



National Solid Waste Management Programme (NSWMP) Egypt

Side Document: SWM Governorate Survey

December 22, 2011

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1. Survey Results about SWM Systems in Different Governorates

1.1 Introduction

One of the main components of the NSWMP funded by the KfW/GIZ and the EU is the study of investment projects in this field and providing recommendations for possible technical assistance projects that can be funded by KfW, the GIZ and EU in some Egyptian Governorates and New Housing Communities.

The questionnaire was prepared including the following objectives:

- Collecting data about the current situation with regards to SWM system in Governorates, including the following elements:
 - The Organizational structure of the SWM system within the Governorates.
 - The responsibility of the SWM system within each Governorate either by a local, private or international company.
 - The percentage of population served by the SWM system within each Governorate.
 - The efficiency of SW collection and transfer processes.
 - The daily generation rates of different types of wastes.
 - The equipment used for collection and transfer, and their level of efficiency.
 - The efficiency and responsibility of operation of recycling factories and organic fertilizers producers.
 - The different types of dumping sites: open dumpsites, public dumpsites or sanitary landfills as well as the management responsibility of these sites
 - The main causes for SWM problems in Governorates
- Collecting data with regards to previous technical assistance projects implemented in the field of SWM;
- Collecting data about projects implemented by NGO's in the field of SWM indicating the source of funding if applicable;
- Identifying the investment priorities in the field of SWM and the investment opportunities necessary to develop the SWM system within each Governorate.

1.2 Methodology

The methodology included different implementation steps, such as:

- Preparing the questionnaire including the previous mentioned items
- Preparing a draft letter addressed from Dr. Mawaheb Abul Azm the Executive director of EEAA to the secretary general within each Governorate.
- Preparing a list of contacts of the heads of environmental directorates within each Governorate and the responsible for providing the required data.
- The work plan included four main components:
 - Contacting the heads of environmental directorates in all Governorates to highlight the objective of the survey.
 - Sending the questionnaires via mail to Governorates.
 - Sending questionnaires via fax for certain Governorates which own the capacities and require the action.
 - Sending questionnaires via email for some Governorates which own the capacities and require this action.

- Time frame for collecting data

Task	Date	Results	Comments
Finalizing questionnaire preparation	10/4/2011		
Finalizing the letters addressed to the secretary generals at Governorates	10/4/2011		
Signing the letters from the executive director EEAA	15/4/2011		
Contacting the heads of environmental directorates in Governorates.	17/4/2011	<ul style="list-style-type: none"> Some Governorates requested questionnaires to be sent via email: (Matrouh – Wadi Gedid – Monofeya - Aswan) Some Governorates requested questionnaires to be sent via fax: (Assuit – Sohag – Alexandria – Gharbya – Kafr El Sheikh – Port Said – Red Sea – South Sinai) Cairo Governorate requested to send questionnaire with a representative 	
Collecting questionnaires from Governorates	7/5/2011	Monofeya Wady Gedid	Questionnaire received via email
Collecting the remaining questionnaires through EEAA	During the period: 12/5 – 28/5/2011	Damietta – South Sinai – North Sinai – Dakhlia – Qalyobya – Gharbya – Behyra – Qena – Luxor – Assuit – Menya – Sharkeya – Matrouh – Port Said	Reasons for delay: Some Environmental directorates sent the questionnaire to districts and quarters to complete the data; Delay in the mail
During the period: 12/5 – 28/5/2011	Continuous contacts with heads of environmental directorates to urge questionnaires completeness		
Receiving questionnaires	12/6/2011	Cairo- Ismailia	
Receiving questionnaires	14/6/2011	Fayoum	
Another follow up report for Governorates that did not submit the data	15/6/2011	Governorates that did not send the data: (8) Giza – Alexandria – Aswan – Red Sea – Kafr Sheikh – Beni Suif – Sohag - Suez	
Total number of Governorates that did complete the data	15/6/2011	19 Governorates	
Receiving questionnaires	19/6 – 28/6/2011	Giza – Alexandria – Red Sea	
Total number of Governorates that completed the questionnaire		22 Governorates	
Receiving questionnaires	4/7/2011	Sohag	
Total number of Governorates that completed the questionnaire		23 Governorates (out of 27 Governorates)	

1.3 *Analysis of results*

A database was created to allow the input of all data collected from different Governorates, in order to facilitate conducting the required analysis. The database was divided into five main components as follows:

1. Governorates Primary data

- Population
- Distribution of urban and rural areas

2. The current situation for SWM

- Daily generation rates of SW
- Number of population served with regards to the efficiency of collecting and transfer processes
- Factories working in the field of recycling or organic fertilizers
- Location of dumpsite areas
- Roles and responsibilities of SWM systems
- Organizational structure for SWM systems
- Adopted strategies of SWM systems
- Average cost of SWM systems and percentage of cost recovery
- Main causes of SWM problems in Governorates

3. The Governorate capacities in SWM

- Type and number of training programs conducted for employees about SWM system
- Other organizations responsible for SWM in the Governorate
- Other technical assistance projects implemented in SWM
- Projects implemented by NGO's and donor bodies about SWM

4. The main investments opportunities in SWM systems

- The major investments in SWM since 2006
- Current investment plans for implementation in the near future

5. The main areas of support required to Governorates

Governorates were divided into five main areas:

- **Greater Cairo:** includes (3) Governorates
 - Cairo
 - Giza
 - Qalyobya
- **Delta region:** includes (7) Governorates
 - Sharkeya
 - Gharbya
 - Behyra
 - Monofeya
 - Kafr Sheikh
 - Damietta
 - Dakhliya

- **Upper Egypt region:** include (9) Governorates
 - Fayoum
 - Beni Suif
 - Menya
 - Assuit
 - Sohag
 - Qena
 - Luxor
 - Aswan
 - Wadi Gedid
- **Coastal zone:** (6) Governorates
 - Alexandria
 - Matrouh
 - Suez
 - Ismailia
 - Port Said
 - Red Sea
- **Sinai Zone:** includes 2 Governorates
 - North Sinai
 - South Sinai

In the next section the report will highlight the main findings of the survey based on the components of the questionnaire.

1.4 *Main findings of the primary data*

1.4.1 Population

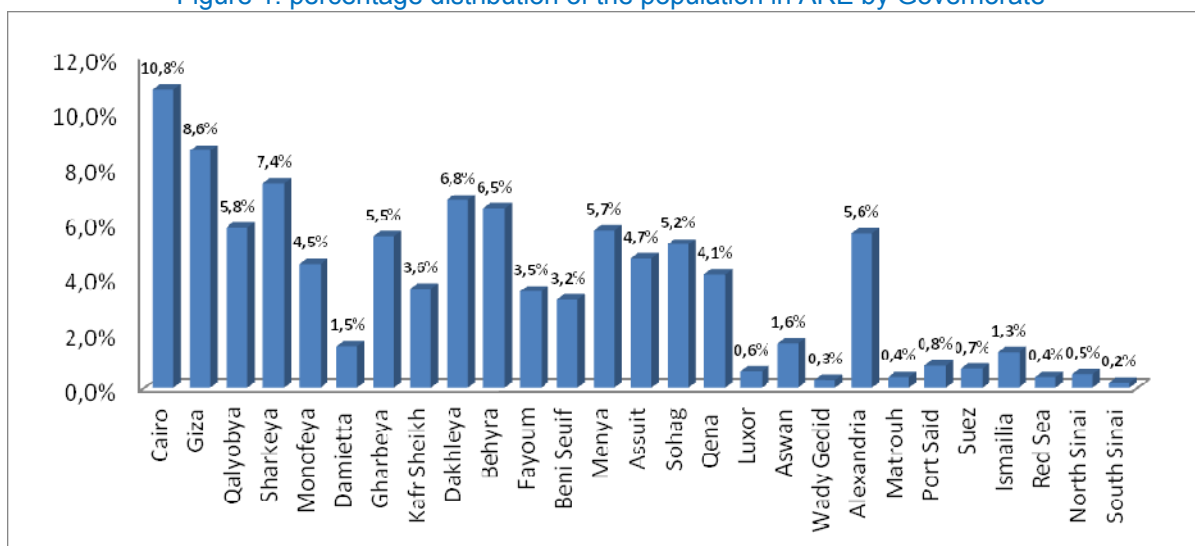
- Total population in Egypt 2008, 74.31 million

Area	Governorate	Number of inhabitants	Percentage distribution
Greater Cairo	Cairo	8,052,228	10.8%
	Giza	6,422,982	8.6%
	Qalyobya	4,342,678	5.8%
Delta	Sharkeya	5,468,094	7.4%
	Monofeya	3,338,839	4.5%
	Damietta	1,123,734	1.5%
	Gharbya	4,086,316	5.5%
	Kafr Sheikh	2,677,082	3.6%
	Dakhleya	5,089,068	6.8%
	Bahyra	4,849,281	6.5%
Upper Egypt	Fayoum	2,573,198	3.5%
	Beni Seuif	2,343,739	3.2%
	Menya	4,259,991	5.7%
	Assuit	3,520,968	4.7%
	Sohag	3,827,347	5.2%

	Qena	3,063,910	4.1%
	Luxor	465,126	0.6%
	Aswan	1,209,390	1.6%
	Wadi Gedid	191,062	0.3%
Coastal Zones	Alexandria	4,195,146	5.6%
	Matrouh	332,424	0.4%
	Port Said	580,275	0.8%
	Suez	523,622	0.7%
	Ismailia	976,312	1.3%
	Red Sea	293,932	0.4%
Sinai	North Sinai	352,852	0.5%
	South Sinai	151,617	0.2%

Source: CAPMAS

Figure 1: percentage distribution of the population in ARE by Governorate



- Distribution of population and percentage of distribution at different areas

Area	Number of Governorates	Population	Percentage distribution
Greater Cairo	3	18,817,888	25.3%
Delta	7	26,632,414	35.8%
Upper Egypt	9	21,454,731	29.0%
Coastal Zone	6	6,901,711	9.2%
Sinai	2	504,469	0.7%

It can be concluded from the previous tables that the most densely populated areas are Greater Cairo and Giza, they represent approx. 25% of the total population of ARE.

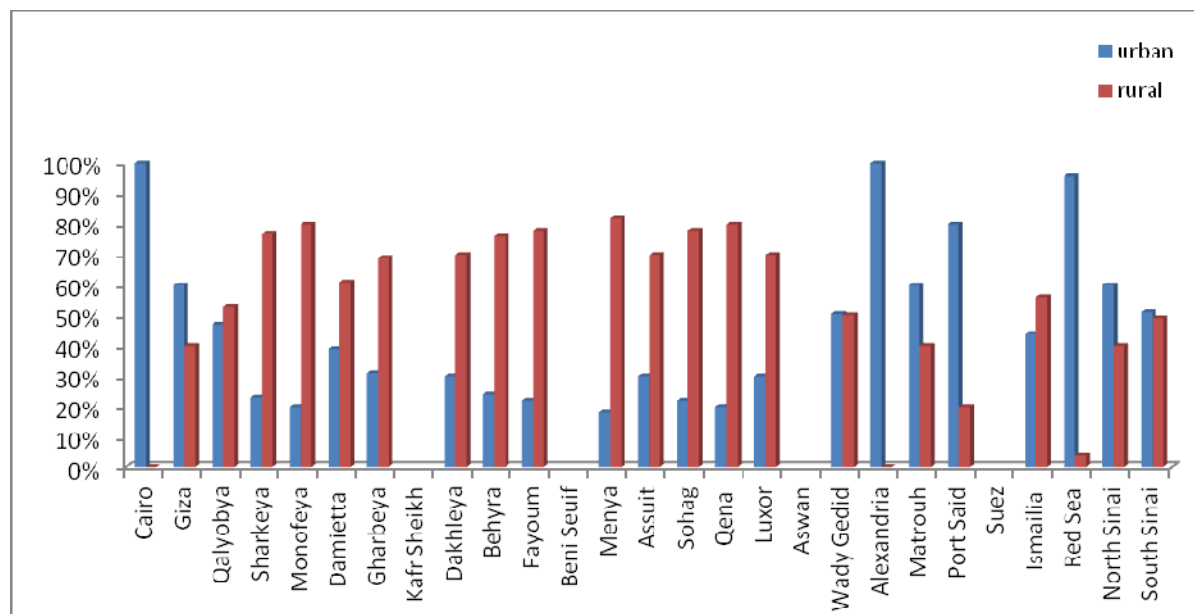
Concerning the Delta area, the densest Governorates are Sharkeya, Dakhleya and Behyra. On the other hand, at Upper Egypt, the densest areas are Menya and Sohag. As for the coastal areas the Governorate with highest density is Alexandria.

