

4. Minutes of Discussions

**MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON
THE GARBAGE COLLECTION AND DISPOSAL PROJECT
FOR THE IMPROVEMENT OF ENVIRONMENTAL CONDITIONS
IN QUETTA, PAKISTAN**

In response to the request of the Government of the Islamic Republic of Pakistan, the Government of Japan has decided to conduct the Basic Design Study on the Garbage Collection and Disposal Project for the Improvement of Environmental Conditions in Quetta, Pakistan (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent a study team to Pakistan, headed by Mr. Takashi Sasaki, Development Specialist, Institute for International Cooperation, JICA, to conduct the study and stay in Pakistan from August 18, 1996 to September 14, 1996.

The study team held discussions with the officials concerned of the Government of the Islamic Republic of Pakistan, and conducted a field survey at the study area. Both parties have confirmed the main items described in the attached sheets.

The team will proceed to further works and prepare the Basic Design Study Report.

August 25, 1996

Takashi Sasaki
Leader
Basic Design Study Team
JICA

Mohammad Abid Javed
Administrator
Quetta Municipal Corporation
Islamic Republic of Pakistan

Ghulam Mohammad Taj
Secretary
Local Government, Rural Development
and Agrovilles Department
Government of Balochistan
Islamic Republic of Pakistan

Shahid Humayun
Deputy Secretary
Economic Affairs Division
Ministry of Finance and
Economic Affairs
Islamic Republic of Pakistan

ATTACHMENT

1. OBJECTIVES

The objectives of the Project are to procure the equipment necessary for the efficient collection and disposal of solid waste and to improve the method and facilities designed to maintain environmental and sanitary conditions.

2. PROJECT SITE

Quetta Municipal Corporation

3. RESPONSIBLE AND EXECUTING AGENCY

Responsible Agency : (1) Local Government, Rural Development and Agrovilles Department,
Government of Balochistan

(2) Quetta Municipal Corporation

Executing Agency : Quetta Municipal Corporation

4. ITEMS REQUESTED BY THE GOVERNMENT OF PAKISTAN

After discussions with the Basic Design Study Team of JICA, the items as shown in ANNEX I were finally requested by officials concerned of the Islamic Republic of Pakistan. However, the final components of the Project, both quantity and specifications, will be decided after further studies are conducted.

5. JAPAN'S GRANT AID PROGRAM

(1) The Government of the Islamic Republic of Pakistan had understood Japan's Grant Aid Program as explained by the Basic Design Study Team (see ANNEX II).

(2) The Government of the Islamic Republic of Pakistan will take necessary measures as described in ANNEX III for smooth implementation of the Project, on condition that the Grant Aid extended by the Government of Japan is utilized for the Project.

6. SCHEDULE OF THE STUDY

(1) The Basic Design Study Team will carry out further studies in Pakistan until September 14, 1996.

- (2) Based upon the Minutes of Discussions and technical examination of the study results, JICA will prepare the Draft Basic Design Report in English and dispatch a mission to Pakistan to explain its contents around the end of October, 1996.
- (3) In the case that the contents of the Draft Basic Design Report are in principle accepted by the Government of the Islamic Republic of Pakistan, JICA prepare the final report and send it to the executing agency through the Government of the Islamic Republic of Pakistan around the end of December, 1996.

7. OTHER RELEVANT ISSUES

- (1) The Pakistani side proposed that inland transportation to Quetta should be included in the Grant. In case the proposal is accepted by the Government of Japan, necessary changes regarding inland transportation in item (6) d) of ANNEX II and item 7 of ANNEX III will be made while signing the Exchange of Notes.
- (2) The Basic Design Study Team explained that hazardous industrial waste and infectious waste are out of scope of this Basic Design Study.
- (3) The Pakistani side expressed needs of technical assistance, such as attendance in JICA training courses from Quetta Municipal Corporation relevant to this Project.

ANNEX 1. ITEMS REQUESTED BY THE GOVERNMENT OF PAKISTAN

Item	Quantity
For Collection	
(1) Multi Loader Trucks, 7 cum capacity	36
(2) Containers, 7 cum capacity	180
(3) Waste Compactor Trucks, 6 cum capacity	27
For Landfill Operation	
(1) Wheel Loaders	3
(2) Wheel Dozers	2
(3) Excavators	2
(4) Water Sprinklers	5
Tools	1 lot
Spare Parts	5%

ANNEX II. JAPAN'S GRANT AID SCHEME

1. Japan's Grant Aid Procedures

(1) The Japan's Grant Aid Program is executed by the following procedures.

