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**Report No. 2  
Institutional Structure  
and Organization**

**Solid Waste and Public  
Clean-Up Project  
Governorate of Alexandria,  
Egypt**

**USAID Contract LAG-I-  
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July 31, 2000

*Prepared for*  
Governorate of Alexandria, Egypt  
and  
United States Agency for  
International Development

*Prepared by*  
Abt Associates Inc.  
The Institute for Public-Private  
Partnerships

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Governorate of Alexandria, Egypt

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# CONTENTS

<u>Section</u>	<u>Page</u>
Introduction.....	1
Solid Waste and Public Clean-Up Project Management Structure.....	1
GOA Level Contract Management .....	1
District Level Monitoring .....	2
Contract Management Personnel Requirements .....	2
Program Administrator .....	3
Job Description: Program Administrator .....	3
Required Qualifications: Program Administrator .....	4
Legal Staff .....	4
Job Description: Legal Counsel.....	4
Required Qualifications: Legal Counsel.....	5
Accounting Staff .....	5
Job Description: Staff Accountant .....	5
Required Qualifications: Staff Accountant.....	6
Public Awareness/Communications Coordinator .....	6
Job Description: Public Awareness/Communications Coordinator.....	6
Required Qualifications: Public Awareness/Communications Coordinator .....	7
Project Engineer .....	8
Job Description: Project Engineer .....	8
Required Qualifications: Project Engineer .....	9
Landfill Monitor .....	9
Job Description: Landfill Monitor .....	10
Required Number of Monitors: Landfill .....	12
Required Qualifications: Landfill Monitor .....	12
Equipment and Supply Needs .....	12
Composting Facility/Transfer Station Monitor.....	12
Job Description: Composting Facility/Transfer Station Monitor .....	13
Required Number of Monitors: Composting Facility/Transfer Station.....	14

**CONTENTS (Continued)**

<b><u>Section</u></b>	<b><u>Page</u></b>
Required Qualifications: Composting Facility/Transfer Station Monitors.....	15
Equipment and Supply Needs .....	15
Medical Waste Treatment Center Monitor .....	16
Job Description: Medical Waste Treatment Center Monitor .....	16
Required Number of Monitors: Medical Waste Treatment Center .....	17
Required Qualifications: Medical Waste Treatment Center Monitor .....	17
Equipment and Supply Needs .....	17
District Level Service Monitoring .....	18
District Manager .....	18
Job Description: District Manager .....	19
Required Qualifications: District Manager .....	19
Required Number: District Managers.....	19
Equipment and Supply Needs .....	19
Waste Collection and Public Clean-Up Service Monitors.....	20
Job Description: Waste Collection and Public Clean-Up Service Monitors .....	20
Required Number of Monitors: Waste Collection and Public Clean-Up Service Monitors .....	23
Required Qualifications: Waste Collection and Public Clean-Up Service Monitors .....	23
Equipment and Supply Needs .....	24
Industrial Waste Collection Monitors .....	24
Job Description: Industrial Waste Collection Monitor .....	25
Required Number of Monitors: Industrial Waste Collection.....	26
Required Qualifications: Industrial Waste Collection Monitor .....	26
Equipment and Supply Needs .....	26
Medical Waste Collection Monitors .....	27
Job Description: Medical Waste Collection Monitor .....	27
Required Number of Monitors: Medical Waste Collection.....	28
Required Qualifications: Medical Waste Collection Monitor .....	28
Equipment and Supply Needs .....	29
Complaints and Fines Coordinators.....	29
Job Description: Complaints and Fines Coordinators .....	29
Required Staff: Complaints and Fines Coordinators .....	30

**CONTENTS (Continued)**

<b><u>Section</u></b>	<b><u>Page</u></b>
Required Qualifications: Complaints and Fines Coordinators .....	30
Equipment and Supply Needs .....	30
Public Awareness/Communications Specialist .....	31
Job Description: Public Awareness/Communications Specialist .....	31
Required Staff: Public Awareness/Communications .....	31
Required Qualifications: Public Awareness/Communications Specialist .....	32
Equipment and Supply Needs .....	32
Conclusions .....	32

**LIST OF EXHIBITS**

Exhibit 1: Contract Management and Monitoring Organizational Chart

**LIST OF TABLES**

Table 1: Residential/Commercial Waste Collection and Public Clean-Up Project Monitor Allocation Worksheet

**REPORT NO. 2**  
**CONTRACT MANAGEMENT**  
**INSTITUTIONAL STRUCTURE AND ORGANIZATION**

**Solid Waste and Public Clean-Up Project**  
**Governorate of Alexandria, Egypt**

**INTRODUCTION**

The Governorate of Alexandria (GOA) will be responsible for contract management and monitoring of the contractor(s) selected to provide Solid Waste and Public Clean-Up Project services. This oversight and monitoring will require the designation of an organization responsible for the enforcement of the contract terms and conditions in a way that expedites progress toward achievement of project objectives.

The GOA has made a decision to disband the existing solid waste management organization and form a new organization specifically charged with contract management. This report describes the anticipated institutional structure of the new organization based on a review of legal requirements and discussion with senior staff of the GOA. In addition, it provides suggested types and levels of staffing for contract management and monitoring of contractor service performance.

**SOLID WASTE AND PUBLIC CLEAN-UP PROJECT MANAGEMENT STRUCTURE**

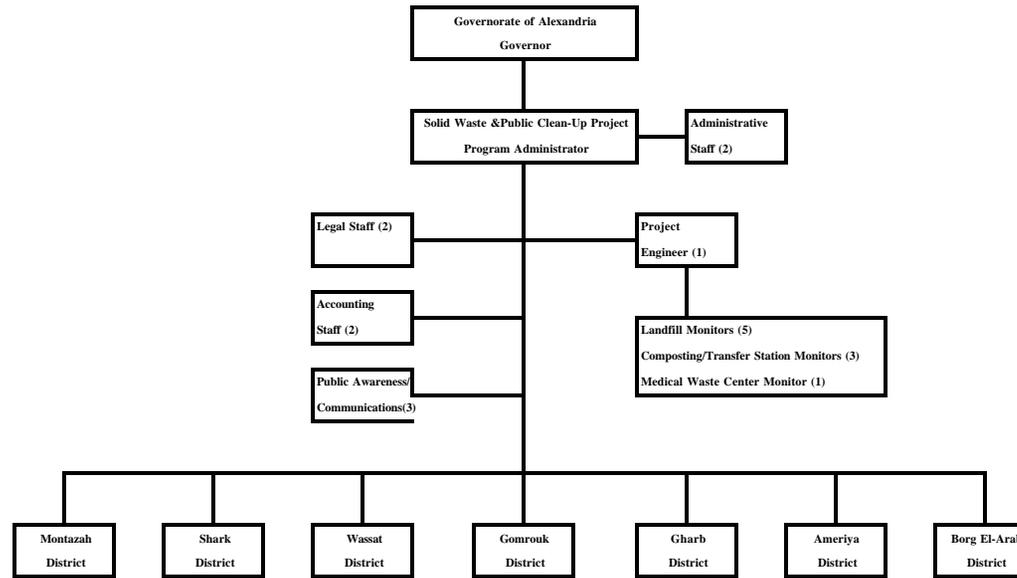
A two-tiered organizational structure as illustrated in Exhibit 1 is proposed to facilitate the GOA's objective of maximizing contractor accountability and overall compliance with contract terms and specifications. The first tier, at the GOA level, is designed to provide the over all clean-up project contract administration and all organizational support functions. The second tier, at the District level, encompasses the actual field monitoring of all contractor services.