1.4.2 Distribution between Rural / Urban areas

Governorates are divided into rural and urban Governorates; rural Governorates represent 54% of the total areas while urban Governorates represent 46%.

The following graph highlights the percentage of distribution of rural and urban areas

Figure 2: distribution of population between rural and urban areas



Urban Areas in the Governorates of (Cairo - Alexandria) represent 7.5% from the total number of Governorates.

It is clear from the previous graph that the rural areas are concentrated around greater Cairo and the touristic areas, while the rural areas are mainly concentrated in Delta and Upper Egypt as follows:

- Average distribution of population among rural and urban area

Area	Average percentage of urban areas	Average percentage of rural areas
Greater Cairo	69%	31%
Delta	28%	72%
Upper Egypt	24%	76%
Touristic areas	76%	24%
Sinai	56%	44%

- Distribution of population per governorate between rural and urban areas

Area	Governorate	Urban	Rural	Poor persons (% of total population) *
Greater Cairo	Cairo	100%	0%	7.6
	Giza	60%	40%	23.0
	Qalubya	47%	53%	11.3
Delta	Sharkeya	23%	77%	19.2

	Monofeya	20%	80%	17.9
	Damietta	39%	61%	1.1
	Gharbeya	31%	69%	7.6
	Kafr Sheikh			11.2
	Dakhleya	30%	70%	9.3
	Behyra	24%	76%	23.5
Upper Egypt	Fayoum	22%	78%	28.7
	Beni Suef			41.5
	Menya	18%	82%	30.9
	Assuit	30%	70%	61.0
	Sohag	22%	78%	47.5
	Qena	20%	80%	39.0
	Luxor	30%	70%	40.9
	Aswan			18.4
	Wadi Gedid	50%	50%	no available data
Coastal Zone	Alexandria	100%	0%	6.4
	Matrouh	60%	40%	no available data
	PortSaid	80%	20%	4.4
	Suez	100%	0%	1.9
	Ismailila	44%	56%	18.8
	Red Sea	96%	4%	no available data
Sinai	North Sinai	60%	40%	no available data
	South Sinai	51%	49%	no available data

* Source: Egypt Human Development Report 2010

1.5 Analysis of results of the current situation for SWM

1.5.1 Daily generation rates of SW

The total daily generation rate of SW in ARE is about 68 thousand tons/day, distributed as follows:

- Daily generation rates of waste

No	Waste	Daily generation rate (Ton / day) based on the questionnaire results	Daily generation rate (Ton/day) based on the state of the environment report 2010
1.	Municipal waste	39105	54794
2.	Agricultural waste	15215.5	54794
3.	Industrial waste	4201.5	10959
4.	Construction waste	6051.2	10959
5.	Hazardous medical waste	73.06	110
Total		64647.06	67489.26

Note:

The difference in the data is one of the main problems of SWM in Egypt, since the available data is different from one source to another. The cause of the inconsistency is that the only available data for waste handling at some Governorates is focusing only on municipal waste. Some Governorates did not indicate any data for agricultural, construction or industrial waste. Thus SWM systems should be combined into one competent body, which can provide an adequate database connecting all Governorates.

The following graph highlights the difference in rates of waste generation between Governorates as indicated in questionnaires as compared to data issued by EEAA:

Figure 3: comparing the generation rates indicated in the questionnaires with the data issued by EEAA

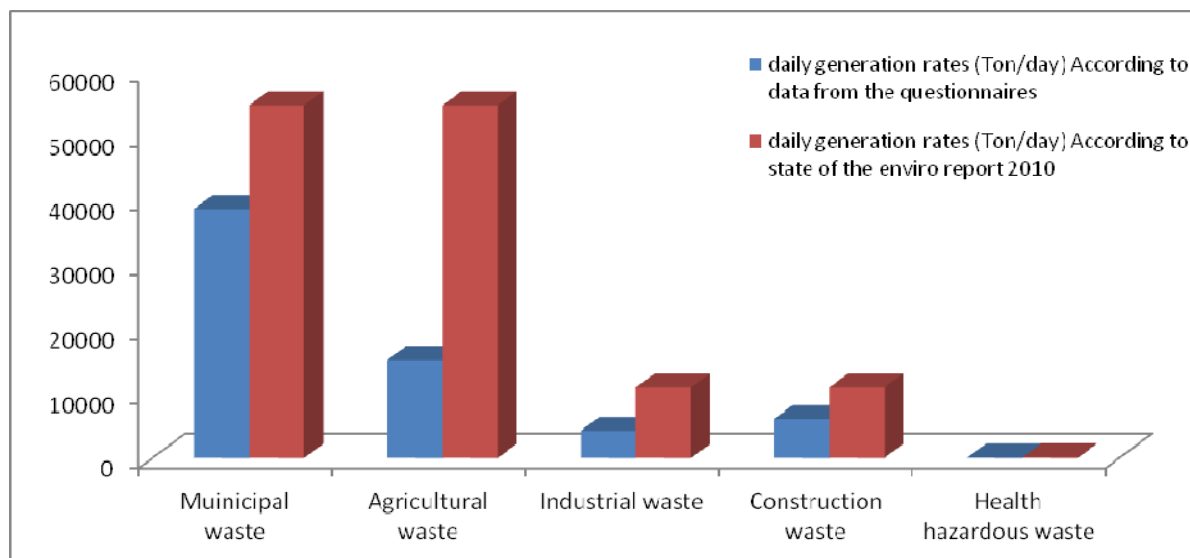
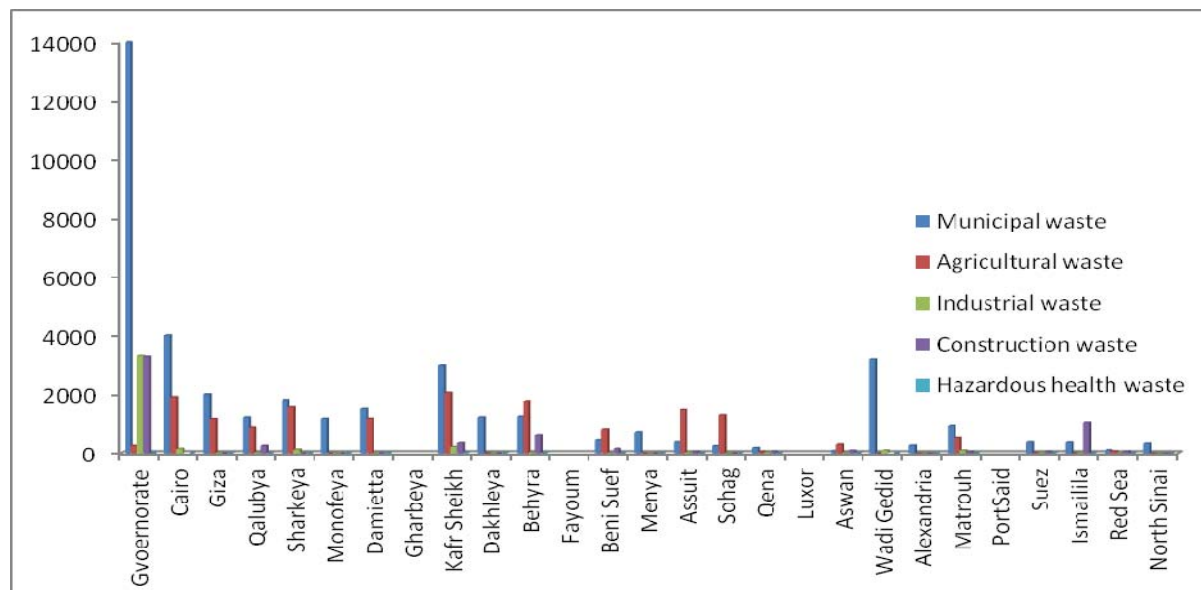


Figure 4: daily generation rates as indicated in the questionnaires

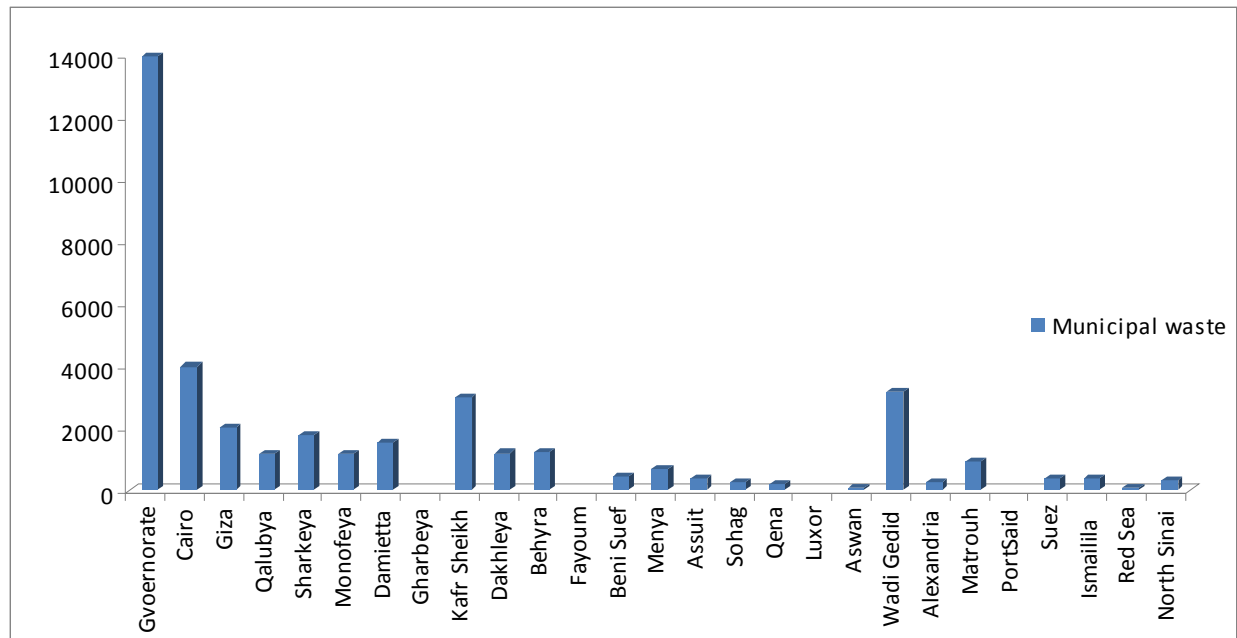


- Daily generation rates as indicated in the questionnaires

Area	Governorate	Hazardous health waste	Construction waste	Industrial waste	Agricultural waste	Municipal waste
Greater Cairo	Cairo	1	3290	3321	260	14000
	Giza	0.5		150	1900	4000
	Qalubya	1.2	0	14	1140	2000
Delta	Sharkeya	1.5	254	20	858	1195
	Monofeya	3	0	130	1580	1800
	Damietta	1	0	0	0	1150
	Gharbeya	17.6	8.2	1	1147	1520
	Kafr Sheikh					
	Dakhleya	20	348	216	2054	3000
	Behyra	1	0	1.5	6.5	1200
Upper Egypt	Fayoum	1	600	20	1760	1226
	Beni Suef					
	Menya	2	150	4	800	445
	Assuit	1	0	0	0	700
	Sohag	2	51	25	1481	378
	Qena	1	0	0	1275	250
	Luxor	1	70	30	50	180
	Aswan					
	Wadi Gedid	0.16	84	10	298	82
Coastal Zone	Alexandria	0.25		100	0	3200
	Matrouh	0	0	0	0	266
	PortSaid	5	50	100	520	915
	Suez	0.8	0	0	0	420
	Ismailila	12	65	22	15	375
	Red Sea	0.15	1020	25	1	365
Sinai	North Sinai	0.5	61	12	70	104
	South Sinai	0.2	0	0	0	334

Most of the Governorates have concentrated on municipal waste; generation rates and amounts. The following graph highlights the amounts of generated municipal waste at different Governorates.

