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LOCAL DEVELOPMENT II URBAN PROJECT

Submitted to
USAID / CAIRO

Submitted by
WILBUR SMITH ASSOCIATES

in association with

**PUBLIC ADMINISTRATION SERVICE
DEVELOPMENT CONSULTING OFFICE**

**DELOITTE AND TOUCHE
ENGINEERING AND GEOLOGICAL
CONSULTING OFFICE**

**INTERIM REPORT
on
O&M IN ALEXANDRIA**

Prepared for H.E. the Governor of Alexandria

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I. PURPOSE

1. As the intensive technical assistance under the LD II Project will be terminated by June 1992, the technical assistance contractor (TAC) finds it essential to report to H.E. Alexandria Governor on the current status, achievements and problems of O&M activities in order to give a clear picture of the Alexandria fleet and the needs to keep the fleet in good order.
2. Main topics of this report are:
 - 2.1 Garages and workshops construction and renovation programs.
 - 2.2 Development of the organization and staffing of a complete and effective O&M hierarchy in the Governorate.
 - 2.3 Garages and workshops management and TAC support:
 - o Preventive Maintenance (PM) planning and programs;
 - o Repair planning and programs;
 - o Shop equipment and tools;
 - o Annual financial needs to keep and 80% fleet availability; and
 - o Spare parts warehousing systems.
 - 2.4 Income generation and privatization and El-Amreya pilot project.
 - 2.5 Conclusions and recommendations.

II. GARAGES AND WORKSHOPS CONSTRUCTION AND RENOVATION PROGRAMS

1. Both the NUS and LD II projects financed the first phase of the garages and workshop construction programs, which covers the governorate's six districts. Table 1 shows the status of these six district facilities.

Table 1

Facility Name	District	Construct. Cost in L.E.	Current Status	Remarks
Ras El-Soda	El-Montaza	562,474	Completed	Cost covers only construct. completion
El-Amreya	El-Amreya	1,125,080	Completed	----
Moharram Bey Zonal Garage	Central, Gomrok, West, and Emergency	2,626,000	Completed	Part of the Central and Gomrok fleets are not removed to new facility
Semouha	East	962,000	Not yet completed	Allocations not sufficient. FY 91 grant will cover the total cost
Total Allocations		5,275,554		

2. The second phase may include the upgrading (or transfer) of the Central Workshop in El-Hadra, and the upgrading of the old West District Garage for the use of the road directorate garage and workshop.
3. Upon the request of H.E. the Alexandria Governor, a preliminary study on the transfer of the Central Workshop to a new site at the outskirts of the City to avoid hazards that would occur in El-Hadra area. A new site in the industrial area in Moharram Bey was proposed. No action has been taken till now. However, the Central Workshop could be renovated and work could start once the Central and Gomrok fleets move to their new sites in Moharram Bey Zonal Garage. A consultant may be applied to start working on the needed renovations.

III. ORGANIZATION AND STAFFING OF THE O&M HIERARCHY

1. Three years ago, when new facilities were about to be completed, TAC in cooperation with the concerned governorate officials, developed a complete set of organization charts for district garages and workshops, zonal workshop in Moharram Bey, the Central Workshop, and an O&M governing body at the governorate level. Proposed organizations have been accepted and staffing is going on this basis.
2. Unfortunately, approval of the COAO has not been obtained. Accordingly, new vacancies are not created and staffing is not completed.
3. Recently, a Central Department for Cleaning and Beautification (CDCB) has been formed. All district garages and workshops and the Zonal Workshop in Moharram Bey are included in this department.
4. In several TAC's reports, formation of a Central Department for Maintenance (CDM) at the Governorate-level was proposed. Its function would be planning, coordinating and controlling all maintenance activities, needs and resources in the governorate. The CDM would have direct control of the Central Workshop and garage, while only technical authority on zonal and district garages and workshops.

Formation of both a CDCB and a CDM would bring the governorate closer to an Alexandria Cleaning and Beautification Authority which could control both departments. This would also ensure good control of operation and maintenance activities.

Attached are the proposed organization charts for O&M in Alexandria (Appendix A).

5. In the O&M needs seminar held in Alexandria in December 1990, TAC presented a communication chart on the O&M hierarchy and the proposed reporting forms and systems. TAC sees it essential to implement such systems in order that O&M needs, plans and control would be effective. Governorate H.Q. would have access to accurate information on the central fleet status and O&M needs. Appendix "B" includes the proposed communication chart and the recommended O&M forms.
6. Shortage of capable engineers, supervisors, mechanics and semi-skilled labor, badly affects O&M activities. Table 2 shows the urgent needs in skilled laborers in districts, CDCB and the Central Workshop.

IV. MAINTENANCE MANAGEMENT

1. Preventive Maintenance (PM)

In all new garages, PM programs have been developed and implemented at different rates. Intensive PM OJT has been provided. Performing regular PM for vehicles and equipment has proven very effective, and has had excellent impact on improving fleet availability, both in districts and in the emergency fleet. The number of simple, current, medium and major repairs has also decreased substantially.