**GOA Level Contract Management**

The GOA level staff and the District Managers will report directly to the Program Administrator. The Program Administrator will then report to the Governor. The staff at the GOA level has been organized to provide the following:

- Organizational management and strategic direction of this new Solid Waste and Public Cleaning Department within the GOA.
- Contract management and performance evaluation of the contractor providing the services.
- Functional organizational support services including the following:

EXHIBIT 1: CONTRACT MANAGEMENT AND MONITORING ORGANIZATION CHART



Manager and Administrative Staff	2	2	2	1	2	2	1
Waste Collection and Public Clean-Up Monitors	20	27	24	6	12	9	2
Industrial Waste Collection Monitors	6	3	1	1	4	2	2
Medical Waste Collection Monitor	1	1	1	1	1	1	0
Complaints and Fines Coordinator	3	3	3	1	2	1	1
Public Awareness/Communications	1	1	1	1	1	1	1
<b>Total Per District</b>	<b>33</b>	<b>37</b>	<b>32</b>	<b>11</b>	<b>22</b>	<b>16</b>	<b>7</b>
Subtotal for All Districts	158						
Subtotal for Governorate	20						
<b>Total Staff</b>	<b>178</b>						

- Legal.
- Accounting.
- Public Awareness/Communications.
- Technical.

Job descriptions and recommended qualification requirements for each position are presented in detail in the discussion of *Contract Management Personnel Requirements* in this report.

### **District Level Monitoring**

It is anticipated that some or all of the contracted services will be deployed on a District-by-District basis. This expectation, together with the existence of GOA office space in each District, makes the division of monitoring and oversight responsibilities on a District basis a logical alternative.

Field monitors working at the District level will perform evaluation of contractor compliance with technical and operational specifications. District Managers, who in turn will report directly to the Program Administrator, will supervise field monitoring and all other District level activities.

Job descriptions, required qualifications, proposed number of staff, and equipment and supply needs are discussed in detail in *District Level Service Monitoring*.

### **CONTRACT MANAGEMENT PERSONNEL REQUIREMENTS**

The management level employees described in this section are the leaders of the Solid Waste and Public Cleaning Department that will be developed in the GOA to oversee the contractor. The GOA level management structure includes the following:

- Program Administrator
- Legal Staff
- Accounting Staff
- Public Awareness/Communications Coordinator
- Project Engineer
- Landfill Monitors
- Composting Facility/Transfer Station Monitors
- Medical Waste Treatment Center Monitor

The monitors will be located at the fixed facility they will be monitoring. The GOA should request that the contractor provide office space and a phone line for the monitors use at the facility.

The remainder of the GOA level staff will be housed in offices provided by the GOA. Their specific equipment and supply needs would include the following:

- Office space within the GOA.
- Immunizations to protect health from possible contact with all types of waste.
- Safety gear including eye protection, hard hats, and steel-toed boots.
- Computer and office furniture.
- Camera and film.
- Access to transportation.

### **Program Administrator**

Implementation of the full scope of solid waste and public cleaning services is expected to require an annual budget exceeding 200 million LE. Contract management and monitoring will require a staff of approximately 180 professionals as described in subsequent sections of this report. To ensure the greatest possible return on its substantial investment in these highly visible services, it is recommended that the GOA appointment an experienced administrator to provide overall management of the project and the new Solid Waste and Public Cleaning Department.

### **Job Description: Program Administrator--**

The GOA has committed substantial resources to the development of a comprehensive long-term plan to significantly improve the quality of solid waste and public cleaning services. Implementation and administration of the plan in a manner most favorable to the GOA will require professional management expertise. The person in this position will be responsible for the ultimate success or failure of the plan. Specifically, the Program Administrator will be responsible for the following:

- Providing strategic program direction for the new Solid Waste and Public Cleaning Department.
- Establishing program goals and individual service objectives.
- Managing and directing a staff of approximately 180 professionals.
- Developing and meeting an annual budget.
- Evaluating funding sources to determine the adequacy of funds to pay for the services being provided by the contractor.
- Preparing and submitting reports to the Governor and the Chairman of the Local Popular Council pertaining to the status of project implementation, the adequacy of funding, and the performance of the contractor.
- Providing testimony at local and national legislative and regulatory hearings.
- Making formal presentations at national and international conferences.
- Promoting the project goals and objectives to the public.

- Taking all practical and necessary steps to maximize service contractor compliance with contract terms and conditions.
- Motivating high levels of performance from staff by providing leadership based on employee empowerment and incentives.

**Required Qualifications: Program Administrator--**

It is widely acknowledged that successful implementation of the Solid Waste and Public Clean-Up Project is one of the GOA’s highest priorities. This substantial political investment is complemented by an equally substantial financial investment on the part of all GOA residents, businesses, and industries. Successful implementation and ongoing execution will yield enormous economic benefits to be shared by these same service recipients. Thus, it is critical that the project be provided with the highest practicable level of leadership experience. To carry out the duties described at the level of performance desired will require qualifications including, but not limited to, the following:

- A minimum of 10 years of experience in an upper private or public management position.
- A degree in engineering, business, public administration, or physical science.
- Responsibility for annual budgets exceeding 50 million LE.
- Management of a staff of at least 50 technical, financial, or legal professionals.
- Excellent communications skills including public speaking experience.
- Aptitude for learning a second language.
- Experience providing testimony at legal, regulatory, or legislative hearing.
- Previous involvement in civic endeavors either paid or on volunteer basis.
- A proven track record of achieving organizational goals on time and on budget.
- Strong leadership qualities.

**Legal Staff**

The solid waste and public clean-up contract management organization will require legal expertise for evaluating contractor compliance with contract terms and for provision of internal legal services. It is envisioned that one attorney and an administrative assistant will suffice for the organization needs.

**Job Description: Legal Counsel--**

The duties and responsibilities of the legal counsel will include, but not be limited to, the following:

- Evaluating contractor compliance with contract terms.
- Preparing documentation for imposition of contractor penalties and fines.
- Developing and reviewing vendor contracts.

- Conducting research on environmental law.
- Representing the interests of the Solid Waste and Public Cleaning Department in all legal matters.
- Negotiating contract revisions with the contractor as needed.
- Drafting legislation or amendments to existing GOA laws.
- Advising organization staff of legal rights and obligations in dealing with the public.
- Providing counsel to the Project Administrator on as needed basis.

**Required Qualifications: Legal Counsel--**

The Legal Counsel qualifications and experience should include, but not be limited to, the following:

- A thorough knowledge of national and governorate level laws and regulations.
- Major contract (i.e., exceeding 50 million LE) evaluation and negotiation experience.
- Experience with human relations laws and contracts.
- Minimum of 5 years experience doing similar types of work.
- Experience enforcing civil penalties and fines.
- Ability to draft legislation needed to improve project performance.
- Ability to work in a changing environment and adapt to changes.

**Accounting Staff**

The solid waste and public clean-up contract management organization will require accounting services on a full time basis. It is envisioned that one accountant and an administrative assistant will suffice for the organization needs.

