

Reporting Office/s, Department/s and Contact Detail/s

Reporter/s name: **Dr. Essam Khalifa** Reporting office/s, Department/s: **Ministry of Water Resources and Irrigation**
 Tel/s: +202 35449420/30 email/s: **essam@mwrri.gov.eg**.

1. Municipal Wastewater Production¹, Collection² and Treatment³

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Municipal Wastewater Production (10 ⁹ m ³ /yr)		2.93 (EU)												7	8.5
Municipal Wastewater Collection	Collected (10 ⁹ m ³ /yr)													5.2	6.5
	Not collected (10 ⁹ m ³ /yr)													1.8	2
Municipal Wastewater Treatment	Total Wastewater treated (10 ⁹ m ³ /yr)			1.81 (RO)		1.9 (EE)							2.24 [∞] (WA)	3.4	4.8
	Number of treatment facilities		67 (EU)		121 (RW)							123 (WR)		323	358
	Capacity of treatment facilities (10 ⁹ m ³ /yr)		2.25 (EU)											4.1	5.5

2. Direct⁴ Municipal Wastewater Use / Discharge

			1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Untreated Effluent	Discharged (10 ⁹ m ³ /yr)					1.00 (RW)										
	Used for Irrigation	Volume Used (10 ⁹ m ³ /yr)														
		Area Irrigated (1000 ha)														
Primary Treated Effluent	Discharged (10 ⁹ m ³ /yr)													0.3	0.3	
	Used for Irrigation	Volume Used (10 ⁹ m ³ /yr)												-	-	
		Area Irrigated (1000 ha)				42.00 (RW)							42.00 (RW)		-	-
Secondary Treated Effluent	Discharged (10 ⁹ m ³ /yr)														3.1	4.5
	Used for Irrigation	Volume Used (10 ⁹ m ³ /yr)													0.16	0.29
		Area Irrigated (1000 ha)													13	23
Tertiary Treated Effluent	Discharged (10 ⁹ m ³ /yr)														-	-
	Used for Irrigation	Volume Used (10 ⁹ m ³ /yr)													-	-
		Area Irrigated (1000 ha)													-	-
Summary																
Total Treated Wastewater Use (irrigation) (10 ⁹ m ³ /yr)															0.16	0.29
Total Treated Wastewater Discharge (10 ⁹ m ³ /yr)															3.4	4.8
Total Area Irrigated with Treated Wastewater (1000 ha)															13	23

List of References:

RW - Regional workshop on water reuse in Middle East and North Africa, 2-5 July 2001

EU - Egypt update figures submitted to FAO/RNE, El-Gohary, F, 2000.

TS - Towards Sustainable Wastewater Reuse in the MENA Region, Abu-Madi.M & Al-Sa'ed.R, 2009

WA - Water in the Arab World, Jagannathan V.N., Mohamed A. S., Kremer A., 2009.

WR - Water Reuse: An International Survey of Current Practice, Issues and Needs, 2000. Jiménez. B., Takashi Asano.

RO - A regional overview of wastewater management and reuse in the Eastern Mediterranean Region World Health, WHO, 2005

EE - Reuse of wastewater in Mediterranean Region, Egyptian Experience, Loutfy. N.M , 2010

Notes:

[∞] - Number may be greater

* - Data estimated

¹ Refers to, the annual quantity of wastewater originating in dwellings, commercial or industrial facilities. This category also considers runoff water collected in the sewer system

² Refers to total quantity of municipal wastewater collected by municipal sewer systems, pit latrines, septic tank or transported to treatment plants (by trucks). Municipal wastewater discharged in open pits or water courses is considered as not collected municipal wastewater.

³ Refers to processes, design, construction, operation and maintenance of wastewater collection and treatment systems, including:

- Primary treatment processes such as sedimentation tank, skimming and chemical enhanced primary treatment.
- Secondary treatment processes such as Aerated Lagoon, Activated Sludge, Up-flow Anaerobic Sludge Blanket, Trickling Filters, Rotating Biological Contactors, Oxidation Ditch and Settling Basin Digester. Natural biological treatment processes such as Waste Stabilization Pond, Constructed Wetlands, Overland Treatment, Nutrient Film Techniques, Soil Aquifer Treatment, High-Rate Algal Pond, and Floating Aquatic Macrophyte Systems.
- Tertiary treatment processes such as Membrane filtration (Micro-; Nano-; Ultra- and Reverse Osmosis), Infiltration/Percolation, Activated Carbon and Disinfection

⁴ Direct use of wastewater occurs when the (un) treated effluent is directly used for agriculture or other irrigation or recycling purposes. In this fact sheet indirect use of wastewater is not considered. Indirect use treated or untreated urban wastewater occurs when water from a river receiving treated or untreated urban wastewater is abstracted by farmers downstream of the urban centre for agriculture.