Table 2

URGENT NEEDS IN SKILLED LABRCRERS

TRADE	URGENT NUMBERS NEEDED								
	Montaza	East	Central	West	Gomrok	Anreya	Emergency Fleet	Central Workshop	Sub-Total
Skilled Mehanic (Diesel)	4	4	4	3	3	1	4	8	31
Blacksmith	1	2	-	-	-	2	-	2	7
Vehicle Electrician	1	2	-	-	2	3	2	-	10
Body Repair	-	2	1	1	1	1	1	1	8
Welder	-	4	-	-	1	-	1	-	6
Tires Repair	2	2	2	2	2	2	6	-	18
Painters	1	2	-	1	1	2	1	-	8
Greasing Labor	-	4	2	2	3	2	2	1	16
Turning Labor	-	2	-	1	1	1	-	-	5
Filing labor	1	2	-	-	1	2	1	1	7
Grand Totals	10	26	9	10	15	16	18	13	117

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2. **Repair Programs**

- 2.1 Due to lack of qualified engineers, skilled labor, and spare parts, workshops are not capable of conducting all of the needed repairs. Major defects in vehicles and equipment have accumulated since 1979. The condition of the defective units is deteriorating and many pieces of equipment need overhauling in specialized dealers workshops.
- 2.2 Repair plans are not implemented successfully because of the above mentioned reasons, the budget allocation is also insufficient for procurement of imported and locally produced spare parts; and for performing overhauls and major repairs.
- 2.3 USAID allocated L.E. 1,027,000 for a special project to upgrade the huge CIP fleet. A sum of L.E. 465,000 was designated for the purchase of locally produced spare parts. The rest of the Special Project is being spent on overhauling 10 garbage collection vehicles only as repair and spare parts prices increased substantially in the last two years.
- 2.4 Also a \$ 400,000 worth (residuals of the CIP) was allocated for procurement of imported spare parts in order to support needed repairs.
- 2.5 The two spare parts purchases are about to be consumed, and now, the fleet is in great need of spare parts, both imported and locally produced.

3. **Shop Equipment and Tools**

Except for the Central Workshop, most shop equipment and tools are available in all garages and workshops. Sufficient budget (about L.E. one million) has been allocated for procurement of shop equipment and tools from USAID grants. Table 3 shows the total O&M budget allocations that was expended between FY 87 and FY 90.

4. **Spare Parts Warehousing Systems**

- 4.1 "Kardex" warehousing systems have been introduced in the Central Workshop and in all new garages and workshops. Those systems are in good order.
- 4.2 An effective spare parts inventory control system has not been developed yet. An adequate continuous flow of spare parts, both imported and local, is not insured. Annual spare parts needs have to be defined and an adequate budget should be allocated.

5. **Computerization**

A computerized inventory program for warehouses has been developed by TAC. One computer is ready for Alexandria and will be placed in the Central Workshop. Users in Alexandria Governorate (12 participants) received DOS training. More training is still needed before the computer is erected in place.

6. **Actual Fleet Status**

- 6.1 Table 4 shows the total actual fleet status including various types of pickups and transport vehicles. On-the-road availability is almost 60%. Approximately 163 pieces need complete overhauling either in the Central Workshops or in specialized dealers workshops. These are accumulated defects since 1979 when the first shipment joined the governorate fleet. Approximately 153 pieces need major repairs.

Table 3

ALEXANDRIA GOVERNORATE

TOTAL LD II O&M ALLOCATIONS

FY 1987-1991

FY	O&M ALLOCATIONS IN L.E. 1,000					
	Local Spare Parts	Repairs in Private Sect.	Garages Construction	Veh. & Equip. Purchase	Shop Equip. & Tools	Total
1987			1,641		476	2,117
1988			1,096			1,096
1989	235			2,360	154	2,749
1990	170	295	775	1,325	90	2,655
1991*	510	90	360	650		1,610
Special Project	465	600				1,065
TOTALS	870	895	3,512	3,685	720	9,682

* Governorates received in 1991, only 40% of the total grant.

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Table 4

ALEXANDRIA FLEET STATUS

as of October 1991

#	ITEM	QUANTITY	I.O.	NEEDED REPAIR			AVAIL- ABILITY %
				Level 1	Level 2	Level 3	
1	Refuse Truck Truxmore	103	68	-	17	18	66
2	Refuse Truck Leach	72	49	2	9	12	68
3	Refuse Truck Calabrise	21	11	-	5	5	52
4	Refuse Truck Dahatsu	1	1	-	-	-	100
5	Sweeper-Elgin	7	5	-	1	1	71
6	Dump Truck	207	117	9	63	38	57
7	Loader (including 12 new pieces)	65	45	7	7	6	69
8	Refuse Truck Ford 350	18	18	-	-	-	100
9	Water Tank Truck	26	15	-	4	5	58
10	Grader	2	2	-	-	-	100
11	Bulldozer	20	12	3	4	1	60
12	Roller	29	16	5	6	2	55
13	Air Compressor (I.R)	6	6	-	-	-	100
14	Fork lift	8	8	-	-	-	100
15	Various Types of Pick-up & Cars	440	225	67	73	75	51
16	Land Fill Compector	3	3	-	-	-	100
	TOTAL	1,028	619	93	153	163	60.2