**Job Description: Staff Accountant --**

- Receive and manage dedicated fees from the electric utility.
- Manage the audit of the electrical utility fee assessment database.
- Process contractor invoices.
- Process invoices from vendors and suppliers.
- Maintain responsibility for staff payroll and all fringe benefits.
- Perform analyses to ensure that future costs and cost recovery levels remain in balance.
- Prepare annual budget.

### **Required Qualifications: Staff Accountant--**

The Accountant's qualifications and experience should include, but not be limited to, the following:

- A thorough knowledge of national accounting rules and regulations.
- Minimum of 5-years experience doing similar types of work.
- Experience managing and collecting fees.
- Experience reviewing and processing large invoices.
- Experience handling multiple assignments and completing on schedule.
- Experience in developing pay role for a large organizations.
- Ability to develop budgets and evaluate fee programs for adequacy.
- Experience preparing annual budgets in excess of 50 million LE.

### **Public Awareness/Communications Coordinator**

Project goals will be extremely difficult to achieve without the widespread support and cooperation of GOA residents, businesses, and visitors. Maintaining a clean Alexandria that is an inviting tourist destination will depend more on changing waste generator habits than on the proficiency of the service contractor(s).

Public awareness and cooperation with cleanup objectives is essential for success. Specialized resources must be committed to winning public support and modifying existing waste handling behavior. It is recommended that the GOA employ a Public Awareness/Communications Coordinator in the Program Administrator's office and an additional communications staff person in each District office.

### **Job Description: Public Awareness/Communications Coordinator--**

The duties and responsibilities of the Communications Coordinator will include, but not be limited to, the following:

- Development, implementation, and management of GOA-wide Solid Waste and Public Clean-Up Project awareness and promotion campaign.
- Development of requests for proposals from public relations firms.
- Development of communication work plans and budgets.
- Development and implementation of a strategy to minimize potential public opposition to siting of medical waste treatment center and new sanitary landfill.
- Direction and coordination of District communications staff activities.
- Prepare news articles and press releases.

- Plan and organize events to promote the Solid Waste and Public Clean-Up Project.
- Develop written materials for dissemination through schools and other civic organizations.
- Seek out and/or create opportunities for project publicity.
- Provide the Program Administrator with materials for public appearances and formal presentations.
- Work with news media (i.e., TV, radio, and newspapers) to optimize project coverage and publicity.
- Coordinate activities with contractor public relations personnel to optimize consistency and impact of messages.
- Prepare communications program status reports for Program Administrator.
- Prepare and deliver presentations at government and business seminars.

**Required Qualifications: Public Awareness/Communications Coordinator--**

Ultimate project success will be largely dependent upon the ability to fill the Public Awareness/Communications Coordinator position with an experienced public relations professional. Minimally acceptable qualifications should include, but not be limited to, the following:

- Advanced degree in communications, journalism, marketing, or public relations.
- Ten years experience; five with managerial responsibilities in marketing or public relations.
- Exemplary oral and written communication skills.
- Portfolio of past client work including descriptions of campaigns for at least three major product or service firms.
- Working knowledge and experience with Alexandria media markets.
- Demonstrated creativity and vision.
- Demonstrated ability to provide leadership in a team environment.
- Speaking proficiency in more than one language.
- Demonstrated ability to perform under pressure and deal with potential media crises.

## **Project Engineer**

The GOA Solid Waste and Public Clean-Up Project includes capital investment in construction of fixed facilities, such as transfer stations, a medical waste treatment center, a new sanitary landfill, rehabilitation of three composting facilities, and closure of the existing open dumps. The timely and technically proficient design, site development, construction, equipment installation, and day-to-day operation of these fixed facilities play a major role in the integrated solid waste management system.

The size and importance of the GOA's capital investment warrant professional technical oversight of the contractor. It is recommended that the GOA employ an engineer to supervise individual technical monitors at each of the fixed facilities and report directly to the Program Administrator.

### **Job Description: Project Engineer--**

The Project Engineer will be charged with ensuring that each solid waste handling and disposal facility is designed, constructed, and operated in accordance with contract specifications, approved design plans, all applicable EEAA regulations, and in the best interests of the GOA. The duties and responsibilities of the Project Engineer will include, but not be limited to, the following:

- Oversight of fixed facility design, construction, and operation to ascertain compliance with good engineering practices and all applicable governmental health, safety, and environmental regulations.
- Preparing technical oversight work plans and budgets for the Program Administrator's review and approval.
- Manage technical oversight program within approved budget.
- Provide direction and coordinate activities of technical monitors located at each fixed facility.
- Oversight and consulting with the contractor's technical staff during design, construction, and operation of the fixed facilities.
- Prepare and submit periodic technical reports to the Program Administrator.
- Review and summarize reports from technical monitors for the Program Administrator.
- Consult with legal, financial, and communications staff on as needed basis to enhance and facilitate project progress toward goals.
- Identify potential technical problems and cooperate with contractors in development of mutually acceptable remedies.

- Provide testimony at legal, legislative, and regulatory hearings.
- Make technical presentations at regional and national conferences.
- Maintain technical proficiency and knowledge of emerging technologies through training and participation in professional forums.

**Required Qualifications: Project Engineer--**

Exemplary performance of the duties listed above will require recruitment of an engineer with the following minimal qualifications:

- University degree in civil, mechanical, sanitary, or environmental engineering.
- Five years of work experience; at least two in a field related to design of waste management or other environmental protection facilities.
- Good oral and written communication skills.
- Managerial experience.
- Budget preparation and administrative experience.
- Excellent computer skills.
- Foreign language skills to facilitate working with contractor.
- Tolerance for exposure to potentially adverse environmental working conditions.
- Diplomacy and negotiating skills.
- Demonstrated ability to work in a team environment.

**Landfill Monitor**

Landfill Monitors will report to the Project Engineer. To assure that the landfill is constructed in a manner that will minimize potential impacts on the environment, field monitors should be recruited and trained in time to be present during sanitary landfill construction and control system installation, as well as the closure of the existing open dumps.

The probability of daily and long-term compliance with contract specifications will be greatly enhanced through intensive GOA monitoring during the final design approval process, site development, and landfill operation.

## **Job Description: Landfill Monitor--**

Duties will begin with oversight of site development and continue with day-to-day monitoring of all operations when the landfill begins to accept waste. The activities of the Landfill Monitor will include the following:

- During construction and operation of the new sanitary landfill:
  - Monitor and enforce public and private usage restrictions.
  - Study and become fully knowledgeable of design and construction plans.
  - Monitor preparation of first cell to ensure:
    - Excavation to approved design depth.
    - Preparation of a sloping floor to enhance the collection of leachate and promote storm water drainage.
    - Installation of liner material specified in the Environmental Impact Assessment submitted and approved by EEAA.
  - Monitor installation of leachate control and treatment systems.
  - Monitor installation of gas detection system.
  - Monitor installation of groundwater monitoring system.
  - Monitor construction of the following:
    - Entrance, access, and internal roads.
    - Surface water control system.
    - Support buildings including office, scale house, and maintenance shop.
    - Outgoing truck wheel washing area.
  - Monitor installation of scales.
  - Monitor landscaping and aesthetic signage at entrance.
- During all operating hours the Landfill Monitor will be responsible for the following:
  - Monitoring weighing procedures to ensure completeness and accuracy.
  - Monitoring roads for maintenance conditions that facilitate access and egress.

