Senior Inspector for Solid Waste Management, Poznan Provincial Government
	Dr. Mieczyslaw KSENIAK	Director Lublin Foundation for Environmental Protection

3) **Other Polish Personnel Involved**

Mr. Slawomir NAJNIGIER	Vice Minister of Ministry of Physical Planning and Construction
Ph. D. Wojciech Szesny-Kaczmarek	Mayor, Municipality of Poznan

4) **Members of JICA Advisory Committee**

Chairman	Dr. Sachio NAITO	Chairman, Board of Trustees, Kanto Gakulin (School Corporation)
Member	Dr. Tohru FURUICHI	Senior Research Official, Development of Sanitary Engineering, the Institute of Public Health, Ministry of Health and Welfare
Member	Dr. Kunitoshi SAKURAI	Guest Professor of International Environmental Planning at Tokyo University

Member Mr. Haruo MATSUMORI Director of Department of Technical
Promotion, Japan Waste Research
Foundation

Member Mr. Yasushi SAKAI Chief of Iriezaki Treatment Plant,
Public Cleansing Bureau, Kawasaki
City Office

5) **Member of the Study Team**

Team Leader	Shinya KAWADA
Solid Waste Treatment System / Master Plan Manual	Susum SHIMURA
Collection and Transportation Processing and Disposal	Akira DOI
Industrial Solid Waste Management	Hiroshi KATO
Facility Design and Cost Estimation	Naoki KITAMURA
Solid Waste Composition Analysis	Jacob S. PEDERSEN
Organizational and Institutional Development	Toshihiko KAI
Project Evaluation	Nils KRISTENSEN
Environmental Impact Assessment	Kozo BABA
	Tsuyoshi ITO

JICA