- 6.2 Implementing PM programs in new facilities improved the fleet availability in districts (e.g. availability is around 80% in El-Amreya) and decreased the number of simple and level 1 repairs which gave district workshops the chance to meet these repairs. Table 4 shows that while 153 major repairs and 163 complete overhauls are required, only 93 level 1 repairs need to be done at this time.
- 6.3 Lack of spare parts, skilled labor, qualified garage and workshop managers are the main reasons for the significant number of accumulated defects. As an example, while availability in El-Amreya is kept around 80%, in Ras El-Soda it reached 67% in 1990, then it fell down to 56% in 1991 when the TAC maintenance experts direct involvement in the day to day operation of the workshop ended.
- 6.4 To upgrade the CIP fleet status, a special repair program should be developed, and sufficient budget allocated. This program could be implemented in 2-3 years. Total cost estimate of this program is approximately 7 million pounds to return L.E. 80 million worth of equipment to the road.

7. Annual Financial Needs

- 7.1 Alexandria Governorate owns a huge fleet of heavy vehicles and engineering equipment, besides a big number of transport vehicles and pick ups. This fleet has a value of approximately L.E. 125 millions according to current prices. Prices have increased dramatically in the last five years. As an example a new Truxmore costs L.E. 750,000. (including customs direct from local dealers) whereas it costs approximately L.E 70000 five years ago (not including customs as it was imported directly by the GOE).
- 7.2 To keep this fleet at a reasonable 85% on-the-road availability, 5% of the total current value of the fleet has to be spent annually on the procurement of spare parts, (both imported and locally produced), and on performing complete overhauls of annual new defects. This amounts to about L.E. 6 millions annually
- 7.3 Accumulated defects will need extra allocations in order to bring defected pieces back on the road again. An approximate estimate for overhauling accumulated defects is L.E. 7 millions. This overhauling program could be implemented in 2-3 years.
- 7.4 The first shipment of the garbage collection and utilities fleet was received in 1979 and the last shipment was in 1987 Table 5 indicates numbers and types of equipment received through the CIP,NUS and LD II projects and dates on which these pieces were put in operation. Aging pieces could be overhauled and their operational life would be increased. A replacement does, however, need to be developed and an adequate budget has to be allocated. A minimum of L.E. 6 millions should be allocated annually for replacement/procurement.
- 7.5 For the next three years (92-94), the following annual budget should be allocated:
 - o Procurement of imported spare parts for the USA made vehicles and equip. (most of the fleet) L.E. 1,650,000 (= \$500,000)
 - o Purchase of local spare parts (batteries, tires, filters, hoods, hoses, lights, glass, etc.) L.E. 1,500,000
 - o PM and repair materials (lubricants, paints, steel sections, leather, metal sheets, etc) L.E. 350,000

Table 5

USA MADE GARBAGE COLLECTION AND UTILITIES FLEET

YEAR RECEIVED	QUANTITY IN NUMBER	FINANCIAL SOURCE	TYPES OF VEHICLES & EQUIPMENT
1979	45	CIP	I.H./ Truxemore
1982	32	CIP	I.H./Leach
1984	4	CIP	I.H. Dump Trucks
1985	35	CIP	I.H./Truxemore
	4	CIP	Ford Dump Trucks
	3	CIP	I.H./Elgin Sweeper
1986	30	CIP	I.H./Leach
	5	CIP	I.H. Dump Trucks
1987	25	CIP	I.H./Truxemore
	4	CIP	I.H./Elgin Sweeper
	4	CIP	Ford Dump Trucks
	15	CIP	Ford Water Tank
1989	3	LD II	Land fill Compactor Dozer
1991	12	LD II	Loader Case
	18	LD II	Refuse Truck Ford F 350 (6 cubic yards)

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o Overhauling of newly
defected vehicles and
equipment L.E. 2,500,000

Total annual needs L.E. 6,000,000

o Complete overhauling
of one third of the
accumulated defective
vehicles and equipment
(for 3 successive years) L.E. 2,333,000

GRAND TOTAL ANNUAL BUDGET L.E. 8,333,000
(not including replacement)

7.6 Financing the above mentioned maintenance programs needs to gather all available resources to cover all these expenditures. Available resources are:

- o BAB II and III GOE budgets;
- o Cleaning treasuries;
- o Local and community development treasuries
- o USAID block grant; and
- o LD II maintenance allocations.

In all cases, districts should participate in financing maintenance needs, as implementing maintenance programs is for the benefit of districts.

V. INCOME GENERATION

1. To cover part of the cost of O&M activities, the Amreya District Chief developed an income generation pilot project to provide maintenance services to other governmental agencies and to both public and private sectors against payments. By law regulations have been issued and the pilot project is progressing well. The garage management is using the excess capabilities of the service station and the workshop to provide maintenance services after the daily official work hours.
2. On-the-road availability of the district fleet is kept high (80-83%) and providing services against payments did not hamper maintenance of the district fleet. Income generated is mostly spent on maintaining the workshop equipment; purchase of new equipment and spare parts; and on paying reasonable incentives to the garage staff.
3. Table 6 shows the income generated since the start of the pilot project in January 1990 up to date. The account shows the total income, the garage expenditures and the net profit which is kept as an asset in a special bank account. The pilot project is successfully managed and the income generated covers a reasonable part of the cost of O&M activities in the district garage.
4. El-Amreya pilot project is, hopefully, repeatable in both El-Ras El-Soda and Semouha garages. Maintenance services are needed in these areas. Ras El-Soda Garage needs to be put in good order to build up a good reputation prior to providing services to the public. Developing the management system and completing technical staff is a must.