- Monitoring working face operations to ensure compliance with width and depth specifications, good compaction practices, and daily cover.
  - Evaluating if leachate control and gas detection systems are progressing as needed.
  - Ensuring that gas detection and groundwater monitoring samples are taken in compliance with monitoring schedules.
  - Monitoring leachate treatment operations and performance.
  - Monitoring contractor compliance with its plan for maintaining supplies and spare parts.
  - Reviewing contractor reports summarizing landfill quantities and operations prior to contractor submittal to the Project Engineer.
  - Attending regularly scheduled meetings with the Project Engineer to report on sanitary landfill conditions and discuss potential operational changes.
  - Preparing and submitting daily, weekly, and monthly activity reports to the Project Engineer.
  - As required prepare defensible documentation of contractor non-compliance with contract terms for penalty assessment.
  - Maintaining open communication and a positive working relationship with landfill contractor personnel.
- During closure of the existing open dumps, the Landfill Monitor will be responsible for the following:
    - Monitoring the progress on the open dump closure in relation to the schedule provided by the contractor.
    - Evaluating if the contractor is closing the open dumps in accordance with the plan presented in the contract.
    - Evaluating payment requests of the contractor and providing opinions to the Project Engineer.
    - Monitoring the construction methods being used to determine if they are consistent with those provided by the contractor in the closure plan.
    - Preparing daily, weekly, and monthly progress reports on the status of construction for submittal to the Project Engineer.

### **Required Number of Monitors: Landfill--**

The sanitary landfill is scheduled to be open twenty hours per day seven days per week. To ensure contractor commitment to continuous preservation of the environment during all operating hours will require a total of five sanitary landfill monitors.

### **Required Qualifications: Landfill Monitor--**

The Landfill Monitors should have university degrees in engineering, preferably civil or environmental. The overall qualifications for the Landfill Monitors should include the following at a minimum:

- University degree; preferably in civil or environmental engineering.
- Computer skills including Word and Excel.
- Good oral and written communication skills.
- Proven ability to learn a secondary language.
- Sincere interest in public works and/or environmental protection.
- Excellent health and physical condition.
- Tolerance for working under adverse environmental and weather conditions.
- Tact and diplomacy skills.
- Mechanical aptitude.

### **Equipment and Supply Needs --**

The Landfill Monitors will be carrying out their responsibilities in a wide range of working conditions ranging from the office to the landfill working face. To empower them to carry out their duties efficiently they will require the following equipment and supplies:

- Uniforms including outdoor wear that identifies them as GOA employees.
- Immunizations to protect health from possible contact with all types of waste.
- Safety gear including eye protection, hard hats, and steel-toed shoes.
- First aid supplies.
- Offices space at the landfill and access to employee locker and shower area.
- Computer.
- Camera and film.
- Final design plans and drawings.
- Contractor's complete installation and operational plans and schedules.
- Measuring tools including basic survey equipment.
- Pre-printed forms for daily, weekly, and monthly reports on activities and observations.

### **Composting/Transfer Station Facility Monitor**

The three composting facilities in the GOA have the capacity to process approximately 25 percent of the household/domestic wastes collected daily. Optimal utilization of this capacity

can make a significant contribution to extending the life of the newly constructed sanitary landfill while at the same time provide substantial benefit to the agricultural sector.

The contractor has been asked to rehabilitate, outfit, and operate all three facilities in a way that will maximize these potential benefits. Intensive monitoring of the composting facility rehabilitation and operation activities can significantly enhance the probability of capturing this potential.

Although not a requirement, it is anticipated that the contractor will be constructing one or more transfer stations for more cost-effective transportation of waste from collection areas to the composting facilities and the sanitary landfill. If so, infrequent monitoring of these facilities can be incorporated into the activities of the composting facility monitors.

### **Job Description: Composting Facility/Transfer Station Monitor--**

Composting facility monitoring should include all of the following activities in order to optimize their benefit:

- Oversee installation of machinery and equipment during rehabilitation for compliance with schedule, specifications, and acceptable installation procedures.
- Monitor compliance with the contractor's plan for recruiting and training management personnel, technicians, and laborers.
- Monitor daily operations in each of the following areas.
  - Receiving and weighing.
    - Ensure that all incoming waste is weighed accurately.
    - Observe incoming waste to identify the need for more compatible waste sources.
    - Ensure that all output recovered material and residues are weighed.
  - Pre-processing.
    - Require sufficient contaminant removal.
    - Require that optimal moisture levels be maintained.
    - Identify need for carbon/nitrogen ratio adjustment.
  - Composting Phase.
    - Are elevated temperatures being maintained?
    - Is the oxygen supply adequate?
  - Curing.

- Ensure that the contractor is allowing sufficient time for final curing and production of high value compost.
- Marketing.
  - Ensure that contractor tests for heavy metals, pathogens, excess salts and nutrient content, and makes the appropriate sourcing or processing adjustments.
  - Ensure that processing policies/procedures are promoting high value product production.
- Overall.
  - Are the operational parameters being monitored and the methods used to maintain these parameters within the design limits?
  - Are all residuals including rejects, process residuals, and air emissions being properly addressed?
  - Is the contractor meeting promised levels of throughput and recovery?
- Monitor maintenance procedures and scheduling for compliance with requirements to keep equipment and facility in good condition.
- Monitor contractor commitment to maintaining the entire site in a state of cleanliness and aesthetic compatibility with surroundings.
- Meet at regularly scheduled intervals with plant management to discuss observed operational deficiencies and efforts that the contractor will take to rectify them.
- Attend meetings of all composting facility monitors to facilitate transfer of best practices from one facility to the others.
- Prepare forms and reports documenting work activity on a daily, weekly, and monthly basis for submittal to Project Engineer.
- Develop reporting format and review compliance forms from contractor.
- Prepare documentation for support of fines assessed for non-compliance of contractor with contract terms.

**Required Number of Monitors: Composting Facility/Transfer Station-**

It is recommended that one monitor be assigned to each of the three composting facilities. The high level of GOA funded investment for contracted rehabilitation of these facilities; together with their potential to significantly extend landfill life justify such a commitment. Since the

facilities operate more than one shift per day, the monitoring schedule should be adjusted periodically to allow oversight of all work shifts.

### **Required Qualifications: Composting Facility/Transfer Station Monitors--**

The composting facilities utilize a combination of mechanical and biological processes that will have to be monitored by the GOA representative. To maximize their effectiveness it is essential that the monitors have training in the biological sciences and working knowledge of the processing technologies. Thus, the following qualifications are recommended as the minimum requirements for filling the position of composting facility monitor:

- University degree: preferably in biological sciences or environmental engineering.
- Computer skills including Word and Excel.
- Good oral and written communication skills.
- Aptitude for learning foreign languages.
- Sincere interest in life sciences and environmental protection.
- Mechanical aptitude.
- Tolerance for adverse working environment (i.e., odor, dust, and noise).
- Good health.
- Proven ability to work productively in a team situation.
- Safe driving record.