- Application (Request made by a recipient country)
- Study (Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
- Determination of Implementation (Exchange of Notes between both Governments)
- Implementation (Implementation of the Project)

(2) Firstly, an application or a request for a project made by the recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to see whether or not it is suitable for Japan's Grand Aid. If the request is deemed suitable, the Government of Japan entrusts a study on the request to JICA (Japan International Cooperation Agency).

Secondly, JICA conducts the Study (Basic Design Study), using a Japanese consulting firm.

Thirdly, the Government of Japan appraises to see whether or not the Project is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA and the results are then submitted for approval by the Cabinet of Japan.

Fourthly, the Project approved by the Cabinet becomes official when pledged by the Exchange of Notes signed by both Governments.

Finally, for the implementation of the Project, JICA assists the recipient country in preparing contracts and so on.

2. Contents of the Study

(1) Contents of the Study

The purpose of the Study (Basic Design Study) conducted on a project requested by JICA is to provide a basic document necessary for appraisal of the project by the Japanese Government. The contents of the Study are as follows:

- a) to confirm background, objectives, benefits of the project and also institutional capacity of agencies concerned of the recipient country necessary for project implementation,
- b) to evaluate appropriateness of the Project for the Grant Aid Scheme from a technical, social and economical point of view,
- c) to confirm items agreed on by both parties concerning a basic concept of the project,
- d) to prepare a basic design of the project,
- e) to estimate cost involved in the project.

Final project components are subject to approval by the Government of Japan and therefore may differ from an original request.

Implementing the project, the Government of Japan requests the recipient country to take necessary measures involved which are itemized on Exchange of Notes.

(2) Selecting (a) Consulting Firm(s)

For smooth implementation of the study, JICA uses (a) consulting firm(s) registered. JICA selects (a) firm(s) through proposals submitted by firms which are

interested. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference made by JICA.

The consulting firm(s) used for the study is(are) recommended by JICA to a recipient country after Exchange of Notes, in order to maintain technical consistency and also to avoid possible undue delay in implementation caused if a new selection process is repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid?

The Grant Aid Program provides a recipient country with non reimbursable funds needed to procure facilities, equipment and services for economic and social development of the country under the following principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not in a form of donation or such.

(2) Exchange of Notes (E/N)

The Japan's Grant Aid is extended in accordance with the Exchange of Notes by both Governments, in which the objectives of the Project, period of execution, conditions and amount of the Grant, etc. are confirmed.

(3) "The period of the Grant Aid" means one Japanese fiscal year (commencing from 1st of April ending on 31st of March) which the Cabinet approves the Project for. Within the fiscal year, all procedure such as Exchange of Notes, concluding a contract with (a) consulting firm(s) and (a) contractor(s) and a final payment to them must be completed.

(4) Under the Grant, in principle, products and services of origins of Japan or the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

(5) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude into contracts in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. The "Verification" is deemed necessary to secure accountability to Japanese tax payers.

(6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

- a) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) to secure buildings prior to the installation work in case the Project is providing equipment,
- d) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- e) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts,

such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

(9) Banking Arrangement (B/A)

- a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.
- b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to pay issued by the Government of the recipient country or its designated authority.

**ANNEX III. NECESSARY MEASURES TO BE TAKEN BY THE
GOVERNMENT OF PAKISTAN IN CASE JAPAN'S GRANT AID IS
EXECUTED**

1. To provide a temporary Project office, warehouse and stockyard during the implementation of the Project.
2. To provide necessary facilities for the Project such as electricity and other incidental facilities.
3. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement:
 - (a) Advising commission of Authorization to Pay
 - (b) Payment Commission
4. To exempt materials and equipment brought into Pakistan for the Project from the payment of taxes and take necessary measures for customs clearance at the port of disembarkation.
5. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the Verified Contracts such facilities as may be necessary for their entry into Pakistan and stay therein for the performance of their work.
6. To maintain and use the equipment procured under the Grant properly and effectively.
7. To bear all expenses other than those to be borne by the Grant, necessary for the execution of the Project.
8. To ensure the necessary budget and personnel for the proper and effective implementation of the Project, including operation and maintenance of the equipment procured under the Grant.