VI. TAC SUPPORT TO ALEXANDRIA

The TAC O&M Team provided direct intensive support to O&M activities in Alexandria in all areas. Close cooperation with concerned officials at the Governorate-level and districts was fruitful. TA included:

Table 6

AMREYA GARAGE PILOT PROJECT
INCOME GENERATED BALANCE
FROM APRIL 1, 1990 TO SEPTEMBER 31, 1991

P E R I O D	TOTAL INCOME IN L.E.	GARAGE EXPENSES		INCENTIVE PAYMENTS		NET PROFIT IN L.E.
		in L.E.	% of Total Income	in L.E.	% of Total Income	
April 1, 90 - June 30, 90	5,445.00	89.75	1.65	862.00	15.83	4,493.25
July 1, 90 - Sept. 30, 90	10,087.75	7,496.00	74.31	1,422.50	14.10	1,169.25
Oct. 31, 90 - Dec. 31, 90	14,027.00	7,943.00	56.63	1,900.95	13.55	4,183.05
Jan. 1, 91 - March 31, 91	19,152.97	6,997.03	36.53	5,099.55	26.63	7,056.39
April 1, 91 - June 30, 91	24,233.97	19,199.10	79.23	5,279.10	21.78	- (244.23)
July 1, 91 - Sept. 30, 91	27,238.50	5,458.60	20.00	4,724.15	17.34	17,055.75
TOTAL	100,185.19	47,183.48	47.01	19,288.25	19.25	33,713.46

NB Total net income means the total income minus cost of materials used in repairs.

1. Construction Programs

O&M Team took a leading role in planning this program, preparation of garage layouts and the monitoring of the construction (both technically and financially).

2. Organization and Staffing

The O&M Team developed proposed organization charts for different O&M facilities defining responsibilities of each facility and proposed an effective communication system. All of these organizations have been accepted by governorate and districts officials and are actually adopted. Proposals for staffing have been submitted to different governorate departments.

3. Direct Management Support

Two maintenance experts provided direct support to garage managers in Ras El-Soda, Amreya and Moharram Bey as follows:

- Eng. Abdalla Shaat from Dec. 31, 1989 to May 31, 1991
(in both Ras El-Soda and Amreya Garages)
- Eng. Sayed Mostafa from March 11, 1991 to-date
(in Moharram Bey Zonal Garage)

Direct support included:

- o Implementing proposed organizations in garages.
- o Developing managers skills and management systems.
- o Develop and implement PM and repair programs and follow up implementation of these programs.
- o Develop Cardex run warehouses in the Central workshop and in new facilities.
- o Provide hands-on management and technical training in new facilities.
- o Assist garages in preparing annual O&M budgets and developing economic analysis of O&M activities in new facilities.
- o Assist Amreya District to start up the income generation pilot project.

4. Procurement of new equipment and Spare Parts

The O&M Team assisted the Central workshop management in preparing and reviewing specifications for the purchase of new vehicles and equipment. The O&M Team also assisted in preparing spare parts lists, parts descriptions and numbers of the needed spare parts.

5. Repairs in Dealers Workshops

The O&M Team assisted central and district garages managers in preparing bid documents and in negotiations with dealers. The O&M Team succeeded in obtaining substantial discounts in spare parts prices and repair costs.

6. Training

The TAC placed a great effort on training both in Egypt and in the USA. Training included seminars, courses and OJT. Table 7 shows the different courses that have been held and the number of trainees:

Table 7

TRAINING EFFORT IN ALEXANDRIA

as of end of December 1991

#	COURSE TITLE	TYPE OF TRAINING	COURSE DURATION IN DAYS	NUMBER OF TRAINEES	NUMBER OF TRAINEE DAYS
1	Garages Operation	Off-Shore in USA	15	2	30
2	Garages Management	Off-Shore in USA	15	2	30
3	P.M Training for different types of Vehicles and Engineer Equi.	OJT in Garages	4	300	1200
4	Cummins Engineers Overhauling	OJT in ADAT	10	2	20
5	Karjex Warehousing	OJT	20	13	260
6	Industrail Safty	In Garages	6	14	84
7	Procurment Management	Local Consise	10	23	230
8	Veh/Equi Operation	PVTD Course	6	8	48
9	Management Garages	Pimco Course	18	47	846
	TOTALS		104	411	2,748

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VI. CONCLUSIONS & RECOMMENDATIONS

1. Garages and Workshops Construction Program

- 1.1 Renovation or the transfer of the Central Workshops in El-Hadra is very important. The existing deteriorating facility cannot meet major repair needs for the Governorate fleet. It is also hazardous to the El-Hadra area.
- 1.2 The old garage of El-Shark district should be renovated and assigned a garage for the Road Directorate's fleet once the new district garage in Semouha is completed.