### **Equipment and Supply Needs --**

To optimize the effectiveness of the Composting Facility/Transfer Station Monitors in assessing and encouraging contractor compliance will require that they be provided with the following:

- Attractive uniforms identifying the GOA as their employer.
- Office space, furnishings, telephone, and a computer at the composting facility.
- Copies of contractor's rehabilitation, outfitting, and operations work plans.
- Tools to conduct random testing of process and product compatibility with design and work plans.
- Safety gear including eye protection, dust masks, hardhat, steel-toed shoes, and coveralls.
- Camera and film.
- Reporting forms to optimize communication with the Project Engineer.

## **Medical Waste Treatment Center Monitor**

Medical wastes that are collected from hospitals and clinics in accordance with the terms described in the *Medical Waste Collection Monitoring* section will be treated (incinerated) in a facility that will be constructed and operated by the same contractor. Treatment of medical wastes requires personnel with specialized skills in technological processes. Strict contractor adherence to best available practices will be required in each processing step to meet applicable medical waste treatment and health standards. Operation of the treatment center in accordance with the design parameters is a prerequisite for protection of worker health and safety and protection of the environment. Thus, intensive monitoring of all medical waste treatment center activities from receiving through ash disposal is warranted

### **Job Description: Medical Waste Treatment Center Monitor--**

The Medical Waste Treatment Center Monitor should be hired and trained prior to construction of the medical waste treatment center. To ensure contractor compliance with contract terms and GOA environmental protection objectives, monitoring should begin with oversight of construction and equipment installation, and continue uninterrupted once daily operations have commenced. The oversight responsibilities of the treatment center monitor should include, but not be limited to, the following:

- During construction/installation:
  - Inspection for compliance with final design specifications submitted to and approved by the EEAA and the GOA.
  - Monitoring to confirm compliance with the approved construction schedule.
  - Identification of inadequate construction safety procedures or construction techniques that may adversely affect the safety and/or performance of subsequent center operation and/or useful life.
  - Monitoring contractor pre-testing of processing and emission control equipment and process control systems.
  - Daily reporting of all findings from construction monitoring to the Project Engineer.
  - Monitoring contractor recruitment/training (operational and safety) of management personnel, technicians, and laborers specified in the EIA and the EEAA approval documents.
- During daily operations:
  - Monitor medical waste handling and processing activities for compliance with work plan and contract terms.

- Ensure that all waste processing and emission control systems are operating within the design parameters.
- Monitor contractor compliance with previously approved and adopted plant health and safety procedures.
- Monitor record keeping procedures and results for completeness, accuracy, and efficiency of reporting all center input and output streams (including air and water).
- Monitor equipment maintenance procedures and equipment operating condition for judging compliance with contract terms.
- Prepare and submit weekly and monthly reports on pre-established forms to the Project Engineer summarizing monitoring activities and results.
- Coordinate with medical waste collection monitors to ensure that all tracking documentation is being completed as prescribed and reported to generators and government officials.

#### **Required Number of Monitors: Medical Waste Treatment Center--**

The potential public health implications of the medical waste treatment center justify the employment of one monitor to oversee the operations full time during its eight hour per day operation.

#### **Required Qualifications: Medical Waste Treatment Center Monitor--**

The essential qualifications for the Medical Waste Treatment Center Monitor are education/training as an engineer or in related technical fields. The following qualifications are recommended as the minimum requirements:

- College degree; preferably in engineering or medical sciences.
- Computer skills including Word and Excel.
- Good oral and written communication skills.
- Sincere interest in public health or environmental protection.
- Mechanical aptitude.
- Diplomatic skills for communicating with private industry.
- Tolerance for working in potentially hazardous environment.
- Good health.
- Aptitude for learning foreign languages.
- Successful completion of the Solid Waste and Public Clean-Up Project training.

#### **Equipment and Supply Needs --**

To conduct his duties in an efficient and cost effective manner the medical waste treatment center monitor should be provided with the following:

- Attractive uniforms identifying the GOA as his/her employer.
- Office space and furnishings at the treatment center.
- Computer and telephone.
- Camera and film.
- Treatment center design drawings, installation plan and schedule, and operations plan.
- Safety equipment specialized for working in medical waste environment.
- First aid supplies.
- Inventory of medical waste collection trucks and database of all medical waste generators.
- Standardized forms for reporting daily weekly and monthly activities and assessment of contractor compliance.

## **DISTRICT LEVEL SERVICE MONITORING**

Well-trained and motivated monitoring teams will greatly enhance the probability of achieving the GOA's Solid Waste and Public Clean-Up Project goals and objectives. An efficient management structure and a cadre of skilled monitors, supported by communications and administrative staff will actively demonstrate the GOA's commitment to maximizing the return on the investment of its residents and businesses in the contractor's services. The District level monitoring structure is illustrated in Exhibit 1.

Accomplishment of public awareness and contractor monitoring goals requires recruitment and employment of personnel with a variety of skills at the District level. The issues to be addressed in the hiring process include the following:

- Job descriptions.
- Number of monitors required.
- Required qualifications.
- Equipment and supply needs.

The following sections address each of the above issues in conjunction with each proposed District level position.

### **District Manager**

Experienced management is required to plan, coordinate, and oversee all of the various activities that will take place in conjunction with optimizing service use and contractor compliance.

Provision of qualified District Managers to supervise staffs ranging from 7 to 37 will facilitate staff work and optimize productivity.

**Job Description: District Manager--**

The duties and responsibilities of the District Manager should include, but not be limited to, the following:

- Implementing the monitoring and communications strategies developed at the GOA level.
- Allocating and assigning specific work areas within the District.
- Directing and coordinating the activities of all monitoring personnel working in the District.
- Sharing experiences and lessons learned through monthly meetings of all District Managers.
- Motivating high performance standards through team management and empowerment techniques.
- Promoting project goals through public meetings and presentations.
- Analyzing field and public complaint reports to identify priority needs and revise resource allocation.
- Providing written reports to the Program Administrator on a weekly basis.

**Required Number: District Managers --**

The current proposal calls for one manager in each District. Depending upon the level of public cooperation and contractor performance, it will be necessary to add assistants in most Districts as indicated in Exhibit 1.

**Required Qualifications: District Manager—**

Candidates for the District Manager position should have the following qualifications:

- University degree preferable, but not essential (substitute relevant work experience).
- Three years experience in a waste management or cleaning maintenance related field.
- Experience directing a staff of at least 10 employees or management training.
- Familiarity with the District assigned.
- Good oral and written communications skills.
- Computer skills.
- Satisfactory completion of solid waste and public cleaning training.

## **Equipment and Supply Needs --**

- Office space and furnishings.
- Dedicated telephone line and mobile phone.
- Computer and peripherals.
- Detailed District maps.

## **Waste Collection and Clean-Up Service Monitors**

Monitoring of the use and provision of household and domestic (including markets and stores) solid waste collection and clean-up services should be administered from the District level. Within a given District, field monitoring could be allocated on a geographic or functional (service) basis. It is anticipated that field monitoring as a service function will result in the highest productivity and most intensive scrutiny of contractor activities and performance.

Assigning the oversight of all contractor household waste collection and public cleaning activities within a small geographic area will result in minimization of travel and optimization of monitoring. The alternative of assigning monitors to observe only one service activity over a larger service area would result in decreased productivity due to excessive travel time requirements. An additional advantage of the proposed option is the ability to assign total responsibility for area cleanliness to one monitor, thereby eliminating any potential internal disagreements over which contractor activities are contributing to non-compliant conditions.