MINUTES OF DISCUSSIONS
THE GARBAGE COLLECTION & DISPOSAL PROJECT
FOR
IMPROVEMENT OF ENVIRONMENTAL CONDITIONS
IN
QUETTA, PAKISTAN
(CONSULTATION ON DRAFT REPORT)

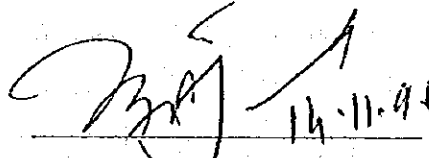
In August, 1996, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Garbage Collection & Disposal Project for Improvement of Environmental Conditions in Quetta, Pakistan (hereinafter referred to as "the Project") to the Islamic Republic of Pakistan. The Basic Design Study Team has prepared the draft report of the study through discussions, field survey, and technical examination of the results in Japan.

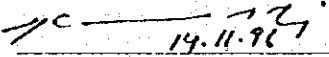
In order to explain and consult the Islamic Republic of Pakistan on the components of draft report, JICA sent to the Islamic Republic of Pakistan a draft report explanation team (hereinafter referred to as "the Team"), which is headed by Mr. Takashi Sasaki, Development Specialist, Institute for International Cooperation, JICA, and is scheduled to stay in the country from November 10 to November 17, 1996.


As a result of discussions, both parties confirmed the main items described on the attached sheets.

Quetta, November 14, 1996


Mr. Takashi Sasaki 14.11.96
Leader,
Draft Report Explanation Team,
JICA


Mr. Mohammad Abid Javed
Administrator,
Quetta Municipal Corporation
The Islamic Republic of Pakistan


Mr. Ghulam Mohammad Taj
Secretary,
Local Government, Rural Development
and Agrovilles Department,
Government of Balochistan
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Mr. Shahid Humayun
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Ministry of Finance and Economic Affairs
The Islamic Republic of Pakistan

ATTACHMENT

1. Component of draft report

The Government of the Islamic Republic of Pakistan has agreed and accepted in principle the components of the draft report proposed by the Team. The Basic Design policy of the Project is described in ANNEX-I.

2. Japan's Grant Aid system

(1) The Government of the Islamic Republic of Pakistan has understood the system of Japanese Grant Aid Scheme described in ANNEX-II explained by the Team.

(2) The Government of the Islamic Republic of Pakistan will take the necessary measures, described in ANNEX-III for smooth implementation of the Project on condition that Japan's Grant Aid is extended to the Project.

3. Further schedule

The Team will make the Final Report in accordance with the confirmed items described in ANNEX-I and send it to the Government of the Islamic Republic of Pakistan by the end of January, 1997.

4. Other relevant issues

(1) The Team explained importance of operation and maintenance of vehicles and equipment procured by the Project for smooth implementation and asked the Pakistani side to inspect their daily solid waste management operation. In addition, the Team addressed that JICA may dispatch an evaluation team to assess performance of the Project within a certain period after commencement of the Project.

(2) The Team suggested the QMC to introduce a sanitation tax for city's solid waste management operation and maintenance, and the QMC agreed to the introduction of a sanitation tax by the time when the Project is completed.

(3) The QMC mentioned that technical cooperation would be necessary to implement the solid waste management for the QMC effectively.

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(4) The authorities of Quetta Municipal Corporation/Government of Pakistan request the Government of Japan to accord its prior consent allowing procurement by the contractor from a country other than Japan or Pakistan if it deems necessary.

(5) Size and capacity of detachable container trucks can be reviewed if necessity arises due to operational reasons.

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ANNEX-I. BASIC DESIGN POLICY

The following basic design policy should be adopted in the Project.

Waste Collection and Transportation Plan

- a. The present concrete waste dumping pits should be replaced by a container system.
- b. Detachable container trucks should be used.
- c. For areas that are inaccessible to container trucks, open dump trucks should be used.
- d. Sprinkler vehicles should be used for road sprinkling and for cleaning the remaining waste after collection in dumping pits.

Waste Disposal Plan

- a. The present open-dumping system should be changed to a sanitary landfill system.
- b. Bulldozers should be used for waste compaction and topsoil leveling and wheeldozers for topsoil piling.
- c. Excavators should be used for a variety of tasks, including the leveling of piles of waste, the movement of waste on a large scale, for finishing topsoil banks, and for trenching of drainage on the landfill site.

Operation, Maintenance and Management Plan

- a. New equipment and materials (including tools and spare parts) should be introduced to meet new waste collection, transportation and disposal programs and to improve the maintenance and management capabilities.
- b. The fullest consideration should be given to the sharing of the maintenance and management cost burden incurred by the QMC in connection with the procurement of the equipment and materials.