Figure 5: The amount of generated municipal waste at Governorates



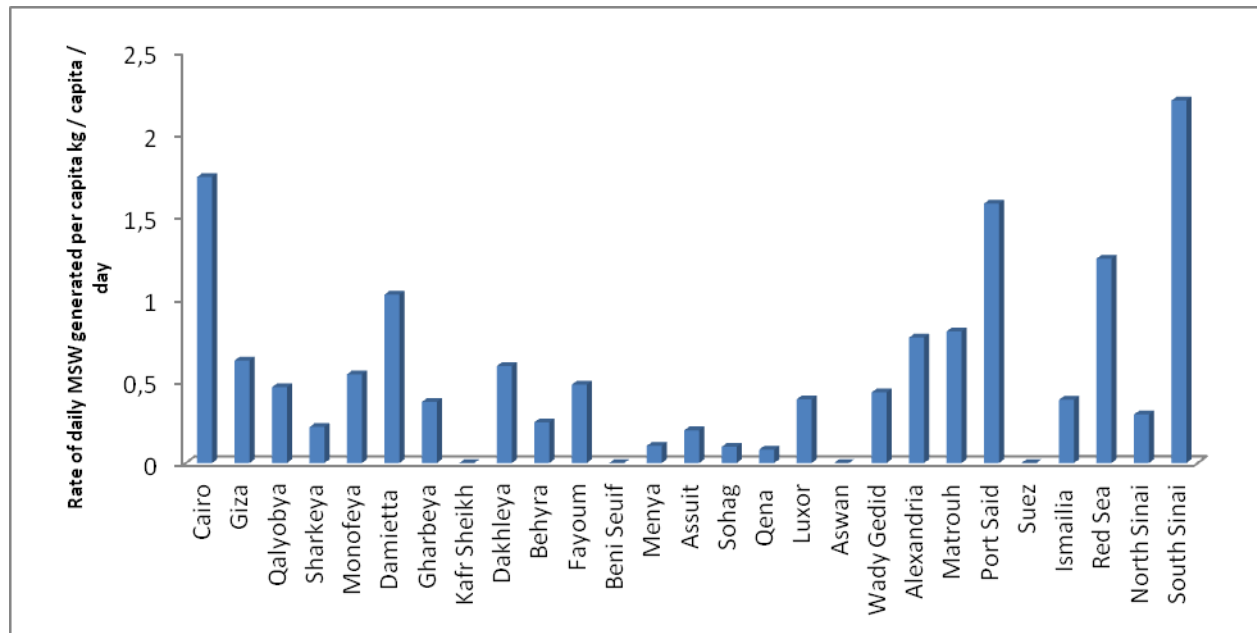
- Daily amount of generated waste and their distribution

No	Region	Daily generation rates	Percentage of Waste Generation
1.	Greater Cairo	20000	51%
2.	Delta	9865	26%
3.	Upper Egypt	5121	13%
4.	Coastal zone	3261	9%
5.	Sinai	438	1%

- Daily generated municipal waste as indicated in the questionnaires

Area	Governorate	Municipal waste
Greater Cairo	Cairo	14000
	Giza	4000
	Qalubya	2000
Delta	Sharkeya	1195
	Monofeya	1800
	Damietta	1150
	Gharbeya	1520
	Kafr Sheikh	
	Dakhleya	3000
	Behyra	1200
Upper Egypt	Fayoum	1226
	Beni Suef	
	Menya	445
	Assuit	700
	Sohag	378
	Qena	250
	Luxor	180
	Aswan	
	Wadi Gedid	82
	Alexandria	3200
Coastal Zone	Matrouh	266
	PortSaid	915
	Suez	420
	Ismailila	375
	Red Sea	365
Sinai	North Sinai	104
	South Sinai	334

Figure 6: generation rate per capita (Kg/person)



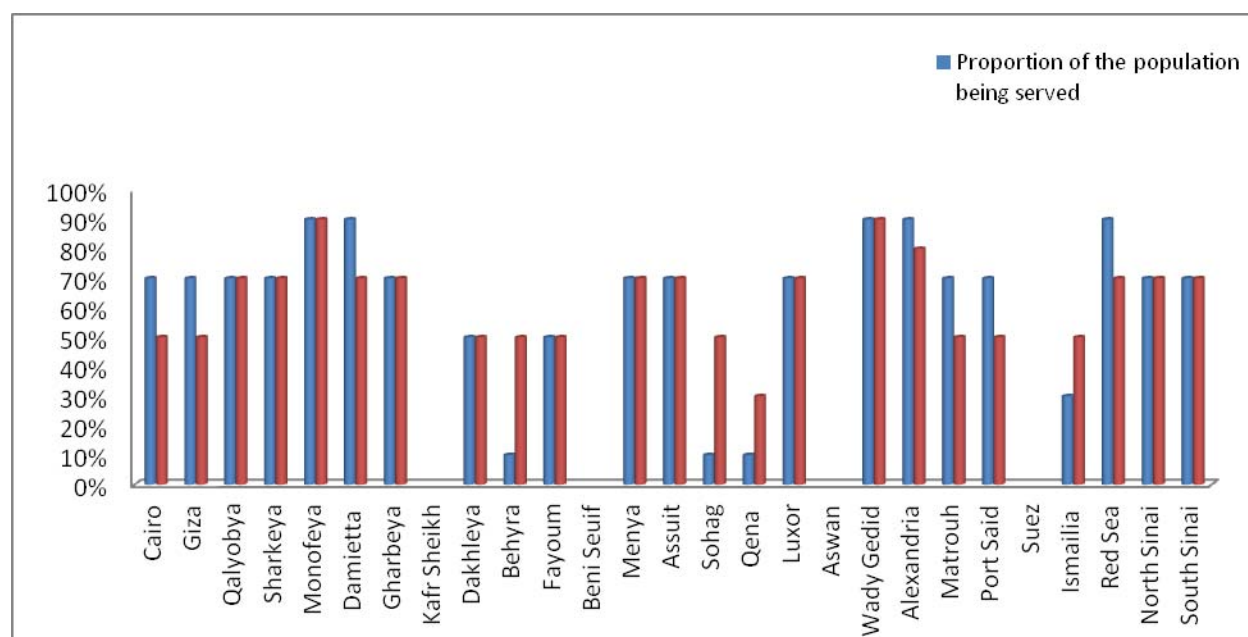
The previous graph indicates the difference in daily generation rates of generated municipal waste from one Governorate to the other. Governorates where the daily generation rate is more than 1.5 kg/day are (South Sinai – Cairo – Port Said). Governorates with a daily generation rates between 0.5-1.5 kg /day are (Giza – Monofeya – Damietta – Dakhleya – Alexandria – Red Sea), Governorates with daily generation rates of less than 0.5 kg / day (Qalubya – Sharkeya – Gharbeya – Behyra – Fayoum – Assuit – Qena – Sohag – Luxor – Wadi Gedid – Ismailia – North Sinai).

- Distribution of daily generation rates of municipal waste

Daily generation rates of municipal waste (kg/day/person)	Number	Governorate
More than 1.5 kg/day/person	3	South Sinai – Cairo – Port Said
From 0.5 – 1.5 kg/day/person	7	Giza – Monofeya – Damietta – Dakhleya – Alexandria – Matrouh – Red Sea
Less than 0.5 kg/day/person	12	Qalubya – Sharkeya – Gharbeya – Behyra – Fayoum – Assuit – Sohag – Qena – Luxor – Wadi Gedid – Ismailia – North Sinai

1.5.2 Number of population served with regards to the efficiency of collecting and transfer processes

Figure 7: The percentage of population efficiently served by waste collection and transfer services



The preceding graph highlights the number of Governorates with the efficiency of waste collection and transfer exceeding 70%, (3 Governorates), Governorates with efficiency rates between 50% - 70% (18 Governorates), and Governorates with efficiency rates less than 50% (Qena - Sohag).

- Efficiency of waste collection and transfer processes

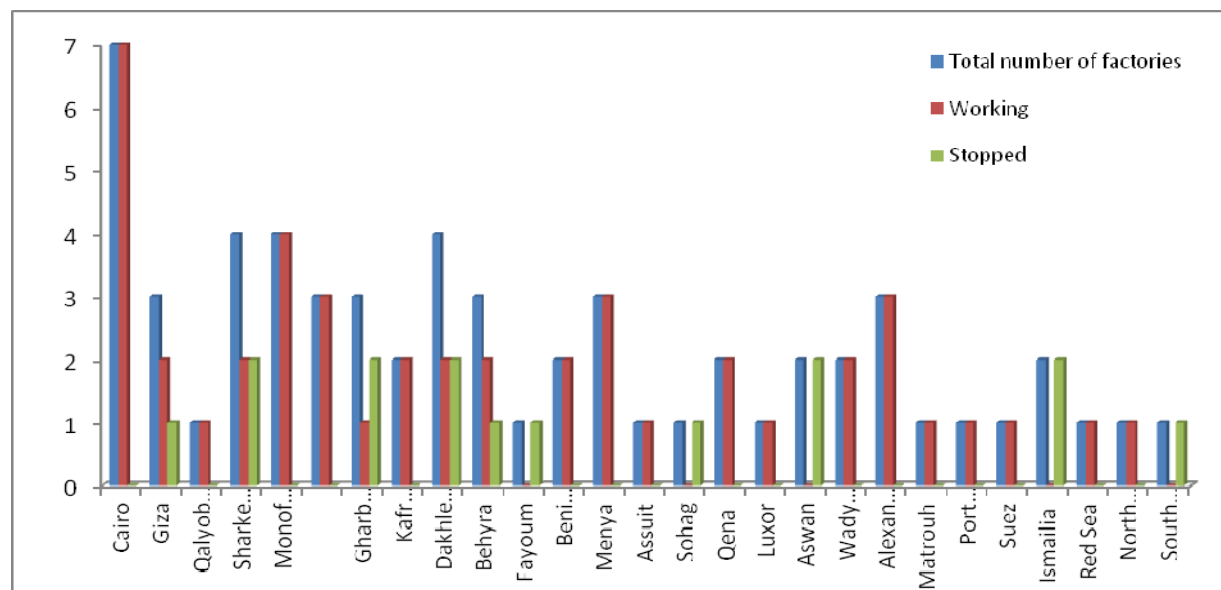
Percentage of efficiency of waste collection and transfer	Number	Governorates
More than 70%	3	Alexandria – Monofeya – Wadi Gedid
50-70%	18	Cairo – Giza - Qalyobya – Sharkeya – Damietta – Gharbeya – Dakhliya – Behyra – Fayoum – Assuit – Luxor – Matrouh – Port Said – North Sinai – South Sinai – Red Sea - Suez
Less than 50%	2	Qena - Sohag

The preceding table indicates that there is a difference between the percentage of population covered with waste collection and transfer services and the percentage of efficiency in service coverage. In Behyra Governorate the percentage of covered population is between (0%:20%) while the efficiently covered population is around 50%. In Ismailia Governorate the percentage of served population is between (20%:40%) while the percentage of collection and transfer services is about 50%, Also in Qena and Sohag Governorates the percentage of served population is between (0%-20%) while the efficiency of collection and transfer processes is about 30%.

1.5.3 Factories working in the field of recycling or organic fertilizers

The number of recycling and organic fertilizers factories is about 60 factories.