2. Organization and Staffing

- 2.1 A Central Maintenance Department should be formed at the Governorate-level to plan, coordinate and control maintenance activities in the whole Governorate.
- 2.2 The shortage of engineers, supervisors, skilled and semi-skilled labor is a serious problem that should be dealt with seriously.

3. Maintenance Management

- 3.1 On-the-road availability and the technical condition of Alexandria fleet needs to be upgraded. PM and repairs programs have to be implemented efficiently. Continuous supply of spare parts must be ensured. An effective spare parts control system has to be built.
- 3.2 O&M annual needs should be pre-planned annually. All financial resources should be gathered together in order to cover the Governorate grand annual O&M plan.
- 3.3 The CIP fleet procurement provided most of the garbage collection and utilities vehicles and equipment. The Governorate started to receive this equipment in 1979 and it now needs to start implementing a replacement program.

4. Income Generation

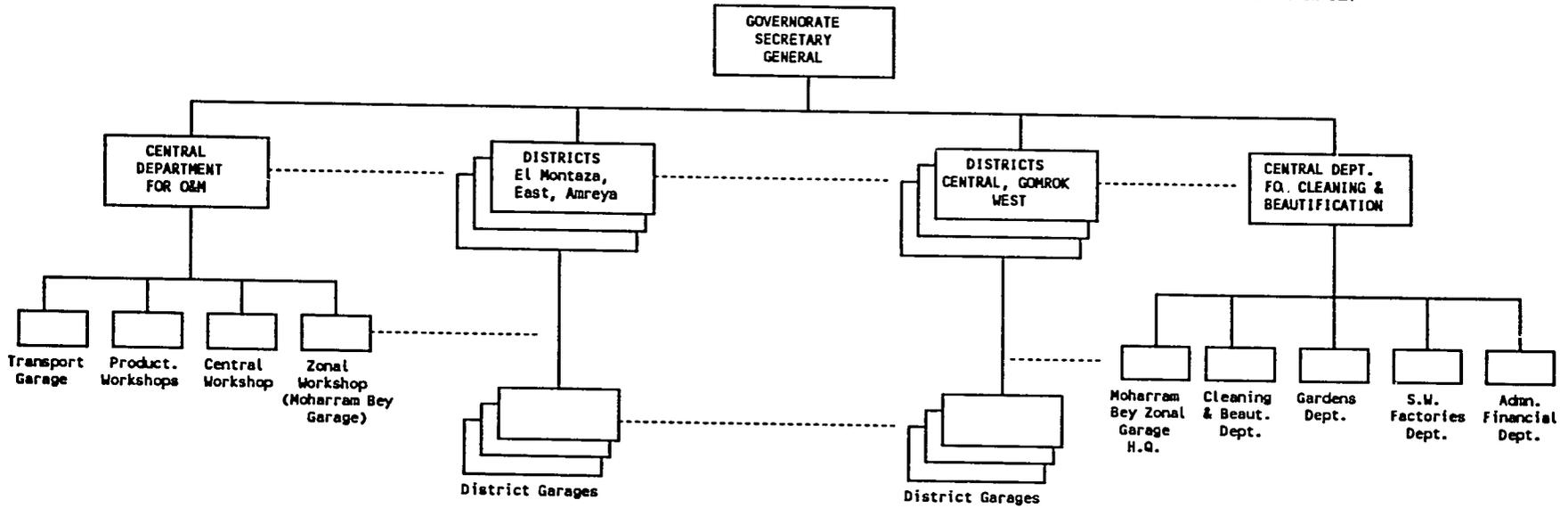
- 4.1 Income generation has become an essential issue. The LD II Project will be terminated by June 1992. Other funding resources have to be created.
- 4.2 El-Amreya pilot project is a good income generation example that could be repeated in both Ras El-Soda and Semouha garages. Necessary modifications and new ideas should be introduced.

APPENDIX A

ALEXANDRIA O&M HIERARCHY

PROPOSED ORGANIZATION CHARTS

CHART 1
PROPOSED ORGANIZATION FOR
THE O&M HIERARCHY



CENTRAL WORKSHOP RESPONSIBILITIES:

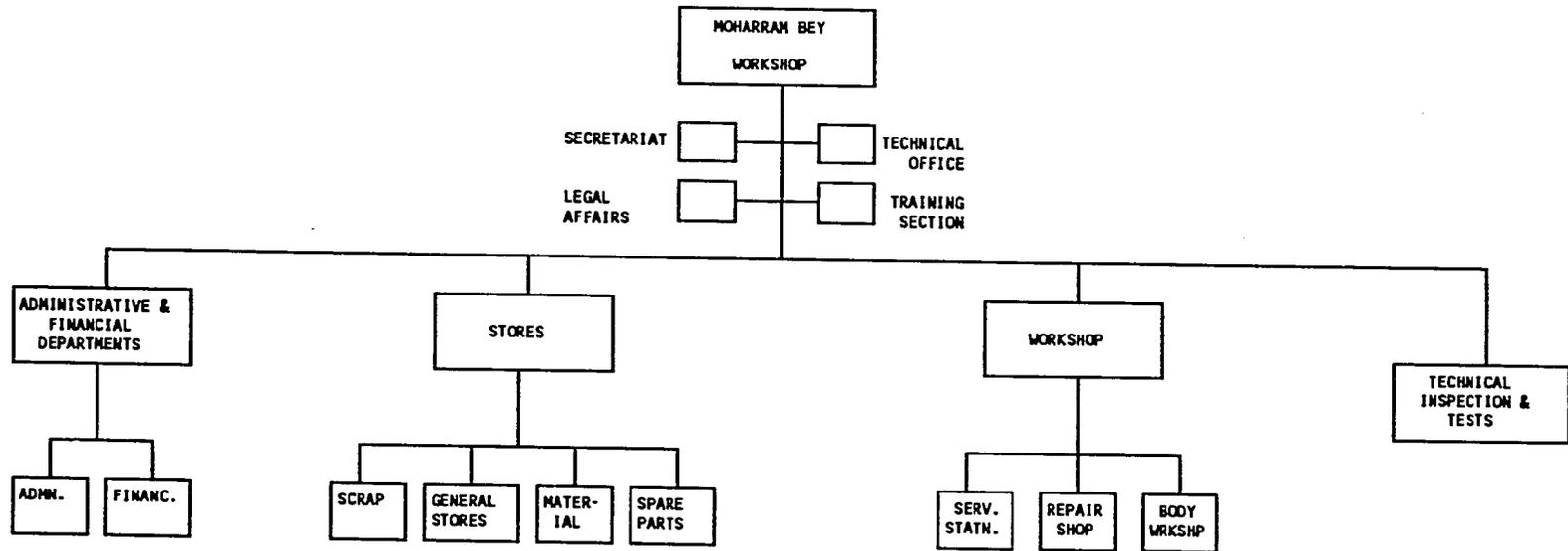
1. Develop P.M. and repair plans for all the Governorate vehicles and equipment in coordination with the Central Department for O&M, Moharram Bey Zonal Workshop, districts and other agencies in the Governorate.
2. Provide needed spare parts for level 2 & 3 (medium and major) repairs for all districts vehicles and equipment.
3. Procure needed spare parts for all P.M. and repair levels for vehicles and equipment for other Governorate agencies.
4. Do all major repairs for all districts vehicles and equipment either in the Central Workshop or in specialized workshops.
5. Do all P.M. and repair levels for all vehicles and equipment in agencies other than districts.
6. Inform districts and Moharram bey Zonal Workshop on repair time schedule.
7. Prepare monthly reports on status, P.M., repair activities and needs. Submit to Central Dept. for O&M.

MOHARRAM BEY ZONAL GARAGE H.Q. RESPONSIBILITIES:

1. Supervise and execute guarding and security measures in the Zonal Garage.
2. Manage refueling station to provide vehicles/equipment in Moharram Bey with fuels.
3. Do P.M. for all constructions in the facility.
4. Develop a fire fighting plan and do periodic inspection of fire fighting equipment and teams.

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PROPOSED ORGANIZATION FOR
MOHARRAM BEY ZONAL WORKSHOP



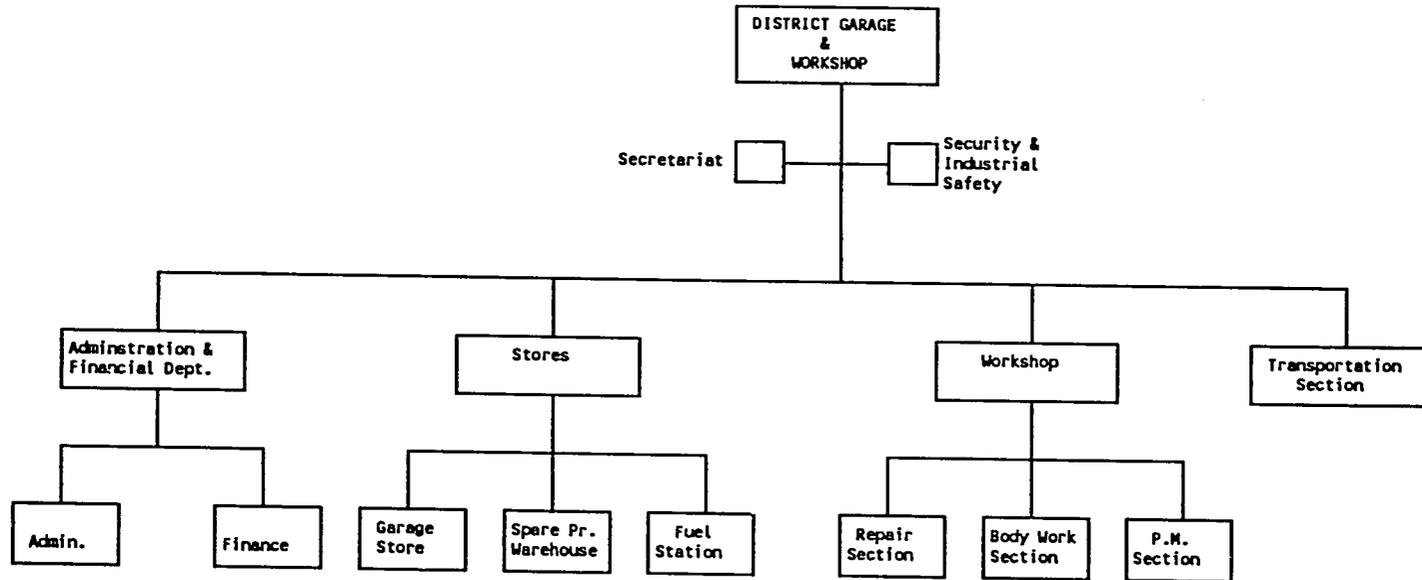
RESPONSIBILITIES OF MOHARRAM BEY ZONAL WORKSHOPS:

1. Prepare P.M. and repair plans in coordination with districts located in Moharram Bey Zonal Garage.
2. Procure and obtain spare parts needed for P.M. and repair levels 1 & 2 (running and medium) for all vehicles and equipment in the Zonal Garage.
3. Do all P.M. levels for all vehicles and equipment in Moharram Bey Garage.
4. Do levels 1 & 2 repairs for vehicles and equipment in Moharram Bey Garage.
5. Coordinate and execute P.M. level 4 and level 2 (medium) repairs for vehicles and equipment of other districts.
6. Prepare monthly reports on status and P.M. and repair activities and needs to both the Central Department for O&M and to the Central Workshop.
7. Inform districts in Moharram Bey on P.M. and repair time schedules.
8. Inform other districts on P.M. level 4 and medium repairs time schedule.

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PROPOSED ORGANIZATION CHART FOR DISTRICT GARAGES
EL MONTAZA, EAST & EL AHREYA

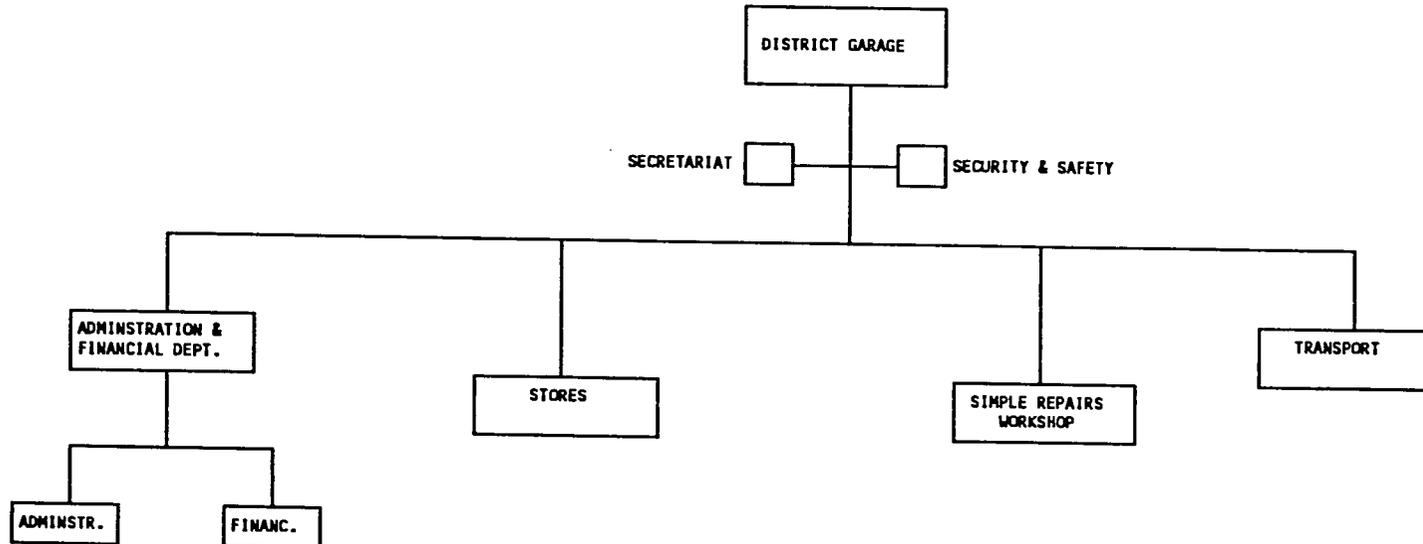


DISTRICT GARAGE RESPONSIBILITIES

1. Execute operation plans assigned by District Chief.
2. Develop P.M. and level 1 repair plans for the District Workshop
3. Procure needed spare parts for P.M.
4. Prepare monthly reports on status and condition of District fleet and O&M needs. Report to the District Chief and the Central Dept. of O&M.
5. Do P.M. level 1, 2 and 3 for the District Fleet.
6. Do all simple and level 1 (running) repairs for the District fleet.
7. Coordinate levels 2 and 3 (medium and major) repairs and level 4 P.M. with both Moharram Bey and Central Workshops.