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When the two Governments deem it necessary, the Grant may be used for the purchase of products or services of a third country origin.

However the prime contractors, namely, consulting, contractor and procurement firms, are limited

to "Japanese nationals". (The term "Japanese nationals" means Japanese physical persons or Japanese juridical persons controlled by Japanese physical persons.)

(5) Necessity of the "Verification"

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(6) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid, the recipient country is required to undertake necessary measures such as the following:

- a) to secure land necessary for the sites of the project and to clear and level the land prior to commencement of the construction work,
- b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
- c) to secure buildings prior to the installation work in case the Project is providing equipment,
- d) to ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
- e) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,
- f) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for

their entry into the recipient country and stay therein for the performance of their work.

(7) Proper Use

The recipient country is required to maintain and use facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for their operation and maintenance as well as to bear all expenses other than those to be borne by the Grant Aid.

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(8) Re-export

The products purchased under the Grant Aid shall not be re-exported from the recipient country.

(9) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority shall open an account in the name of the Government of the recipient country or its designated authority in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by Government of the recipient country or its designated authority under the contracts verified.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to pay issued by the Government of the recipient country or its designated authority.

ANNEX-III. NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF
PAKISTAN IN CASE JAPAN'S GRANT AID IS EXECUTED

1. To provide a temporary Project office, warehouse and stockyard during the implementation of the Project.
2. To provide necessary facilities for the Project such as electricity and other incidental facilities.
3. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement:
 - (a) Advising commission of Authorization to Pay
 - (b) Payment Commission
4. To exempt materials and equipment brought into Pakistan for the Project from the payment of taxes and take necessary measures for customs clearance at the port of disembarkation.
5. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the Verified Contracts such facilities as may be necessary for their entry into Pakistan and stay therein for the performance of their work.
6. To maintain and use the equipment procured under the Grant properly and effectively.
7. To bear all expenses other than those to be borne by the Grant, necessary for the execution of the Project.
8. To ensure the necessary budget and personnel for the proper and effective implementation of the Project, including operation and maintenance of the equipment procured under the Grant.

5. Cost Estimation Borne by the Recipient Country

**CAPITAL LOCAL COST OF PROJECT
(Non Recurring)**

Annex "A"

Covered area for vehicles :

QMC has land for parking of vehicles which will be received under grant-in-aid from Japan. Construction plan and cost estimation of parking sheds has been prepared by the consultant which is enclosed herewith. The construction cost will be borne by QMC from its own resources.

Covered Area for Workshop :

The present work shop facility is not adequate for the maintenance of the large size fleet, therefore QMC has decided to shift the workshop at Sariab Road, Construction plan and cost estimation prepared for this purpose is enclosed herewith. The Tools for this workshop will be received under Japanese grant-in-aid. The expenses for construction will be borne by QMC from its own resources.

Annex A

**PRELIMINARY COST ESTIMATION FOR CONSTRUCTION
OF WORKSHOP AT SARIAB ROAD - QUETTA**

Sr. No.	Description	Area Sq.m	Rate Sq.m	(Rupees)
				Amount
1	Workshop shed 8 nos. RCC column with ACC sheets, incl. workers Bathroom, O/H tank and under ground tank.	1,548	3,000	4,644,000
2	Parking garages for 83 vehicles RCC column with ACC sheets	2,527	2,500	6,317,500
3	Office Block	128	5,000	640,000
4	Guard Room	25	5,000	
5	Concrete Block flooring in open area of both workshop and Parking area	L.S		500,000
6	Water Supply System Providing pumps, internal plumbing, external piping, fixtures, etc.	L.S		250,000
7	Sanitary Drainage System Sewer pipes, Manholes, etc	L.S		300,000
8	Internal and external lightings	L.S		500,000
		Total cost		13,151,500

**DETAIL OF RECURRING EXPENDITURE IN
SUPPORT OF PROJECT**

Annex " B"

A. Manpower

QMC has made provision manpower to meet the project requirement. However, if there is any need in future QMC will manage from its own resources. The detail of manpower list is enclosed herewith.

B. Operating and Maintenance Cost

Operating and Maintenance Cost of Vehicles and Equipment is enclosed herewith.