## **Job Description: Waste Collection and Public Clean-Up Monitor--**

The monitor overseeing contractor waste collection and public cleaning services will be spending a majority of his/her time in the field; with a minority (but no less important) portion of the day in the District office making and receiving telephone calls and carrying out reporting requirements. Monitoring household and business compliance with waste storage and disposal regulations will also be a large part of the monitor's duties. In every reasonable attempt to optimize individual usage and contractor service compliance with the contract, the monitor's activities should include, but not be limited to, the following:

- Waste collection service:
  - Monitoring household and business waste storage and discard practices.
  - Determining if dwelling units are being serviced daily.
  - Confirming that waste pooling containers are being emptied daily and looking for spillage left on ground.
  - Monitoring collection truck activity.

- Is scavenging occurring on the collection route?
  - Are the trucks being washed weekly?
  - Are non-compaction trucks covered and closed?
- Looking for property damage.
- Monitoring container placement, maintenance, and cleanliness:
  - Are the right numbers of containers in the right places?
  - Are they the right sizes?
  - Have they been sanitized adequately?
- Review and monitor the contractor's summer increase plan.
- Monitor collection of rubble and bulky discards.
  - Promote responsible public use of the service.
  - Advise contractor of locations needing service.
  - Oversee compliance with requirements to remove abandoned automobiles within 72 hours.
- Work with the informal sector to integrate their activities with the least negative impact on cleanliness and contractor performance.
- Enforce licensing policies.
- Sweeping and cleansing service:
  - Enforce litter laws and promote positive individual and business behavior.
  - Monitor mechanized sweeper routes/schedules/performance for compliance with the contractor's work plan.
  - Inspect vacating and dumping stations for aesthetics and timely sweepings removal.
  - Monitor manual sweeping resource allocation, schedule, compliance, and performance.
    - Appropriate tools being used?
    - Are clean uniforms being provided and worn?
    - Does street cleanliness meet contract terms of reference?

- Monitor extra service provisions for Fridays, Sundays, and religious holidays.
- Monitor placement, maintenance, and servicing of garbage baskets.
- Beach cleaning:
  - Enforce regulations that prohibit littering.
  - Monitor beach cleaning operations, scheduling, and results; do they comply with terms of reference?
  - Identify special needs.
  - Monitor extra service plans/implementation in summer months.
- Cleaning the tunnels and bridges:
  - Monitor compliance with schedule/performance proposed.
  - Identify special needs.
  - Observe and report graffiti and vandalism.
- Cleaning statues, memorials, and fountains:
  - Monitor compliance with required cleaning schedules and performance.
  - Identify special needs.
  - Observe and report on graffiti and acts of vandalism.
- Removal of dead animal bodies:
  - Monitor compliance with animal removal protocol agreed upon in the contractor's contract.
  - Identify special needs and requirements to meet the plan provided in the contract.

In addition to all of the field duties listed for each of the service areas above, the monitors will have office responsibilities that will include the following:

- Preparing necessary forms and documentation to support imposition of fines for non-compliance.
- Reviewing and analyzing monthly reports from contractor.
- Preparing daily, weekly, and monthly reports for the District Manager summarizing monitoring activities and contractor performance/responsiveness.

- Preparing and delivering presentations to schools and service groups promoting the solid waste and public cleaning program.

**Required Number of Monitors: Waste Collection and Public Clean-Up--**

As proposed above, each District based monitor will be responsible for overseeing public use and contractor provision of the following services within a specified geographic area:

- Household and domestic waste collection service (in apartments and waste pooling sites).
- Collection of discarded rubble and oversized household items.
- Mechanized sweeping service.
- Manual sweeping service and garbage pickup service.
- Beach cleaning.
- Cleaning of tunnels and bridges.
- Cleaning of statues, memorials, and fountains.
- Removal of dead animal bodies.

**Derivation--**With the exception of collection of household wastes done at the dwelling unit, public behavior and contractor service performance will be observed and judged by traveling along roads or on sidewalks in the monitor’s assigned area. Thus the primary criteria for determining the appropriately sized area to assign to each monitor are the length of road that can be covered in a workday. Assuming that a monitor will be able to spend only six hours per day in the field, coverage of no more than six kilometers, or two kilometers per hour should be the goal. Such a rate translates into walking one block (75 meters) in two minutes.

Additional parameters also need to be taken into account in the determination of the number of monitors required. These include population, number of housing units, and commerce density in each District. Final monitoring area assignment will require a comprehensive inventory of each of these and other parameters. Preliminary analysis based on the assignment of weights to the four most important parameters previously identified yields an estimated need of approximately 100 field monitors allocated among Districts as shown in Table 1.

**Seasonal Needs--**The summer tourist influx results in a 20 percent increase in the total tonnage of solid waste generated during the months of July and August. The demands for beach cleaning, street sweeping, and container service increase correspondingly during this period. Thus, implementation of the monitoring organizational plan needs to allow for the addition of approximately 25 percent more monitors during this period critical to the development of Alexandria as an appealing tourist destination.

**Required Qualifications: Waste Collection and Public Clean-Up Monitor--**

The Local Popular Council and the GOA have expressed a strong desire to recruit recent university graduates to perform this high priority and highly visible service for the GOA. This criterion by definition precludes any requirement for previous work experience. Hopefully this disadvantage can be offset by the advanced education of these graduates and their enthusiasm for

**TABLE 1: RESIDENTIAL/COMMERCIAL WASTE COLLECTION AND PUBLIC CLEAN-UP PROJECT MONITOR ALLOCATION WORKSHEET**

	District						Average	Total
	Montazah	Shark	Wassat	Gomrouk	Gharb	Ameriya		
<b>Monitors Required</b>	20	27	24	6	12	9	2	100
<b>Residential Collection</b>								
Population (000's)	903	889	535	180	456	448	44	3,455
Housing Units (000's)	347	296	157	46	114	159	28	1,147
Housing Units per Monitor (000's)	17	11	7	8	10	18	14	11
<b>Commercial Collection</b>								
Commercial Units	44,779	36,059	36,573	16,462	11,413	15,397	2,434	163,117
Commerical Units per Monitor (000's)	2,239	1,336	1,524	2,744	951	1,711	1,217	1,631
<b>Street Sweeping</b>								
Inhabited Area (km2)	71	22	53	5	20	36	57	264
Population Density 1,000's per km2	13	40	10	36	23	12	1	135
Area per Monitor (km2)	3.55	0.81	2.21	0.83	1.67	4.00	28.50	2.64
Roads (km)	105	241	287	47	150	76	29	935
Road (km) per Monitor	5.25	8.93	11.96	7.83	12.50	8.44	14.50	9.35

public service in such a high profile position. Review of the job description provided earlier suggests the following as essential minimal qualifications to carry out monitoring duties in an exemplary manner:

- University degree; preferably in biological sciences or environmental studies.
- Computer skills including Word and Excel.
- Good oral and written communications skills.
- Foreign language skills to facilitate communication with contractor.
- Public relations or marketing skills.
- Sincere interest in environmental protection and/or public service.
- Good health and physical condition.
- Tolerance for working in adverse weather conditions.
- Safe driving record.
- Diplomacy in working with the public.
- Proven ability to work in teams.
- Training in best solid waste management and public facility cleansing practices.