Figure 8: The distribution of recycling and organic fertilizers factories in Egypt



Source: state of the environment 2009

The total number of existing recycling and organic fertilizers factories are about 60 factories; the previous graph highlights the number of factories and their distribution in different Governorates of Egypt as follows:

- The graph indicates that about 56.6% of the recycling factories are concentrated in Greater Cairo and delta region. The percentage of operating factories among these above mentioned is almost 76%. These factories perform with 60% of their actual capacity. In addition to 24% of the factories not operating.
- The remaining recycling and organic fertilizers factories represent 43.4%, spreading in other areas such as Upper Egypt, Coastal Zones and Sinai. These factories function with a 77%, the
- Distribution of recycling and organic waste factories according to: districts, percentage of operating or non operating factories and their average efficiency

Area	Total number of factories	% of the total	Operating factories			Non operating factories	
			Number	Percentage %	Average efficiency	Number	Percentage %
Greater Cairo	11	18%	10	16%	75%	1	2%
Delta	23	39%	16	26%	60%	7	12%
Upper Egypt	15	25%	12	20%	50%	3	5%
Coastal Zone	9	15%	7	12%	65%	2	3%
Sinai	2	3%	1	2%	50%	1	2%
Total	60	100%	46	76%	60%	14	24%

It is clear from the above table that the total number of waste recycling factories in Egypt is about 60 factories, among which only 46 factories are operating representing 76% of the total. These factories are working with an average efficiency of 60%. The number of non operating factories is 14 factories, representing about 24%.

- Management Responsibility of recycling and organic fertilizers factories

Most of the recycling and organic wastes factories are managed by the local public council, through supervisors and workers employed by the council. In addition to that some factories are operated through private companies such as Dafra factory in Tanta district and Mahla Kobra factory in Gharbya Governorate which is operated by Care Service Company. In Kafr Sheikh Governorate there are two factories Bella and Kafr Sheikh managed by Abnaa Shams Company. The 15th of May factory south Cairo is managed by The Egyptian Company for Solid waste Utilization ECARU. Some other factories are managed by international companies such the recycling factory at Qattamya north of Cairo, administered by AMA – Arab Environment and Salam factory east of Cairo managed by FCC – Spanish company. As well as the recycling factories in Alexandria at Abis and Montazah areas managed by the Spanish company Viola.

- Number of factories managed by the city councils versus number of factories managed by private and international companies

Management	Total No of factories	% of the total	Operating factories			Non operating		comments
			No	%	Average efficiency	No	%	
Local	37	62%	25	42%	45%	12	20%	
Private company	14	23%	12	20%	60%	2	3%	Mahla Kobra factory is not operating – Sharm Sheikh factory still under construction
International company	9	15%	9	15%	75%	-	-	
Total	60	100%	46	77%	60%	14	23%	

- Total amount of recycled waste

The capacity of the recycling and organic fertilizers factory is 160 tons / day.

- Locally managed factories

The average daily amount of recycled waste = average efficiency * capacity

The average daily amount of recycled waste = 45% * 160 = 72 ton/day/factory

Total amount of recycled waste = 72*25=1800 tons/day

- Factories managed by Egyptian private companies

The average daily amount of recycled waste = average efficiency * capacity

The average daily amount of recycled waste = 60% * 160 = 96 ton/day/factory

Total amount of recycled waste = 96*12=1152 tons/day

- Factories managed by international companies

The average daily amount of recycled waste = average efficiency * capacity

The average daily amount of recycled waste = 75% * 160 = 120 ton/day/factory

Total amount of recycled waste = 120*9=1080 tons/day

- Amount of recycled waste by recycling and organic fertilizers factories/day

Management	Amount of waste recycled daily	% of the total amount of generated waste	comments
Local management	1800 tons	4%	
Private companies	1152 tons	2.6%	
International companies	1080 tons	2.4%	
Total	4032 tons	9%	

The preceding table highlights the amount of recycled municipal SW through the recycling and organic fertilizers factories equivalent to about 4032 tons/day, which represents about 8% of the total amount of generated waste. If these factories were operating at maximum capacity, they can perform a daily task of recycling 9600 tons/day representing 22% of the total amount of generated municipal SW. It can be concluded thus that due to the deteriorated conditions of the factories and the lack of capacities 11.2% of the total waste amount could not be recycled.

In addition to the amount of waste recycled by NGO's and recycling site at slum areas scattered all over Egypt. Among the most famous slum areas are Manshyet Naser, Metemdya and Khsos in Greater Cairo. As well as the amounts recycled by the scavengers working mainly in the streets or at dumps sites.

- **Obstacles and hardships facing recycling and organic fertilizers factories**

It is clear that the international and private factories are more efficient than factories operated by the local public councils, due to the following reasons:

- The irregular supply of waste materials to the factories.
- Street scavengers who sort the garbage outside of the factory, therefore the factory is not able to benefit from the recyclable material.
- Lack of technical capacities among workers in the processes of sorting and operating of the factory. This leads to producing low quality fertilizers.
- Lack of available funding at different Governorates to overcome these obstacles. These circumstances have resulted in the suspension of most of the factories.
- Lack of a department specialized in marketing organic fertilizers.

- A list of the requirements to manage and operate recycling and organic fertilizers factories

Area	Governorate	Total number of factories	Needs	Average efficiency	Location	Operation responsibility
Greater Cairo	Cairo	7	- - -	70% 80% 90%	Salam (2) Qattamya (3) 15 May (2)	Spanish Co. FCC Italian Co. AMA Arab ECARU
	Giza	3	Needs development and Capacity building	50% -% 50%	Shobra Mant 1 Shobra Mant 2 Abu Rawash	GCBA GCBA International cleaning
	Qalubya	1	-	90%	Abu Zabal	Landfill responsible
Delta	Sharkeya	4	Closed - Needs equipment Closed	0% 80% 80% 0%	Zagazig Zagazig Abu Kbir Belbis	- ICC City council City council
	Monfeya	4	Needs rehabilitation and capacity building Closed will be moved to other location	30% 70% 100% 100%	Menouf Ashmoun Qousna Shohdaa	City council
	Damietta	3	Needs development and rehabilitation	75% 30% 100%	Damietta Ras El Bar Farscore	City council
	Gharbeya	3	Needs spare parts Needs development and rehabilitation Stopped to complete comments by receiving committee	60% 0% 0%	Tanta Mahla Sadat City	Care Service
	Kafr Sheik	2				

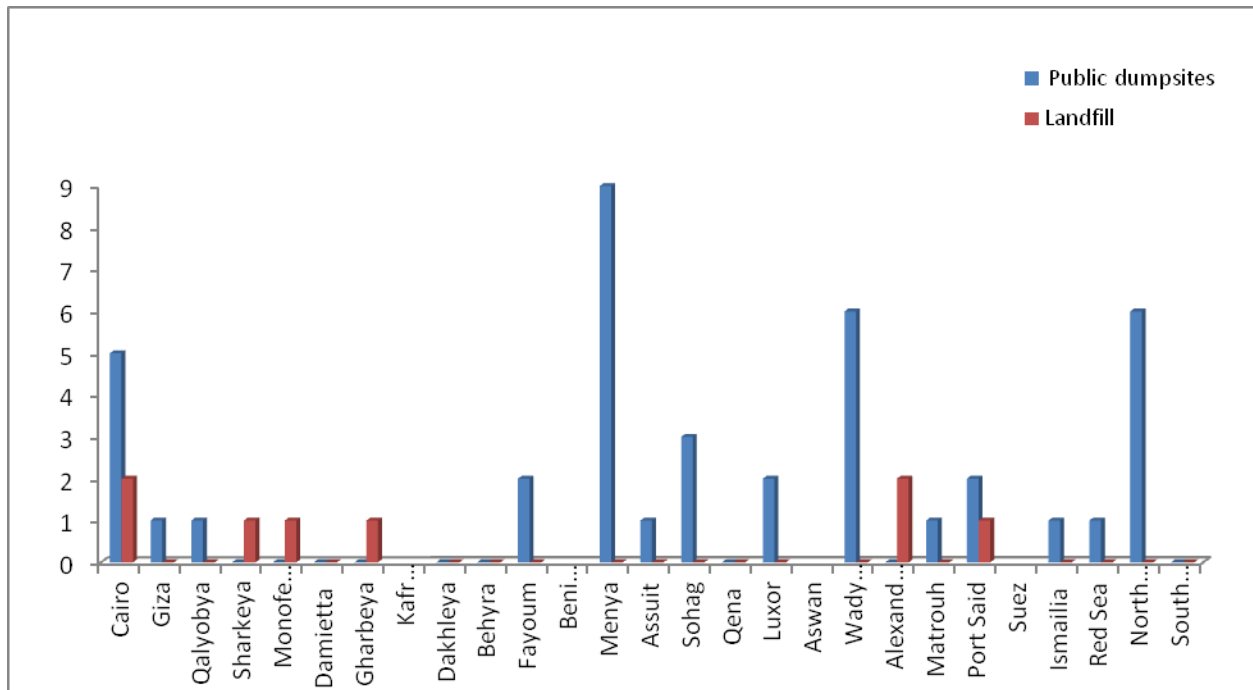
Area	Governorate	Total number of factories	Needs	Average efficiency	Location	Operation responsibility
	Dakhleya	4	Needs development and rehabilitation Needs development and rehabilitation Lack of trained workers + spare parts Needs spare parts	0% 0% 50% 60%	Mansoura Beshla Klabsho Aga	City council
	Behyra	3	Needs development and rehabilitation Needs spare parts Needs spare parts	0% 60% 60%	Damnhour Kafr Dawar Edko	City council
Upper Egypt	Fayoum	1	Needs development and rehabilitation	0%	Adwa	City council
	Beni Suef	2				
	Menya	3	Needs equipment	40% 40% 70%	Menya Malwy Adwa	City council
	Assuit	1	Needs development and rehabilitation	0%	Manqabad	City council
	Sohag	1	Needs development and rehabilitation	0%	Gabl Gharby	City council
	Qena	2	Needs equipment and skilled workers	40% 40%	Qena Naga Hamady	City council
	Luxor	1	Needs specialized technical skills	70%	Hobiel	City council
	Aswan	2				
	Wadi Gedid	2	Needs development and rehabilitation	50% 50%	Kharga	City council
Coastal zone	Alexandria	3	- - المنزلة	70% 70% 70%	Abees 1 Abees 2 المنزلة	Violia
	Matrouh	1	Needs development and rehabilitation	50%	Marsa Matrouh	City council
	Port Said	1	Needs spare parts	40%	West Port Said	Misr Service
	Suez	1				
	Ismailia	2	Needs development and rehabilitation	0%	Abu Balah (2)	City council
	Red Sea	1	Needs capacity building	50%	Hurghada	EnviroMaster
Sinai	North Sinai	1	Needs development and rehabilitation	0%	Aries	City council
	South Sinai	1	Under construction	100%	Sharm Sheikh	Sharm Environmental services

1.5.4 Location of dumpsite areas

Dumpsites can be divided into three main types:

- Open dumpsites
- Public dumpsites
- Landfill areas

Figure 9: number and type of dumpsites and their distribution at different Governorates



Most of these areas are not properly managed and often they flare up through self ignition or deliberate fire.

The total number of safe landfills managed in an environmentally friendly manner is 8 landfills. These areas have a system for soil isolation, collecting, filtering and treatment of fluids, and a system for collecting and treatment of gases. They are distributed as follows: Cairo (2), Alexandria (2), Sharkeya, Monofeya, Suez and Port Said.