Operating and Maintenance Cost

Sr. No.	Equipment	Qty	Consumption lit/per/day	No. of Days	Diesel (Rs.)	Oil & Lub. (Rs.)	Total (Rs.)
1	Detachable Container Truck (Multi Loader Truck)	36	1,080	360	2,935,440	587,088	3,522,528
2	Compactor Truck	27	540	360	1,467,720	293,544	1,761,264
3	Water Sprinkler	5	175	360	475,650	95,130	570,780
4	Wheel Loader	3	339	360	921,402	184,280	1,105,682
5	Wheel Dozer	2	150	360	407,700	81,540	489,240
6	Excavator	2	196	360	532,728	106,546	639,274
						Total	8,088,768

Operating and Maintenance Cost

Multi Loader Truck

The POL Consumption of Multi Loader Truck is based on the following criteria:

GVW 9 tons
Engine 160 PS

No. of Trips 3
Total Running 120 Kms.
Working days 360

Based on the above data the daily diesel consumption of one truck comes to 30 liters, thus:

$$36 \text{ trucks} \times 30 \text{ liters} = 1,080 \text{ liters/day} \times \text{Rs. } 7.55 = 8,154 \text{ per/day}$$

Therefore, Rs. 2,935,440 per/year

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 36 trucks the amount worked out is Rs. 587,088/-

Therefore total POL cost for 36 trucks is Rs. 2,935,440 + Rs. 587,088 = 3,522,528/-

Compactor Truck

The POL Consumption of Compactor Truck is based on the following criteria:

GVW 7 tons
Engine 110 PS

No. of Trips 3
Total Running 120 Kms.
Working days 360

Based on the above data the daily diesel consumption of one truck comes to 20 liters, thus:

$$27 \text{ trucks} \times 20 \text{ liters} = 540 \text{ liters} \times \text{Rs. } 7.55 = 4,077 \text{ per/day}$$

Therefore, Rs. 1,467,720 per/year

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 27 trucks the amount worked out is Rs. 293,544/-

Therefore total POL cost for 33 trucks is Rs. 1,467,720 + Rs. 293,544 = 1,761,264/-

Water Sprinkler

Water sprinkler will be used for sprinkling water at landfill site and it is assumed that 60% of its time would be consumed for sprinkling of water and 40% time would be utilised in carrying water from hydrant located in the city. During the sprinkling the would run most of the time in upper gear, thus the POL consumption would be more than the normal vehicle, the bases of POL calculation is as follows:

GVW 11 tons
 Engine 160 PS

Sprinkling time 4.8 hrs.
 Water transportation 3.2 hrs.

Total Running 120 kms.
 Working days 360

Based on the above data the daily diesel consumption of one truck comes to:

a. **Sprinkling :**

2 kms per liter x 10 kms./day = 5 liters/day/vehicle
 5 Liters x 5 trucks = 25 liters/day x Rs. 7.55 = Rs. 188.75
 Rs. 188.75 x 360 days = Rs. 67,950/- per year

b. **Water Transportation**

The water will be transported from the hydrant located in the city.

5 trucks x 30 liters = 150 x Rs. 7.55 = 1,132.50 per/day
 Rs. 1,132.50 x 360 = Rs. 407,700 per/year

Therefore, a + b = 475,650/-

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 05 trucks the amount worked out is Rs. 95,130/-

Therefore total POL cost for 5 trucks is Rs. 475,650 + Rs. 95,130 = 570,780/-

Wheel Loader

Wheel Loader will be working for removing the excavated cover material and for covering the garbage at Sanitary Landfill Site. The operating cost of wheel loader is worked out on following bases:

Engine : 140 HP

The actual operating time of machine is estimated to be 5.6 hours, thus the fuel consumption is estimated to approx. 113 liters/day for one unit.

$3 \text{ units} \times 113 \text{ liters} = 339 \text{ liters/day} \times \text{Rs. } 7.55 = \text{Rs. } 2,559.45 \text{ per day.}$

$\text{Rs. } 2,559.45 \times 360 \text{ days} = \text{Rs. } 921,402/- \text{ per year.}$

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 3 Wheel Loaders the amount worked out is Rs. 184,280/-

Therefore, POL cost for 3 wheel loaders is worked out to be Rs. 921,402 + Rs. 184,280 = Rs. 1,105,682/-

Wheel Dozer

Wheel Dozer will be working for dozing the excavated cover material and for covering the garbage at Sanitary Landfill Site. The operating cost of wheel dozer is worked out on following bases:

Engine : 160 HP

The actual operating time of machine is estimated to be 4.5 hours, thus the fuel consumption is estimated to approx. 75 liters/day for one unit.