### **Equipment and Supply Needs --**

To carry out the above responsibilities in the most efficient and productive manner, each monitor should be provided with the following equipment and supplies:

- Attractive uniforms identifying the GOA as their employer.
- Safety gear for occasional usage such as steel-toed shoes, hard hats, and safety glasses.
- Computer access at the District office.
- Cameras and film.
- An appropriate means of transportation depending on type/density of monitoring area.
- Reporting forms for daily, weekly, and monthly reports.
- Space, furnishings, and supplies at the District office.
- Route maps for collection trucks and mechanized sweepers.
- Schedules for each type of service under their jurisdiction.
- Inventory of waste pooling containers.
- Washing schedule for trucks and containers.
- List of trucks, drivers, and license numbers.

### **Industrial Waste Collection Monitor**

It is estimated that there are over 8,500 industries within the GOA. Distribution is very uneven with the majority of these industries located in the Districts of Montazah, Gharb, and Ameriya. The tender document specifies that the contractor shall collect wastes from every industry in the GOA on a seven-day per week basis. To ensure that this major contract service is carried out as specified in the final contract terms will require a substantial monitoring commitment on the part of the GOA.

## **Job Description: Industrial Waste Collection Monitor--**

Since collection of industrial waste will be a service that the GOA has had no previous involvement in, a significant amount of information will need to be gathered prior to implementation. This information will include the waste quantities generated, and the specific container type, size, and collection frequency requirements of each. While the contractor will have made some progress in identifying individual generation and service needs, it is unlikely that he will have a complete database of industries that are eligible for service. There is certain to be some confusion as to what qualifies as an “industry” and what are legitimate service demands. Many qualifying industries that will not have confirmed service with the contractor are likely to call the District office for assistance in doing so.

The duties of the industrial waste collection monitor will include, but not be limited to, the following:

- Assisting the contractor in the development of a complete database of industries to be serviced and their specific service needs.
- Responding to requests for service from individual industries.
- Monitoring industry compliance with waste handling and storage regulations
- Monitoring contractor performance by conducting random surveys of individual industry satisfaction with all aspects of service including:
  - Compliance with service schedule.
  - Provision of appropriate containers.
  - Cleanliness around container after dumping.
  - Non-interruption of production.
- Conducting random visual audits of waste container contents to certify separation of industrial and hazardous wastes.
- Providing informal mediation of disagreements between contractor and industry pertaining to waste designation, container type/size needs, collection frequency, and quality of service.
- Preparing forms and daily, weekly, and monthly reports of monitor’s work activity for submittal to District Manager.
- Preparing forms and reports that are required to assess industrial waste generator and contractor compliance with contract terms.

### **Required Number of Monitors: Industrial Waste Collection--**

Ensuring that all industries are supplied with an adequate level of waste collection service as specified in the final contract will require approximately one monitor for every 500 industries. The actual number will be dependent upon the extent of industry concentration within a given District, the quantities and types of waste generated, and the agreed upon frequency of collection between the industry and the contractor. A preliminary allocation of monitors among Districts based upon subjective judgement of industry concentration is illustrated in Exhibit 1.

### **Required Qualifications: Industrial Waste Collection Monitor--**

Industrial waste collection monitors will also be recruited from recent university graduates. While they will receive job specific training, it is important that they have the following minimal qualifications upon hiring:

- University degree; preferably in engineering, manufacturing, or applied sciences.
- Computer skills including Word and Excel.
- Public relations and/or marketing skills.
- Sincere interest in business and/or environmental protection.
- Good health and physical condition.
- Tolerance for a broad range of industrial area work environments.
- Diplomacy skills in working with private industry.
- Negotiating skills.
- Safe driving record.
- Proven ability to make positive contributions in a team environment.

### **Equipment and Supply Needs --**

Industrial waste collection monitors will be required to do a moderate amount of driving and will be exposed to a wide range of working conditions in the performance of their duties. Empowering them to conduct their activities in a safe and productive manner will be facilitated by provision of the following:

- Attractive uniforms identifying the GOA as their employer.
- Safety gear including steel-toed shoes, coveralls, eye protection, and hard hats.
- Computer access at the District office.
- Cameras and film.
- Small automobile for transportation.
- Industrial waste collection route maps from the contractor.
- An inventory of industry contact names/telephone and waste container information.
- Lists of contractor trucks to be used in their assigned area.
- Measuring devices to determine container sizes and requirements.
- Reporting forms for daily, weekly, and monthly reports.

## **Medical Waste Collection Monitor**

Medical wastes include those infectious wastes generated in the diagnosis, treatment, or immunization of human beings or animals, in research or in the production or testing of biological products. Previous studies have estimated that between 6 and 10 metric tons per day are generated in the GOA. The collection of medical wastes deserves special oversight and monitoring due to the potential threat which mismanagement can pose to the health of medical institution workers and the general public. In all cases, the overriding objectives of the monitors should be to ensure the following:

- Proper management within the generating sources including separate storage.
- Ensuring appropriate measures to protect health care and solid waste workers are in place.
- Training of hospital personnel in the identification of medical wastes and the proper handling procedures awaiting removal.

The monitors should oversee a tracking system analogous to hazardous waste tracking whereby the whereabouts of all wastes are monitored from point of generation to their final disposition at the treatment center. The purpose of the tracking system will be to provide the following:

- Tracking the transportation of medical wastes from the generator to the treatment center to ensure proper disposal.
- Ensuring the generator of medical waste with assurance that the medical waste was received at the treatment center.
- Establishment of a uniform set of papers (manifests) for tracking medical wastes.

### **Job Description: Medical Waste Collection Monitor--**

The medical waste collection monitors will devote their time to working with generators in the adoption of best practices for handling and storage of medical waste. In addition, the medical waste collection monitors will be responsible for overseeing the collection activities of the contractor. These activities will include the following:

- Training health care and custodial personnel at generating sites in the use of best practices for handling and storing medical wastes.
- Administering a tracking system to follow all medical wastes from their source to the treatment center.
- Reviewing contractor collection plans for the implementation of collection and transportation procedures that include the following:

- Safety instructions.
  - Collection methods.
  - Description of the containers to be used.
  - Means of transport.
  - Protective tools and clothing.
- Facilitating the sale and distribution of bags and boxes provided by the contractor to the generating sites.
  - Monitoring actual collection procedures and practices in the field in each step of the collection process.
  - Investigating inquiries and complaints from generators regarding any contractor non-compliance with collection schedules and performance.
  - Preparing forms and reports specifying daily, weekly, and monthly monitoring activities for submittal to the medical waste management administrator.
  - Coordinating the tracking system with the medical waste treatment center monitor.

#### **Required Number of Monitors: Medical Waste Collection--**

Protection of public health and safety is an incontrovertible priority of the GOA. Mismanagement and/or improper disposal of infectious wastes is a threat to health care, waste collection personnel, and the public at large. Therefore, one monitor should be assigned specifically to oversee all aspects of medical waste handling and collection in each District that has ten or more hospitals and clinics. Those Districts with ten or more hospitals and clinics would include Montazah, Shark, Wassat, Gharb, and Ameriya. The Gharb monitor could cover Gomrouk hospitals and clinics, and the Ameriya monitor could cover clinics in Borg El-Arab.