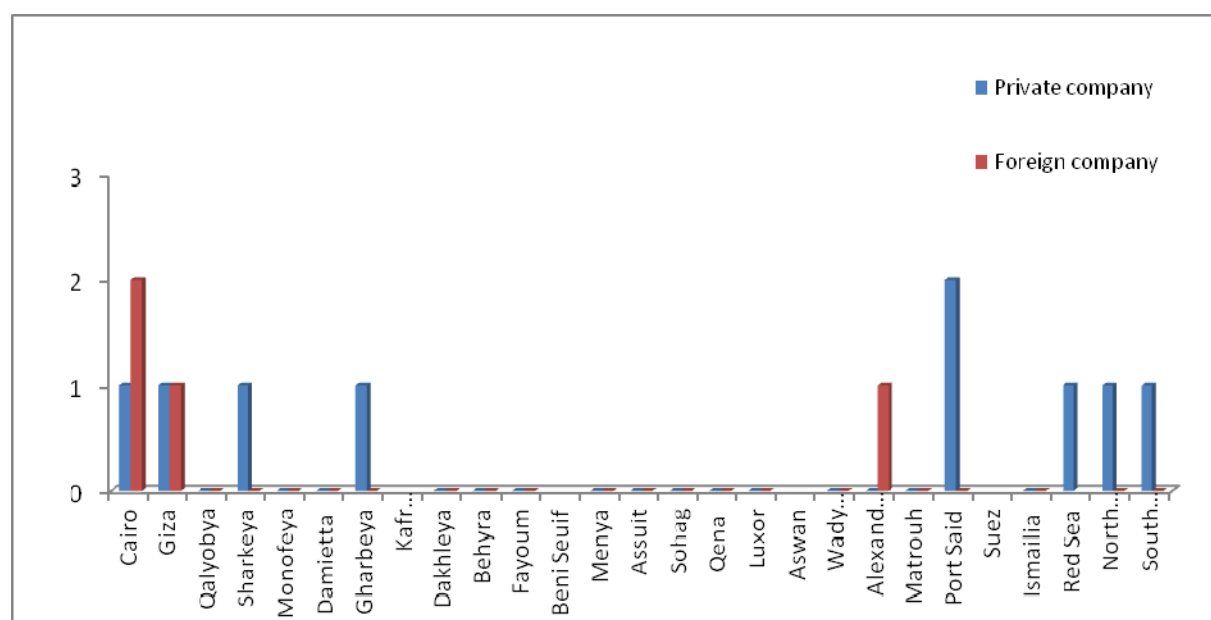
- Number of dumpsites at different areas

Area	Public dumpsites	Landfills
Greater Cairo	7	6
Delta	0	3
Upper Egypt	20	0
Coastal Zone	5	3
Sinai	6	0
Total	38	8

1.5.5 Roles and responsibilities of SWM systems

The local administration is considered responsible for managing SW system at most of the Governorates. The administration is considered responsible for the public cleanliness, collection and transfer of waste, operating recycling and organic fertilizers factories as well as managing public dumpsites. These services are considered part of the organizational structure of the offered city services, which eventually leads to poor performance of the wide range of activities offered by the local council.

Figure 10: Distribution of private and international companies



The graph shows that only 21 Governorates manage the SWM system through the local administration solely, which represents 95% of the total Governorates. Governorates that supervise the SWM system through the public council in coordination with a private Egyptian company are 9 Governorates, which represent 41% of the total Governorates. Giza Governorate is the only Governorate, which handles the SW through the local administration on one level, private companies at some districts in addition to an international company (Italian) working in 3 districts. The number of Governorates that employ international SWM companies are 4 Governorates, representing 18% (Cairo: AMA Arab, FCC – Giza: International – Alexandria: Viola and Suez: Tanzifco).

The local SWM system faces many obstacles, such as:

1. The extended hierarchy of authority and lack of communication between different levels, which has led to unclear identification to roles and responsibilities.

2. Although the cleanliness sections at the local units are considered independent units, but they commonly share the maintenance garage without any determination of responsibility among them.
3. The budget does not cover the actual maintenance cost.
4. Due to the large number of employed managerial levels, wages are considered relatively low. This raises the percentage of absenteeism among workers and the reluctance of many competencies to get involved in the work activities.

- Governorates that manage SW through private Egyptian companies

Area	Governorate	Company	Served area	Responsibilities
Greater Cairo	Cairo	Fustat	Southern Area	Waste collection & transfer
	Giza	Pharonia Marwa San Rose Eshah Byey Obour Integrated care Cooperative	Omranya – Haram – South Giza	Waste collection & transfer
Delta	Sharkeya	ICC	Zagazig	Waste collection & transfer Recycling & treatment Final disposal
	Gharbeya	Care Service	Tanta Mahla Kobra	Waste collection & transfer Recycling & treatment
Coastal Zone	Port Said	Misr Service Falcon	Five districts (Zohour – Monakh – Arab – East - Dawahy) Port Foad	Waste collection & transfer Recycling & treatment Final disposal
	Red Sea	Heipka	Hurghada Safaga	Waste collection & transfer
Sinai	North Sinai	Care Service	Arish	Waste collection & transfer
	South Sinai	Sharm Environmental services	Sharm Sheikh	Waste collection & transfer Recycling & treatment Final disposal

- Governorates that manage SW through international companies

Area	Governorate	Company	Served area	responsibilities
Greater Cairo	Cairo	AMA Arab Italian	Western Area Northern Area	Waste collection & transfer Recycling & treatment Final disposal
		FCC spanish	Eastern Area	Waste collection & transfer Recycling & treatment Final disposal
	Giza	International for Enviro. Services Italian	Dokki, Agouza, North Giza	Waste collection & transfer Recycling & treatment
Coastal Zone	Alexandria	Violia French		Waste collection & transfer Recycling & treatment Final disposal

1.5.6 Organizational structure for SWM systems

Every Governorate has an environmental directorate which is referred to as the Environmental Management Unit (EMU). The EMU's are embedded within each respective governorate. They have independent budget and staffing. The EMU's are technically affiliated to EEAA and its RBO's and are administratively affiliated to the respective governorates. EMU's are usually located in a branch sector outside of the Governorate building. A typical EMU would consist of a Head of the Unit, a Secretariat, and sections for environmental affairs, conservation and finance and administration.

EMU's roles and responsibilities and activities in general and related to SWM:

The EMU's were established in 1982 aiming at protecting the environment from pollution within each Governorate. The responsibilities of these offices include the implementation of the provisions of the law of the environment number 4/94 and its amendments by the law 9/2005 and the other relevant environmental laws.

EMU offices on the levels of the districts / cities were established by a decree from the governor, in order to provide support to the EMU governorate offices. Thus EMU offices on the level of the districts implements assigned functions by the EMU governorate office.

In most of the Governorates there is a Person responsible for the environment at the level of the villages, who contributes to the environmental activities such as receiving EIA studies reports, monitoring SWM activities and investigating simple complaints.

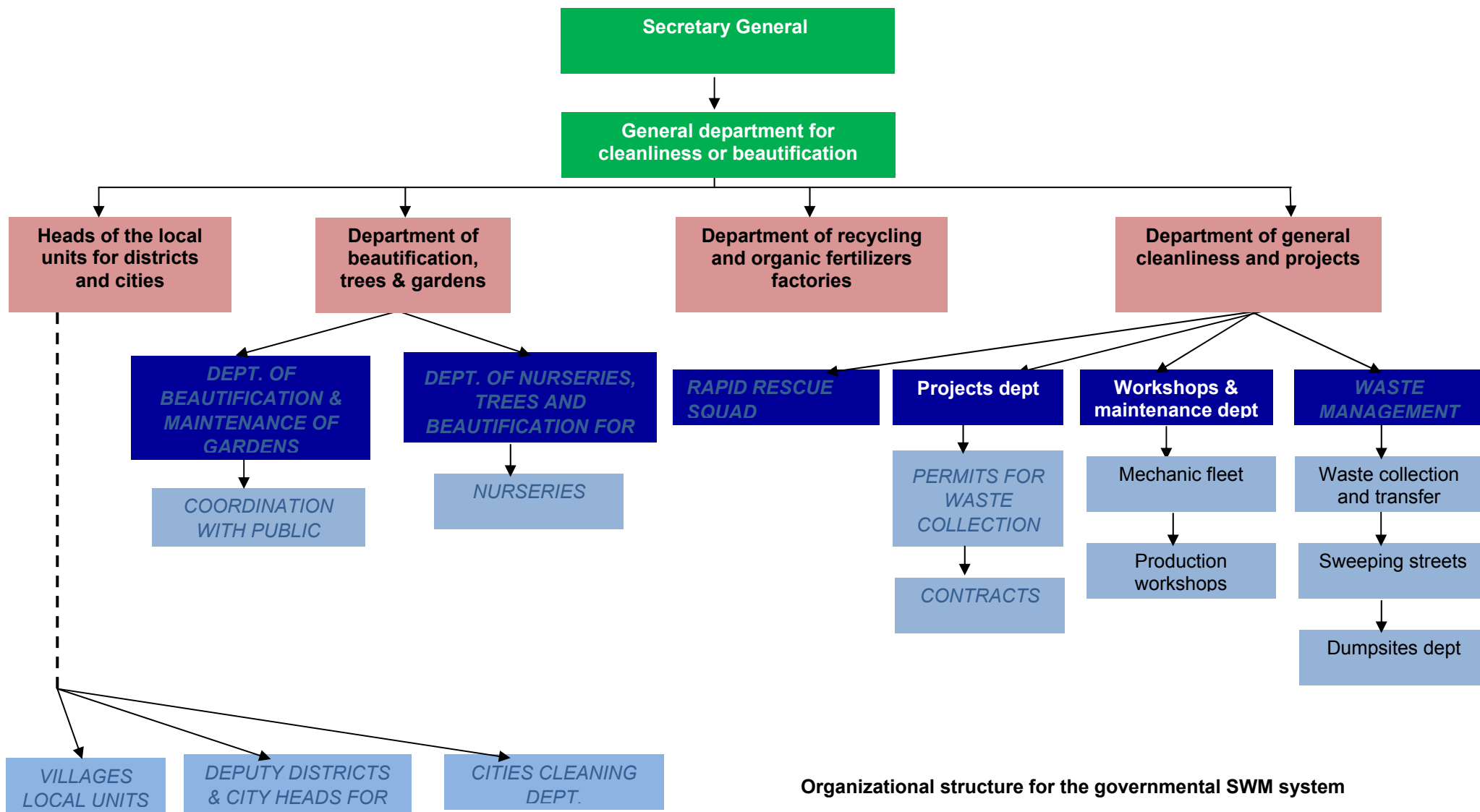
Ideally, the following is a list of the responsibilities of the EMU offices at the Governorate level:

1. Preparing work plans on the level of the governorate.
2. Contributing to preparing environmental contingency plans on the level of the governorate, as well as assessment and coordination of the training needs with the concerned bodies.
3. Contributing to preparing the development and investment plans of the governorate to include the environmental aspect.

4. Coordinating with the competent authorities at the governorate to review EIA studies based upon the requirements of EEAA, monitoring the implementation of the requirements for granting the approval to the EIA study.
5. Implementing the provisions of the law of the environment, prepare inspection plans and implement field inspection activities.
6. Receiving environmental complaints, investigating them and take necessary actions in coordination with the competent authorities within the governorate.
7. Monitoring the implementation of hazardous material and waste management and handling procedures, within the governorate in collaboration with the executive bodies.
8. Identifying areas dedicated for collection, storage, recycling and final disposal of solid waste in coordination with EEAA. In addition to management of these areas or contracting with other bodies to manage these areas and inspecting their performance.
9. Organizing and implementing public awareness campaigns related to SWM.
10. Prepare the environmental status report within the governorate.
11. Activating the role of the local public councils and civil society organizations and supporting their efforts in the field of protection of the environment.

The organizational structure in most of the Governorates does not include a separate body responsible for SWM processes such as planning and management of SWM system or public cleanliness. These processes usually are managed by the local administration represented in the local council or through general cleanliness department in the Governorate. The department thus is usually responsible for follow up of cleaning activities at districts or villages, as well as recycling and organic fertilizers factories.