$2 \text{ units} \times 75 \text{ liters} = 150 \text{ liters/day} \times \text{Rs. } 7.55 = \text{Rs. } 1,132.50 \text{ per day.}$

$\text{Rs. } 1,132.50 \times 360 \text{ days} = \text{Rs. } 407,700/- \text{ per year.}$

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 2 Wheel Dozers the amount worked out is Rs. 81,540/-

Therefore, POL cost for 2 wheel dozer is worked out to be Rs. 407,700 + Rs. 81,540 = Rs. 489,240/-

Excavator

Excavator will be working for excavating the trench for filling the garbage, and for excavation of cover material for garbage at Sanitary Landfill Site. The operating cost of excavator is worked out on following bases:

Engine : 90 - 100 HP

The actual operating time of machine is estimated to be 7.0 hours, thus the fuel consumption is estimated to approx. 98 liters/day for one unit.

$2 \text{ units} \times 98 \text{ liters} = 196 \text{ liters/day} \times \text{Rs. } 7.55 = \text{Rs. } 1,479.80 \text{ per day.}$

$\text{Rs. } 1,479.80 \times 360 \text{ days} = \text{Rs. } 532,728/- \text{ per year.}$

Oil and Lubricant are calculated based on 20% of total fuel consumption, thus for 2 Excavators the amount worked out is Rs. 106,546/-

Therefore, POL cost for 2 Excavator is worked out to be Rs. 532,728 + Rs. 106,546 = Rs. 639,274/-

Bases of Calculation

- **The POL Consumption of Equipment depends on the brand and type of engine. Therefore, the calculation of diesel consumption is based on average consumption and may vary accordingly.**

Salaries for the propose manpower

Sr. No.	Designation	Nos. to be employed	Pay Scale	Salary per month	(Rs.)
					Total Amount per year
1	Driver	80	6	2,535	2,433,600
2	Foreman	2	11	3,207	76,968
3	Diesel Mechanic	10	9	3,060	367,200
4	Helpers	20	3	2,070	496,800
5	Hydraulic Engineer	2	17	7,360	176,640
6	Auto Electrician	2	8	2,860	68,640
7	Turner	2	7	2,695	64,680
8	Welders	2	7	2,695	64,680
9	Black Smith	2	7	2,695	64,680
10	Washerman	4	1	1,770	84,960
11	Fabricators	2	8	2,860	68,640
Landfill Site					
12	Supervisor	2	5	2,390	57,360
13	Sweepers	10	1	1,770	212,400
Total					4,237,248

Summary of Local expenditure Recurring/Non Recurring

Annex "C"

A. Recurring Expenditure

i. Operating and Maintenance Cost	Rs. 8,088,768
ii Salaries	Rs. 4,237,248
Total	Rs. 12,326,016

B. Non recurring Expenditure

Banking charges	Rs. 1,900,000
Clearing charges	Rs. 1,000,000
Const. Of Landfill site	Rs. 27,000,000
Const. Of Parking shed and W/shop	Rs. 13,000,000
Total	Rs. 42,900,000

QMC will bear this expense, the detail of proposed budgetary provision year wise is as follows:

1995-96

Construction of Parking shed Rs. 2.0 million

1996-97

Construction of Parking shed Rs. 4.4 million
Construction of W/shop Rs. 4.7 million

1997-98

Construction of Landfill site Rs. 13.5 million
Banking charges Rs. 1.9 million
Clearing charges Rs. 1.0 million

1998-99

Construction of Landfill site Rs. 13.5 million
Construction of office, etc.,
at workshop Rs. 2.2 million

Total Rs. 43.2 million

Note : 0.3 million of 42.9 million estimated.

Detail of vehicles/equipment with cost

Annex "D"

Sr. No.	Description	Qty	Rate Per Unit Rs. in Million	Total Cost in Rs.
	For Collection			
1.	Multi Loader Trucks	36	2.7	97.2
2.	Containers 7 cum. Cap.	180	0.255	46.0
3.	Garbage Compactors 6 cum. Cap.	27	2.222	60.0
	For Dumping Site			
4.	Wheel Loaders	03	5.0	15.0
5.	Wheel Dozers	02	5.0	10.0
6.	Excavators	02	6.5	13.0
7.	Tools for Workshop	Lot		6.5
10.	5% Spare Parts for vehicles	Lot		9.75
			Total	Rs.257.45

(Rupees Two Hundred Fifty Seven million four hundred fifty thousand only)

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