#### **Required Qualifications: Medical Waste Collection Monitor--**

It is expected that medical waste collection monitors will be recruited from recent university graduates. The minimal qualifications for the position of medical waste monitor should include:

- University degree; preferably in medical or biological sciences.
- Computer skills including Word and Excel.
- Good oral and written communication skills.
- Sincere interest in public health or environmental protection.
- Good health.
- Tolerance for potentially hazardous working environments.
- An aptitude for teaching/training.
- Diplomacy in working with business/hospital personnel.
- Safe driving record.
- Training in solid waste and public cleaning practices.

## **Equipment and Supply Needs --**

To enhance monitor effectiveness, as well as ensure personal safety and health, medical waste collection monitors should be provided with the following:

- Attractive uniforms identifying the GOA as their employer.
- Safety gear for occasional usage including gloves, masks, eye protection, and coveralls.
- Computer facilities at the District office.
- Cameras and film.
- Automobiles for efficient transport of training materials.
- Training materials for use at hospitals and with collection personnel.
- Medical waste collection route maps/schedules.
- Inventory of medical waste collection vehicles with license numbers.
- Specifications and samples of bags and boxes supplied by contractor.

## **Complaints and Fines Coordinators**

A means for efficiently processing contractor noncompliance forms turned in by the field monitors and service usage violations and complaints received from the public are necessary within each District. This will require a minimum of at least one full time employee per approximately 10 field monitors in each District to track violator response and forward non-response cases to the legal staff.

## **Job Description: Complaints and Fines Staff--**

The duties and responsibilities of the Complaints and Fines Coordinators will include, but not be limited to, the following:

- Processing complaints from the public:
  - Taking telephone calls and recording information.
  - Transmitting information to monitors and the contractor.
  - Tracking progress on resolution of fines and penalties.
  - Notifying legal staff of unresolved complaints.
  - Maintaining complaint files.
- Processing reports of non-compliance from monitors:
  - Prepare formal form from field report.
  - Transmit copy to contractor with request for appropriate remedy.
  - Track progress of resolution.
  - Receive and file resolution forms from contractor and copy the monitor.
  - Transmit unresolved non-compliance cases to legal staff.

- Processing citations issued by monitors and public violators of waste/litter handling laws:
  - Prepare forms from field written citation.
  - Transmit formal notice to violator with proposed remedy and time schedule.
  - Notify contractor on need to know basis.
  - Track progress on resolution through field monitors.
  - Maintain records.
  - Notify legal staff of violator failure to resolve conditions of non-acceptance.

**Required Staff: Complaints and Fines--**

The ultimate requirements will be dependent upon the response of the public to the awareness campaign and the level of contractor compliance with final contract terms and specifications. Initially, it is recommended that one position be allocated to each District for every ten field monitors. As indicated in Exhibit 1, a total of fourteen persons will be required at project initiation. It will be possible to make adjustments in the number of positions required in each District when there is some experience under the new regime.

**Required Qualifications: Complaints and Fines Coordinator--**

Persons selected for the position of Complaints and Fines Coordinator should have the following qualifications:

- University degree; no preferred major.
- Above average communications skills.
- Computer and word processing skills.
- Organizational skills.
- Have character traits that include tolerance, patience, and diplomacy.
- Successful completion of project training courses.

**Equipment and Supply Needs --**

Facilitating the work of the Complaints and Fines Coordinators will require provision of the following at each District office:

- Office space and furnishings.
- Computers networked with the central office.
- Dedicated telephone lines.
- Standard reporting forms.
- Maps illustrating contractor waste collection and street sweeping routes/schedules.

The GOA will have to allow provisions for Districts that will have as many as three positions.

## **Public Awareness/Communication Specialist**

The GOA has recognized the critical importance of enlisting public support of its Solid Waste and Public Clean-Up Project goals. While development and coordination of the campaign to accomplish this task will be the responsibility of the Program Administrator's office, its ultimate success will be dependent on implementation and ongoing execution at the District level. Continuity of effort and achievement of the desired results require allocation of an appropriate level of resources at the District level.

### **Job Description: Public Awareness/Communications Specialist**

The person in this position will be assigned the task of maximizing resident, business, and industry awareness and cooperation with the GOA's solid waste and public cleaning objectives. The duties and responsibilities of the Public Awareness/Communications Specialist must include, but not be limited to, the following:

- Implementing all communication, education, promotion, and public awareness initiatives as directed by the Public Awareness/Communications Coordinator.
- Development of District communication work plan and budget.
- Preparation of news articles and press releases.
- Identification and/or creation of public relations opportunities.
- Developing and making presentations to schools, businesses, and civic organizations.
- Preparing status reports for Public Awareness/Communications Coordinator.
- Assisting the District Manager in preparing formal presentations and in responding to media.
- Assisting in the creation and dissemination of written educational materials.
- Responding to media and general public inquiries regarding proper use of service.
- Monitoring contractor public awareness/communications efforts and providing assistance as requested.

### **Required Staff: Public Awareness/Communications--**

Since the success of the project is dependent upon the ability to reach and positively impact the behavior of the greatest practicable number of service users, it is essential that each District have a person that is responsible for accomplishing that objective.

### **Required Qualifications: Public Awareness/Communications Specialist--**

To perform the duties in a manner that will motivate enlistment of critical public support, the Public Awareness/Communications Specialist should have the following minimum qualifications:

- University degree; preferably in journalism, communications, or marketing.
- Excellent oral and written communication skills.
- Computer and word processing skills.
- Sincere interest in public service or the environment.
- Ability to work in teams.
- Demonstrated creativity and imagination.
- Aptitude and interest in learning foreign language.
- Successful completion of Solid Waste and Public Clean-Up Project training.

### **Equipment and Supply Needs --**

The work and effectiveness of the Public Awareness/Communications Specialist will be greatly enhanced by provision of the following in each District Office:

- Office space and furnishings.
- Dedicated computer and printer.
- Dedicated telephone line.
- Readily available means of transportation.
- Audio-visual equipment.

### **CONCLUSIONS**

The implementation of the Solid Waste and Public Clean-Up Project will require the establishment of a new department in the GOA to monitor contractor activities. This new Solid Waste and Public Cleaning Department will consist of administrative staff and field level service managers and monitors.

Staffing of the new department will consist of mostly recent university graduates. However, there are some positions that require the skills that can only be obtained from actual experience. It is important that the GOA recognize the need for experienced staff in the appropriate job classification.

The establishment of the Solid Waste and Public Cleaning Department will create approximately 180 new jobs. There is some concern that the total may not be sufficient in the initial phases of implementation.

The number of management staff was determined by using the experience of the Technical Assistance Provider and reasonable assumptions for the duties that need to be performed. The number of field monitors identified as being needed was based on population, total housing units,

commercial services, and the total length of roads and beaches.

It will be important for the GOA to make decisions early in the contract period as to the number of monitors and other staff that will be needed in the future. If the department is understaffed and cannot provide the appropriate monitoring, additional employees should be hired immediately. The success of the monitoring program is crucial to the success of the Solid Waste and Public Clean-Up Project.