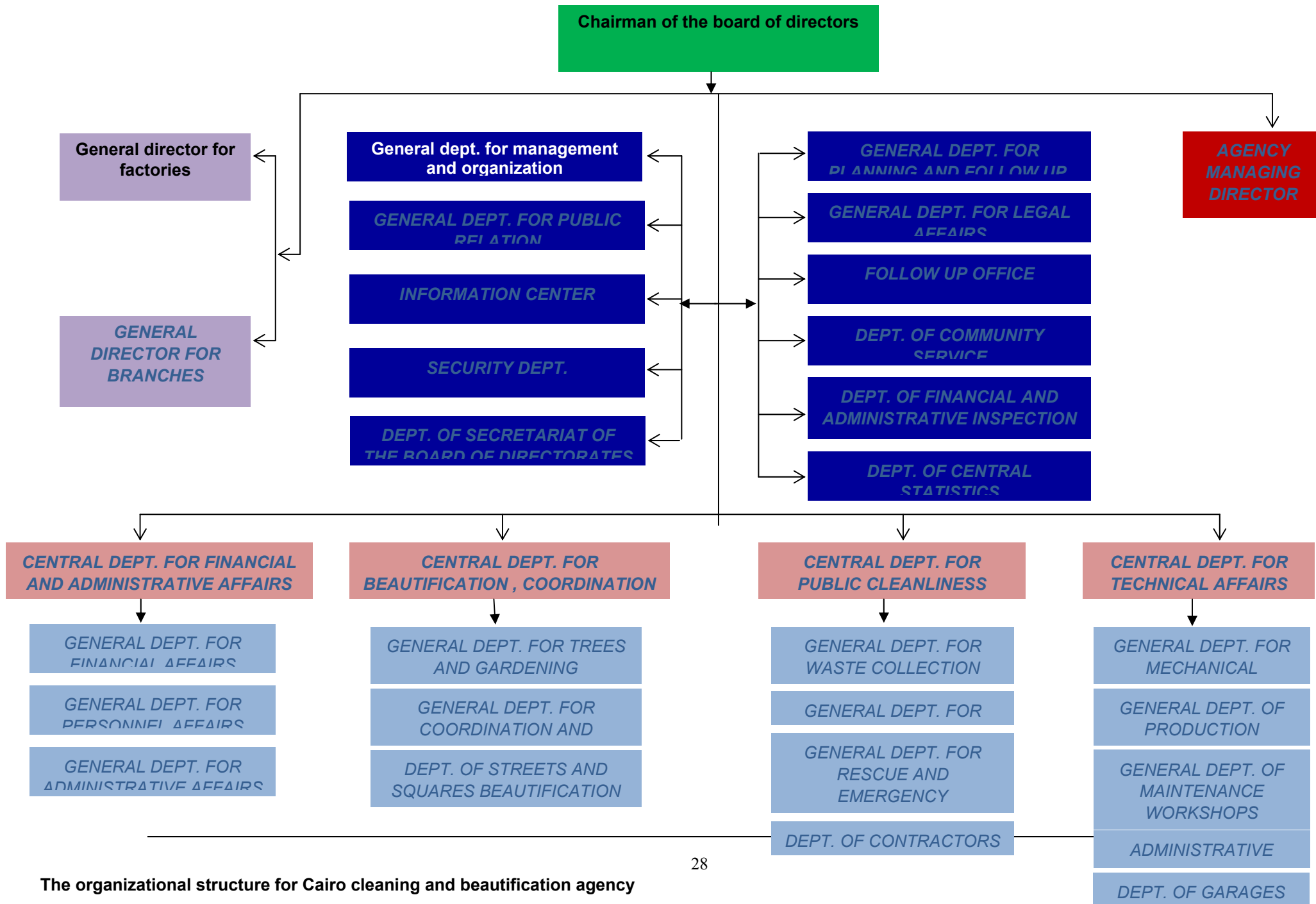
The following chart explains the organizational structure for the governmental SWM system at most of the Governorates:



Organizational structure for the governmental SWM system

Governorates do not usually have an organizational structure specialized in SWM system with the exception of Cairo and Giza Governorates. The organizational structure in the two Governorates includes the establishing of two special agencies. The Cairo cleaning and beautification agency was established with the presidential decree number 284 for the year 1983. The Giza cleaning and beautification agency was established by the presidential decree number 285 for the year 1983. Each agency is responsible for collection and transfer of wastes from the containers and the supervision of public dumpsites. The agencies are also responsible for operating organic fertilizers factories either directly or through a private company. Cleaning agencies are the bodies responsible for concluding contracts related to SWM either with private or international companies. Menya Governorate is the only Governorate other than Cairo and Giza which has an organizational structure for SWM. The structure includes the nine districts. This structure is not actually activated due to the lack of required capacities.

The following chart highlights the organizational structure for Cairo cleaning and beautification agency:



1.5.7 Adopted strategies for SWM systems

The total number of Governorates that have approved strategies for SWM is 11 Governorates, representing 50% of the total number of Governorates. These strategies are based on the provision of law number 10 for the year 2005 concerning the collection of cleaning fees. The amount of the fees is determined for each residential unit, or commercial shops. The amount should then be approved by the public council.

- Governorates that adopted strategies for SWM system

Governorate	Date of adopting the strategy
Monfeya	2006
Damietta	2007
Dakhleya	1998
Fayoum	2009
Menya	2007
Assuit	2007
Qena	2007
Luxor	2007
Alexandria	2001
Ismailia	2006
South Sinai	2007

It can be concluded that the Governorates of Dakhleya and Alexandria have adopted a strategy for SWM before issuing the law in the year 2005. Alexandria has held a contract with the French company Violaia to manage wastes in 2001. As for Dakhleya and Sohag Governorates, they adopted the strategy of solid waste management system within the project to support environmental assessment and management

1.5.8 Average cost of SWM system and percentage of cost recovery

The SWM cost varies between Governorates. The total number of Governorates that have clear and precise estimations for SWM system are 10 Governorates, which represent 45 % of the total Governorates. The remaining 12 Governorates do not have clear estimates for the cost of SWM system, which represent 55 % of the Governorates.

- The average cost of SWM system

Area	Governorate	Average annual cost for SWM (million EGP)	Comments
Greater Cairo	Cairo	500	
Delta	Sharkeya	90.8	
	Damietta	16	
Upper Egypt	Menya	7.7	
	Luxor	15	
	Port Said	93	
Sinai	North Sinai	1.6	Arish city only
	South Sinai	5	

The previous table highlights the average cost of SWM system. The cost of SWM is higher in Cairo than the remaining Governorates due to the contracts with international companies, such as:

- AMA Arab for the environment company: North and Western areas
- FCC Company: Eastern areas
- Fustat Company: Southern areas

Therefore the SWM cost in Cairo is higher than the average of other Governorates, with a 70%. It is also clear that the cost of SWM in Port Said is high, as a result of contracting private companies such as:

- Misr Service: serving five districts (Zohour – Monakh – Arab – Shark - Dwahie)
- Falcon: serving Port Foad

1.5.9 Main causes of SWM problems in Governorates

The main causes of SWM problems in most cases are that the current SWM systems provided by the local public units or cleaning authorities or private companies or international companies could not adequately respond to the community needs. These systems were not able to provide an acceptable level of cleanliness or to diminish health risks and negative environmental effects. The main priorities of the problems can be arranged as follows from the most important to the least important:

1. Lack of public awareness and improper practices in handling wastes.
2. The weakness of processing and recycling activities.
3. The need for investment in the infrastructure of SWM, such as vehicles.
4. Lack or inadequate facilities or equipment, in addition to the poor operation and lack of maintenance.
5. Inefficient collection systems.
6. Lack of financial resources necessary to achieve the required level of cleanliness.
7. Lack of comprehensive and systematic integrated approach for SWM, the incompatibility of the stages of the system leading to hampering the smooth flow and the safe implementation.
8. Lack of skills and human capacities.

9. The accumulation of huge amounts of waste.
10. The spread of unofficial dumpsites.
11. The need to increase the income from SWM processes.
12. Problems with the private companies which are part of the SWM system.
13. The inadequacy of organizational and administrative systems, and the lack of coordination between different stakeholders. The unclear definition of roles and responsibilities. Lack of monitoring and auditing processes.
14. Poor implementation of laws and legislations.
15. Negative effects related to unhealthy practices of handling wastes.
16. Lack of availability of landfill sites.

- Distribution of the main causes of SWM problems

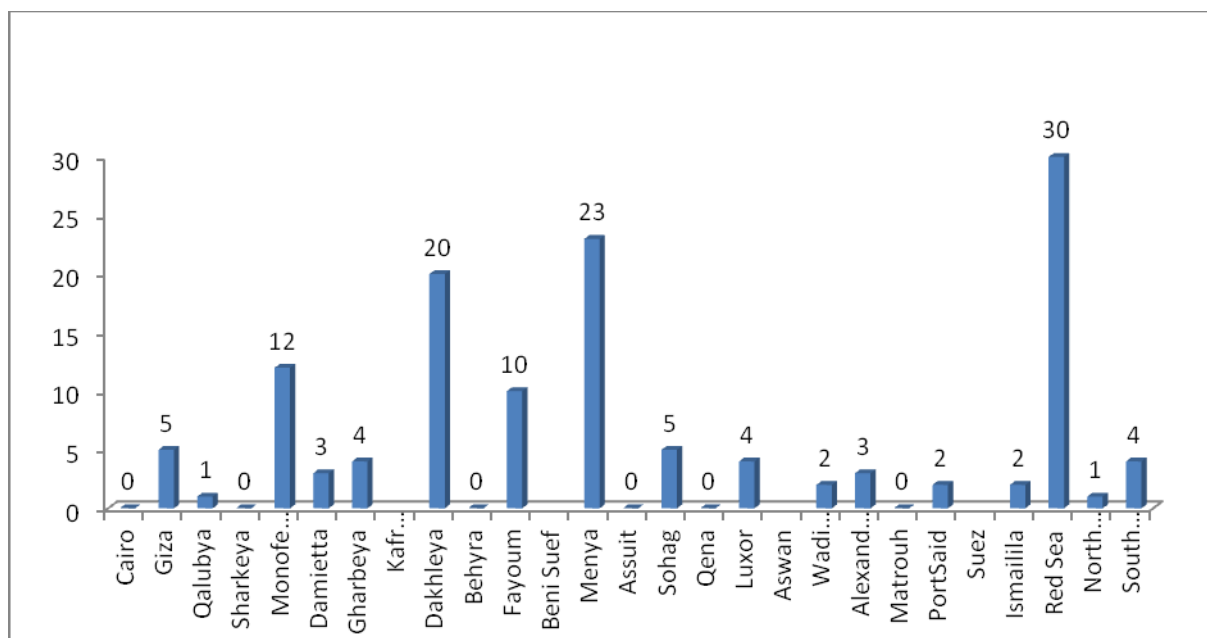
Causes of problems	Greater Cairo			Delta							Upper Egypt									Coastal zones						Sinai	
	Cairo	Giza	Qalyobya	Sharkeya	Monofeya	Damietta	Gharbya	Kafr Sheikh	Dakhlia	Behyra	Fayoum	Beni Suif	Menya	Assuit	Sohag	Qena	Luxor	Aswan	Wadi Gedid	Alexandria	Matrouh	Prot Said	Suez	Ismailia	Red Sea	North Sinai	South Sinai
Lack of public awareness	x	x	x	x	x	x	x		x	x	x		x	x	x	x	x		x	x	x	x		x	x	x	x
Weakness of processing & recycling	x	x	x	x	x	x	x		x	x	x			x	x	x	x				x	x		x		x	x
Need for investment in the infrastructure	x	x	x	x		x	x		x	x	x		x	x	x	x	x					x		x		x	
Lack or inadequate facilities or equipment	x	x	x	x		x			x	x	x		x		x	x			x	x		x		x	x	x	x
Inefficient collection systems	x	x	x	x					x	x	x			x	x	x				x	x	x		x		x	x
Lack of financial resources	x	x	x	x	x	x				x	x				x				x					x		x	x
Lack of comprehensive and systematic integrated approach	x	x	x						x		x		x		x	x					x			x	x	x	x
Lack of skills and human capacities	x	x		x					x	x	x				x	x	x		x					x			x
Accumulation of huge amounts of waste	x	x		x	x				x		x			x	x	x	x				x			x			
Spread of unofficial dumpsites	x	x			x				x	x	x				x	x			x	x	x			x			
Need to increase the income	x	x		x	x		x		x		x				x	x								x		x	
Random burning of wastes	x	x		x					x	x	x				x	x								x		x	
Inadequacy of organizational & administrative systems	x	x	x						x		x				x	x				x				x	x		x
Poor implementation of laws	x	x	x								x		x		x	x								x		x	
Negative effects related to unhealthy practices	x	x							x	x	x				x	x								x			
Lack of availability of landfill sites		x							x		x		x		x												

It can be concluded from the previous table that there are multiple causes for SWM system problems at different Governorates. The main problem lies in the area of greater Cairo and Giza, in Delta area especially in the Governorates of Dakhleya, Behyra, and in Upper Egypt especially at the Governorates of Fayoum and Qena.