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PROPOSED ORGANIZATION CHART FOR DISTRICT GARAGES
CENTRAL, WEST AND GOMROK



DISTRICT GARAGE RESPONSIBILITIES:

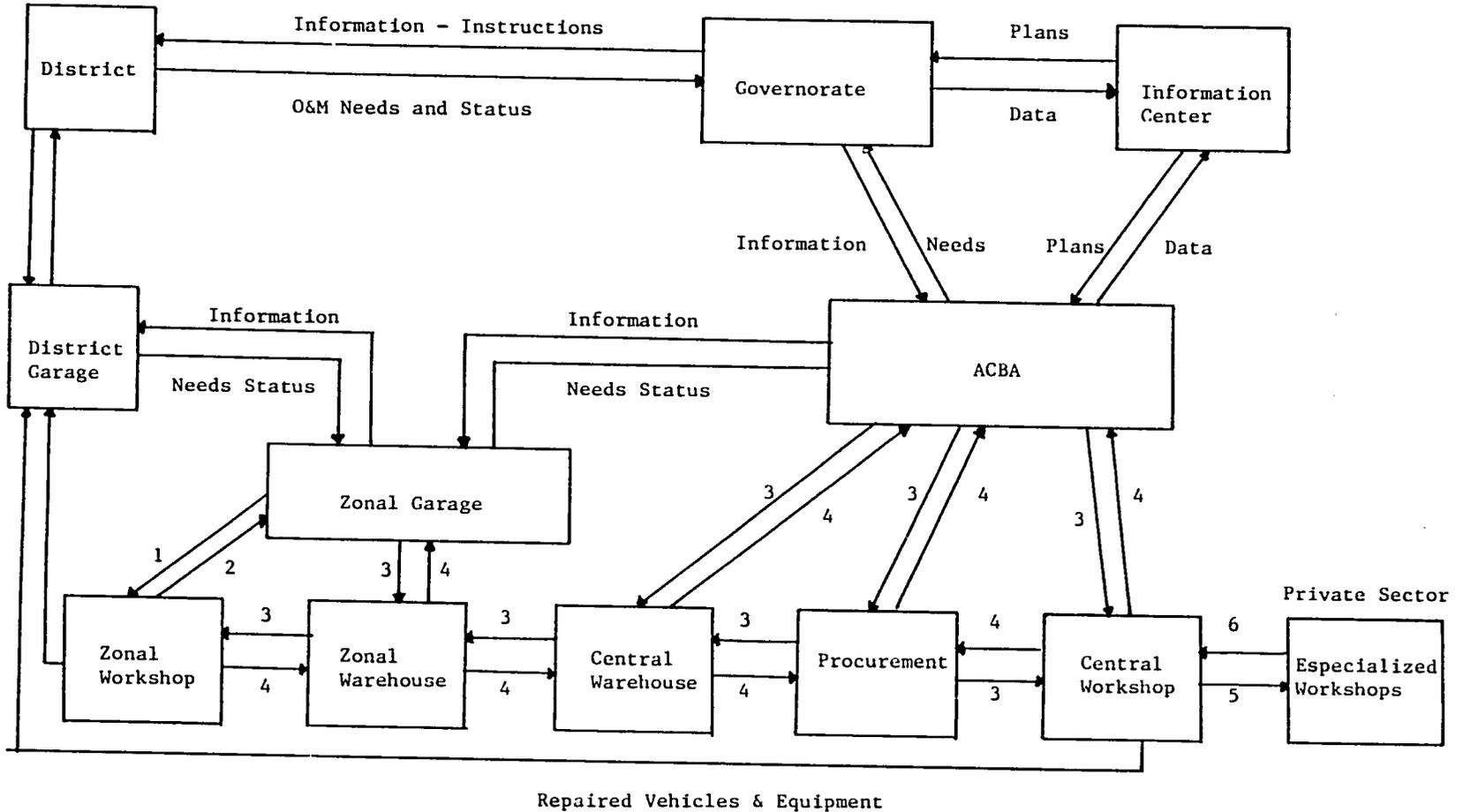
1. Execute operation plans assigned by District Chief.
2. Prepare P.M. plans and submit to Moharram Bey Zonal Workshop.
3. Prepare monthly reports on status and condition of the district fleet and O&M needs and submit to District Chief and the Zonal Workshop.
4. Do simple repairs including tire repairs, charging batteries and emergency repairs
5. Coordinate execution of P. M. and repairs with both Zonal Workshop and Central Workshop.

APPENDIX B

O&M COMMUNICATION SYSTEM AND REPORTING FORMS

Key

1. Repair Schedules
2. Progress and Needs
3. Spare Parts Status and Needs
4. Repair Contracts
5. Repaired Vehicles & Equipment



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FUEL AND OIL MONTHLY CONSUMPTION

Governorate : _____

District : _____

Date : _____

S.N	Plate No.	Veh. Name	Type	Total No. Work. KM/HRS		Fuel Consumption in Liters		Oil Consumption in kg			Total Monthly Cost in L.E	Remarks
				Planned	Actual	Gasoline	Diesel	Engine	Hydraul	Brake		
Grand Total												

Fuel Oil Prices in L.E :

- Liter of Gasoline = L.E
- Liter of Diesel = L.E
- KG of Eng. Oil = L.E
- KG of Hydr. Oil = L.E
- Brake Oil = L.E

Signature : _____ Position : _____ Name : _____

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