1.6 Governorates capacities in SWM systems

1.6.1 Number and type of training programs employees received in the field of SWM

Figure (11): the Governorates whose employees have received training in the different components of SWM systems, and the number of trained employees:



It can be concluded that the following Governorates have the largest number of trained employees:

- Red Sea
- Menya
- Dakhlia
- Monofeya

This is a result of some projects that have already been implemented in these Governorates, that included activities related to training of a large number of employees and workers in SWM.

The areas that the received the greatest number of trainings about SWM is delta.

The training programs were in the following topics:

1. Courses related to integrated SWM systems, including the following topics:

- Handling SW;
- Privatization of SWM systems;
- Management and operation of intermediate stations.

2. Trainings in the field of final disposal of wastes, including the following topics:

- Guidelines for rehabilitation of public dumpsites:

- Guidelines for selection of landfill sites;
 - Management and operation of landfill sites;
 - Developing public dumpsites.
3. Trainings in the field of recycling, including the following topics:
- Management and recycling of solid waste;
 - Management and operation of recycling and organic fertilizers factories.
4. Trainings about environmental impact assessment
5. Trainings about environmental laws and regulations

1.6.2 Other Organizations responsible for SWM in the Governorate

Organizations involved in SWM other than the local administration, private companies or international companies are mainly NGO's (local CDA's), and the following table indicates the Governorates where the NGO's participate in SWM systems.

- NGO's participating in SWM systems

Area	Governorate	NGO's
Greater Cairo	Qalyobya	Local CDA's
Delta	Sharkeya	NGO's and local CDA's
	Gharbeya	36 CDA's operating in collection and transfer of wastes from villages
Coastal Zone	Red Sea	Hebka NGO
Upper Egypt	Menya	Coptic evangelical association for social services, in addition to other NGO's in the villages
	Luxor	Social integration association Association of Shams in Awamya Association of small pyramid –El bayrat in Qorna
Sinai	South Sinai	2 NGO's in Ber el Abd district

1.6.3 Technical assistance projects implemented in the field of SWM

Alexandria, Fayoum, Luxor are the only Governorates that have implemented technical assistance projects in SWM, other Governorates did not implement any projects.

1.6.4 Projects implemented by NGO's and other funding agencies active in SWM

NGO's have implemented projects in 7 Governorates (Fayoum – Red Sea – South Sinai - Menya – Qena – Luxor - Behyra) funded by European donor bodies. These Governorates represent 32% of the total Governorates, the remaining 68% did not benefit from these projects. Most of these projects were implemented by NGO's in Upper Egypt (Fayoum - Menya – Qena - Luxor). The following table explains these projects:

- Projects implemented by NGO's

Area	Governorate	Project	Donor body	Donor	Starting date	Finalization date
Delta	Behyra	Collection and transfer of SW	Denmark	Danida	2009	2009
Upper Egypt	Fayoum	Support to Decentralization of Environmental Management		Danida	2005	2008
	Menya	SWM project	Italy	UNDP	2005	2007
	Qena	Collecting SW	UK	SEAM	2003	2005
	Luxor	Treatment of waste water in Habiba restaurant in Boghdady	Germany	GTZ	2008	2008
Coastal zone	Red Sea	Project of measuring daily generation rates of wastes in the village of Shalateen, recycling and disposal of wastes.	USA	Life	16/12/2006	21/12/2006
Sinai	South Sinai	A project for SWM was funded within the SSDP project, including: 1. Establishing a factory for production of organic fertilizers in Sharm Sheikh 2. Establishing 6 intermediate stations in the Governorate 3. Establishing 8 units for feeding animals in different cities 4. Rehabilitation of construction waste dumpsites 5. Providing equipment and vehicles for SWM	EU	EU		

1.7 *Priorities of investment needs in SWM systems*

1.7.1 The major investments in SWM since 2006

The Governorates that have implemented investments in the field of SWM systems since 2006 are 14 Governorates representing 64%, these investments were concentrated in the following fields:

- Purchasing equipment for improving the efficiency of waste collection and transfer.
- Establishing recycling and organic fertilizers factories.
- Establishing landfills.
- Establishing intermediate transfer stations.
- Establishing units for treatment of hazardous health waste.

The sources of funding in most of these projects are governmental or international funding agencies interested in SWM in Cairo, Giza and Alexandria or through international grants.

1.7.2 Current investment plans for implementation in the near future

The number of Governorates that have investment plans for SWM systems are 8 Governorates representing 36% from the total number of Governorates (Monofeya – Gharbeya – Damietta – Fayoum – Menya – Luxor – Wadi Gedid – Port Said). Governorates that do not have plans for SWM systems are 14 Governorates representing 64%.

Most of the investment plans are concentrated in three main areas:

- Purchasing equipment for mechanical movement, in order to enhance the capacity of collection and transfer processes.
- Establishing landfills
- Establishing recycling and organic fertilizers factories.

The main required activities for providing support to the Governorates are:

- Purchasing mechanical equipment for enhancing the efficiency of collection and transfer processes
- Establishing landfills
- Rehabilitation of current recycling and organic fertilizers factories
- Establishing recycling and organic fertilizers factories
- Establishing recycling centers
- Rehabilitation of public dumpsites
- Closing unofficial landfills

- Major investments in SWM since 2006, current investment plans and main three fields for required support

	Greater Cairo			Delta							Upper Egypt							Coastal Zone					Sinai				
	Cairo	Giza	Qalubya	Sharkeya	Monofeya	Damietta	Gharbeya	Sheikh	Dakhleya	Behyra	Fayoum	Seuif	Menya	Assuit	Sohag	Qena	Luxor	Aswan	Gedid	a	Matrouh	Port Said	Suez	Ismailia	Red Sea	Sinai	Sinai
Major investments in SWM systems since 2006																											
1) Implemented Integrated SWM project													x						x								
2) Establishing medical hazardous waste treatment unit	x																			x							
3) Establishing Public dumpsites																									x		
4) Establishing Landfills	x			x	x		x																				x
5) Establishing recycling and organic fertilizers factories				x	x	x															x						x
6) Purchasing equipment for enhancing waste collection & transfer processes	x		x			x	x		x						x	x	x			x							x
7) Hiring new workers for SWM systems																	x										
Main fields for required support																											
1) Implementing the Waste collection system from source		x									x									x							x
2) Supporting by equipment to enhance collection and transfer	x	x	x	x	x	x	x		x	x			x	x		x	x		x	x	x	x		x			x
3) Establishing recycling centers											x			x					x	x	x	x			x	x	x
4) Establishing recycling and organic waste factories					x	x				x					x							x					
5) Rehabilitation of recycling and organic waste factories		x		x	x	x	x		x					x		x								x			
6) Establishing an integrated system for handling medical waste		x																								x	
7) Rehabilitation of public dumpsites	x		x							x			x														
8) Closing unofficial dumpsites					x				x	x																	
9) Establishing landfills	x	x		x	x		x		x	x	x		x	x		x	x		x		x			x		x	x
10) Capacity building						x													x								

1.8 *Annex 1: Overview of each Governorate with the results from the survey*

• **Contacts in the Governorates of Egypt**

The survey questionnaire was sent to both the Executive Director of EEAA and the Secretary General of each Governorate. The following Table illustrates who responded to the questionnaire for each Governorate.

Governorate	Name	Position	Phone	Fax	Email
Cairo	Ahmed Aly Mohamed	Chairman the general authority of Cairo cleaning & beautification	26744646	26744646	purity@cairo.gov.eg
Giza	Eng. Yossry	Head of environment dept.			
Qalyobya	Raafat Fathy Abdel Latif	Head of environment dept.	013/3223214	013/3223214	
Sharkeya	Amin Mohamed Moahmed	Head of environment dept.	125104330	055/2367896	
Monofeya	Eng. Ahmed Ragab Gaafar	Head of environment dept.	048/2312785	048/2220405	mnf@monofeya.gov.eg
Damietta	Mazhar Mohamed Noman	Head of environment dept.	057/2247255	057/2222666	mazharnoman@hotmail.com
Gharbeya	Abdel Aziz Mahfoiuz	Head of environment dept.	040/3333111	040/3358579	
Kafr Sheikh					
Dakhleya	Atef El Mnyawy	Head of environment dept.	050/2329479	050/2329479	
Behyra	Ahmed Abdallah El Kady	Head of environment dept.	045/3366351	045/3366351	eeaawed@yahoo.com
Fayoum	Oweys Said Abdallah	Head of environment dept.	126868992	846337304	hossamshzaid@yahoo.com
Beni Seuif					
Menya	Mohamed Saad Hassan	Head of environment dept.	086/2319257	086/2319257	
Assuit	Basmat Mohamed	Environmental inspector	088/2324000		
Sohag	Mahmoud Abdel Radi Aly	Environmental inspector	2470687	012 9930255	

Governorate	Name	Position	Phone	Fax	Email
Qena	Mohamed Nasr EL Din Abdel Aziz	SW responsible	096/5223733	096/5210138	m_nasr_abdelaziz@yahoo.com
Luxor	Ahmed Mahmoud Mohamed hamam	Cleaning general manager	124904746	095/372155	luxoridsc@yahoo.com
Aswan					
Wady Gedid	Mostafa Lotfy Aly	Head of environment dept.	927936568	927935852	wadyenviro@yahoo.com
Alexandria	Akram	Environmental inspector	03/3900741	03/3900742	alx-emu@hotmail.com
Matrouh	Sayed Gomaa Dabour	Head of environment dept.	046/4947594	046/4934383	huoers@yahoo.com
Port Said	Nagy Amin Abdou	Assistant Head of environment dept.	066/223901	066/223901	
Suez					
Ismailia	Badia Ismail Abddou	Head of statistics dept. Information center			
Red Sea	Mohamed Ibrahim Ahmed	Environment specialist	065/3555978	065/3555978	
North Sinai	Gamal Helmy Mostafa	Main environment inspector	068/3320921	068/3320921	envirosina2011@yahoo.com
South Sinai	Ahmed Aly Mohamed Shousha	Head of environment dept.	069-3777140	069-3777141	Ahmedshosha15@yahoo.com

- **Governorates's Overview**

Cairo Governorate

Daily generation of MSW	14000 ton\day
Daily generation of other types of SW	Agricultural waste: 260 ton\day Industrial waste: 3321 ton\day Construction waste: 3290 ton\day Hazardous medical waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	1.7 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 3 in Al Katamia area ▪ 2 in El Salam city ▪ 2 in 15 May city
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Control dump sites: 4 <ul style="list-style-type: none"> ▪ El Salam city ▪ El Katamia area ▪ El Top el ramly ▪ Shak el soaban Landfills: 2 <ul style="list-style-type: none"> ▪ Al Wafa we Al Amal area ▪ 15 May City
Other relevant information obtained from surveys: Cairo Cleansing and Beautification Authority (CCBA) is primarily responsible for the operations management of solid waste within the Governorate where the Authority was contracted with foreign companies to manage the system of solid waste to some parts of the Governorate. CCBA is contracted with the Ama Arab Co. for the management of solid waste in the northern and western region of Cairo. Also CCBA has a contract with the Spanish company FCC for solid waste management in the Eastern region of Cairo. Al Fustat, a national private company, is contracted by the CCBA and is assisting in solid waste management in the Southern Region of Cairo.	

Giza Governorate

Daily generation of MSW	4000 ton\day
Daily generation of other types of SW	Agricultural waste: 1900 ton\day Industrial waste: 150 ton\day Construction waste: not estimated Hazardous health waste: 0.5 ton\day
Daily generation of MSW per capita (kg/day)	0.6 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 70 % Percentage of informal waste collection: 30 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 2 Shubrament area ▪ 1 Abo Rwash area
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 7 Control dump sites: 1 "Shubrament" Landfills: 0
Other relevant information obtained from surveys: Giza Cleansing and Beautification Authority (GCBA) is primarily responsible for the operations management of solid waste within the Governorate. The GCBA is contracting an Italian Company, the International Environmental Services (IES), to provide service in certain districts namely El Dokki, El Agoza and North Giza. In the meantime, national service companies are contracted by GCBA to assist in solid waste management system in other parts of the Governorate.	

Qalubya Governorate

Daily generation of MSW	2000 ton\day
Daily generation of other types of SW	Agricultural waste: 1140 ton\day Industrial waste: 14 ton\day Construction waste: not estimated Hazardous health waste: 1.2 ton\day
Daily generation of MSW per capita (kg/day)	0.5 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 65 % Percentage of informal waste collection: 35 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Abo Zabal area
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Control dump sites: 1 "Abo Zaabal" Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Sharkeya Governorate

Daily generation of MSW	1195 ton\day
Daily generation of other types of SW	Agricultural waste: 858 ton\day Industrial waste: 20 ton\day Construction waste: 254 ton\day Hazardous health waste: 1.5 ton\day
Daily generation of MSW per capita (kg/day)	0.2 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 60 % Percentage of informal waste collection: 40 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 2 Zagazig ▪ 1 Abu Kbir ▪ 1 Belbis
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 12 Control dump sites: 0 Landfills: 1 “ El Khatara”
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste. Contracted ICC private company for solid waste management in Zagazig city.	

Monofeya Governorate

Daily generation of MSW	1800 ton\day
Daily generation of other types of SW	Agricultural waste: 1580 ton\day Industrial waste: 130 ton\day Construction waste: not estimated Hazardous health waste: 3 ton\day
Daily generation of MSW per capita (kg/day)	0.5 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 90 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 85 % Percentage of informal waste collection: 15 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Menouf ▪ 1 Ashmoun ▪ 1 Qousna ▪ 1 Shohdaa
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 9 Control dump sites: 0 Landfills: 1 "El Sadat"
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Damietta Governorate

Daily generation of MSW	1150 ton/day
Daily generation of other types of SW	Agricultural waste: not estimated Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: 1 ton/day
Daily generation of MSW per capita (kg/day)	1 kg/capita/day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 85 % Percentage of informal waste collection: 15 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Damietta ▪ 1 Ras El Bar ▪ 1 Farscore
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 4 Control dump sites: 0 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Gharbeya Governorate

Daily generation of MSW	1520 ton\day
Daily generation of other types of SW	Agricultural waste: 1147 ton\day Industrial waste: 1 ton\day Construction waste: 8.2 ton\day Hazardous health waste: 17.6 ton\day
Daily generation of MSW per capita (kg/day)	0.4 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Tanta ▪ 1 Mahla ▪ 1 Sadat City
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 4 Control dump sites: 0 Landfills: 1 "El Sadat"
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste. Contracted Care Service private company for solid waste management in Tanta and Mahla.	

Dakhleya Governorate

Daily generation of MSW	3000 ton\day
Daily generation of other types of SW	Agricultural waste: 2054 ton\day Industrial waste: 216 ton\day Construction waste: 348 ton\day Hazardous health waste: 20 ton\day
Daily generation of MSW per capita (kg/day)	0.6 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 50 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 70 % Percentage of informal waste collection: 30 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 2 Mansoura ▪ 1 Klabsho ▪ 1 Aga
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 7 Control dump sites: 0 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Behyra Governorate

Daily generation of MSW	1200 ton\day
Daily generation of other types of SW	Agricultural waste: 6.5 ton\day Industrial waste: 1.5 ton\day Construction waste: not estimated Hazardous health waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	0.2 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 10 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 75 % Percentage of informal waste collection: 25 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Damnhour ▪ 1 Kafr Dawar ▪ 1 Edko
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 15 Control dump sites: 0 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Fayoum Governorate

Daily generation of MSW	1226 ton\day
Daily generation of other types of SW	Agricultural waste: 1760 ton\day Industrial waste: 20 ton\day Construction waste: 600 ton\day Hazardous health waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	0.5 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 50 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 70 % Percentage of informal waste collection: 30 %
Distribution of recycling and organic fertilizer factories in the Governorate	▪ 1 Fayoum
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 5 Control dump sites: 2 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Menya Governorate

Daily generation of MSW	445 ton\day
Daily generation of other types of SW	Agricultural waste: 800 ton\day Industrial waste: 4 ton\day Construction waste: 150 ton\day Hazardous health waste: 2 ton\day
Daily generation of MSW per capita (kg/day)	0.1 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 75 % Percentage of informal waste collection: 25 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Menya ▪ 1 Malwy ▪ 1 Adwa
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 9 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies. The Governorate also developed administrative structure to manage the solid waste system in 9 cities, but did not provide the required expertise.	

Assuit Governorate

Daily generation of MSW	700 ton\day
Daily generation of other types of SW	Agricultural waste: not estimated Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	0.2 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 60 % Percentage of informal waste collection: 40 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Manqabad
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 1 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Sohag Governorate

Daily generation of MSW	378 ton\day
Daily generation of other types of SW	Agricultural waste: 1481 ton\day Industrial waste: 25 ton\day Construction waste: 51 ton\day Hazardous health waste: 2 ton\day
Daily generation of MSW per capita (kg/day)	0.1 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 10 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 55 % Percentage of informal waste collection: 45 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Al Gabl Gharby
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 11 Control dump sites: 3 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Qena Governorate

Daily generation of MSW	250 ton\day
Daily generation of other types of SW	Agricultural waste: 1275 ton\day Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	0.1 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 10 % Percentage of waste collection: 30 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 45 % Percentage of informal waste collection: 55 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Qena ▪ 1 Naga Hamady
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 9 Control dump sites: 0 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Luxor Governorate

Daily generation of MSW	180 ton\day
Daily generation of other types of SW	Agricultural waste: 50 ton\day Industrial waste: 30 ton\day Construction waste: 70 ton\day Hazardous health waste: 1 ton\day
Daily generation of MSW per capita (kg/day)	0.4 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Al Hobiel
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 2 Control dump sites: 2 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Wadi Gedid Governorate

Daily generation of MSW	82 ton\day
Daily generation of other types of SW	Agricultural waste: 298 ton\day Industrial waste: 10 ton\day Construction waste: 84 ton\day Hazardous health waste: 0.16 ton\day
Daily generation of MSW per capita (kg/day)	0.4 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 90 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 90 % Percentage of informal waste collection: 10 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 2 Kharga
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 6 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Alexandria Governorate

Daily generation of MSW	3200 ton\day
Daily generation of other types of SW	Agricultural waste: 0 ton\day Industrial waste: 100 ton\day Construction waste: not estimated Hazardous health waste: 0.25 ton\day
Daily generation of MSW per capita (kg/day)	0.7 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 90 % Percentage of informal waste collection: 10 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Abees 1 ▪ 1 Abees 2 ▪ 1 Al Montaza
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Landfills: 2 <ul style="list-style-type: none"> ▪ Al Hamam ▪ Borg RI Arab
Other relevant information obtained from surveys: The EMU of Alexandria contracted Veolia Co. to manage the system of solid waste from collection to disposal in all parts of the Governorate.	

Matrouh Governorate

Daily generation of MSW	266 ton/day
Daily generation of other types of SW	Agricultural waste: not estimated Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: not estimated
Daily generation of MSW per capita (kg/day)	0.8 kg/capita/day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Marsa Matrouh
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 1 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Port Said Governorate

Daily generation of MSW	915 ton\day
Daily generation of other types of SW	Agricultural waste: 520 ton\day Industrial waste: 100 ton\day Construction waste: 50 ton\day Hazardous health waste: 5 ton\day
Daily generation of MSW per capita (kg/day)	1.6 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 90 % Percentage of informal waste collection: 10 %
Distribution of recycling and organic fertilizer factories in the Governorate	▪ 1 West Port Said
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 2 Landfills: 1
Other relevant information obtained from surveys: The local administration is responsible for solid waste management in the western and southern villages, Contracted Egypt Service Co. to manage solid waste in 5 neighborhoods (Al zhor – Al Manakh - Al Arab - Wasat – El Dwahee) and the Company "Falcon" to manage the solid waste system in Port Fouad.	

Suez Governorate

Daily generation of MSW	420 ton\day
Daily generation of other types of SW	Agricultural waste: not estimated Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: 0.8 ton\day
Daily generation of MSW per capita (kg/day)	0.1 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 70 % Percentage of informal waste collection: 30 %
Distribution of recycling and organic fertilizer factories in the Governorate	▪ 1 Suez
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 0 Landfills: 1
Other relevant information obtained from surveys: The Governorate has contracted Tanzifco Co. to manage solid waste from collection to disposal in the Governorate.	

Ismailia Governorate

Daily generation of MSW	375 ton\day
Daily generation of other types of SW	Agricultural waste: 15 ton\day Industrial waste: 22 ton\day Construction waste: 65 ton\day Hazardous health waste: 12 ton\day
Daily generation of MSW per capita (kg/day)	0.4 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 30 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 65 % Percentage of informal waste collection: 35 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 2 Abu Balah
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 5 Control dump sites: 1 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste without assistance from private or foreign companies.	

Red Sea Governorate

Daily generation of MSW	365 ton\day
Daily generation of other types of SW	Agricultural waste: 1 ton\day Industrial waste: 25 ton\day Construction waste: 1020 ton\day Hazardous health waste: 0.15 ton\day
Daily generation of MSW per capita (kg/day)	1.2 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 90 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 85 % Percentage of informal waste collection: 15 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Hurghada
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 5 Control dump sites: 1 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste. The Governorate has contracted Hebka "NGO" to manage solid waste "collection" in Hurghada city.	

North Sinai Governorate

Daily generation of MSW	104 ton\day
Daily generation of other types of SW	Agricultural waste: 70 ton\day Industrial waste: 12 ton\day Construction waste: 61 ton\day Hazardous health waste: 0.5 ton\day
Daily generation of MSW per capita (kg/day)	0.3 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 Ariesh
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 0 Control dump sites: 6 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste. The Governorate has contracted Care Service Co. to manage solid waste from collection to disposal in Ariesh city.	

South Sinai Governorate

Daily generation of MSW	334 ton\day
Daily generation of other types of SW	Agricultural waste: not estimated Industrial waste: not estimated Construction waste: not estimated Hazardous health waste: 0.2 ton\day
Daily generation of MSW per capita (kg/day)	2.2 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 70 % Percentage of waste collection: 70 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	▪ 1 Sharm Sheikh
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	Random dump sites: 3 Control dump sites: 0 Landfills: 0
Other relevant information obtained from surveys: The local administration is responsible for the management of solid waste. The Governorate has contracted Sharm for Environmental Services Co. to manage solid waste from collection to disposal in Sharm El Sheikh city.	

Kafr El Sheikh Governorate

Daily generation of MSW	2000 ton\day
Daily generation of other types of SW	Agricultural waste: 1500 ton\day Industrial waste: 1.5 ton\day Construction waste: 50 ton\day Hazardous medical waste: 14 Mg/day\day
Daily generation of MSW per capita (kg/day)	0.50 kg\capita\day
Percentage of population served by waste collection services	Percentage of population served: 50 % Percentage of waste collection: 50 %
Percentage of formal/informal collection services if available	Percentage of formal waste collection: 80 % Percentage of informal waste collection: 20 %
Distribution of recycling and organic fertilizer factories in the Governorate	<ul style="list-style-type: none"> ▪ 1 in Kafr El-Sheikh City ▪ 1 in Sidi Salem ▪ 1 in Beyalla
Number and type of dumpsites and their distribution in the Governorate (if the latter information is available)	10 Control dump sites
Note: The above data was obtained through the First Secretary of the Governorate of Kafr El-Sheik	