

Expert Group Meeting on
Resource Efficiency:
Monitoring progress on
SDG12, October 2020

Natural capital accounts: Waste accounts for Egypt



Environment, Natural Resources & Blue Economy

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This session looks at:

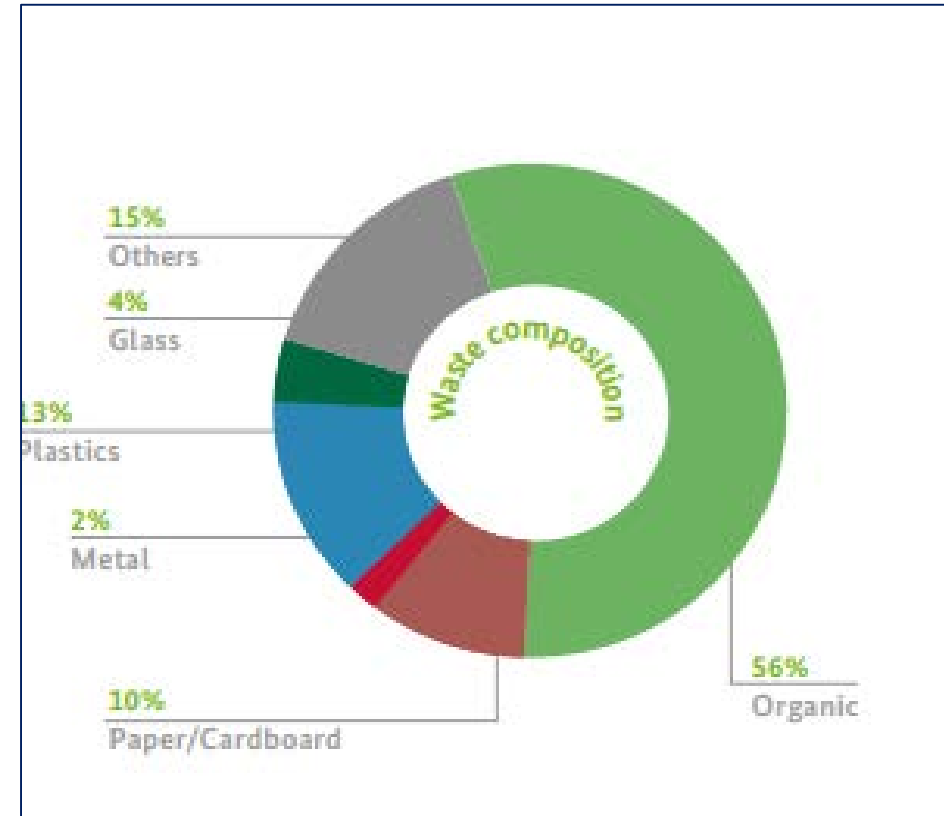
- Background information
- Earlier concerns about solid waste management
- Role of the Waste Management Regulatory Authority
- Current observations on solid waste management
- A case study: Red Sea Governorate
- Preliminary results from WAVES study in the Red Sea Governorate

Country report on the solid waste management in EGYPT 2014



BACKGROUND INFORMATION

Population:	84,748,160 (July, 2013)
Municipal Solid Waste (MSW) Generation:	21 million tons/year (2012)
Per Capita MSW Generation:	
- Urban areas	0.7 - 1.0 kg/day (2012)
- Rural areas	0.4 - 0.5 kg/day
MSW Generation Growth:	2 %
Medical waste generation:	28,300 tons/year (2010)
Industrial waste:	6,000,000 tons/year
Hazardous waste:	260,000 - 500,000 tons/year (2008, 2012)
Agricultural waste:	30,000,000 tons/year (2012)
C&D Waste:	4,000,000 tons/year (2012)
Waste Tyres:	N/A tons/year
e-Waste:	N/A tons/year
Packaging Waste:	N/A tons/year



Developed with the support of Dr. Tarek Zaki and in close cooperation with the SWEEP-Net national coordinator Mr. Amine Khial

Towards Sustainable Management of Solid Waste in Egypt

Mohamed Ibrahim
Mohamed Ibrahim, Nanis
Abd El Monem Mohamed,
2015

Concerns about the situation of solid waste management in Egypt

1. The total annual municipal solid waste generation in Egypt has increased by more than 36% since 2000.
2. Less than 60% of the generated waste is operated by public and private sectors. The rest accumulates on streets and illegal dumping sites, which indicates that the management system is mostly inefficient.
3. More than 80% of the generated municipal solid waste in Egypt is simply dumped, as the overall recovery rate has not exceeded 11.5%.
4. Solid waste management in Egypt is dispersed among more than one structure/ministry that lack the vision of cooperation and planning, as each ministry or structure approaches every management process separately.

Towards Sustainable Management of Solid Waste in Egypt

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Concerns about the situation of solid waste management in Egypt (continued)

5. Although the Egyptian government commenced several initiatives to develop the waste management sector by the beginning of the new millennium, the actual efforts resulted in very little improvement.
6. The problem has been aggravated by the lack of effective legislations, a coherent and direct legal framework, in addition to the limited funds and the inability of municipal authorities to provide reliable services cost-efficiently.
7. The issue of public awareness and citizen behavior toward solid waste management was never considered or directly addressed by the authorities.
8. The situation is causing serious environmental problems. In fact, the improper disposal of solid waste in waterways and drains has led to the contamination of water supplies, which compromises Egypt's natural resources and public health.
9. As a result of the bad performance of solid waste management in Egypt during the last decade, the level of street cleanness has deteriorated badly, and the pollution resulting from garbage incineration has increased highly.

Waste Management Regulatory Authority

- A way forward – WRMA
- Established by Prime Minister Resolution No. (3005) in 2015
- Aims:
 - organizing and monitoring all operations related to waste management at the central and local level to improve environmentally safe management services for all kinds of waste.
 - to support relations between the Arab Republic of Egypt and countries and international organizations in the field of waste,
 - encouraging investments in the field of collection, transportation, treatment, and safe disposal of waste.



The Authority's vision and the proposed waste sector vision emanating from the vision mentioned in the 2030 Strategy

"That the environment be a primary focus in all development and economic sectors in a manner that achieves security of natural resources and supports the fair use and optimal exploitation of them and investment in them in a manner that guarantees the rights of future generations in them, and works to diversify the sources of *production* and economic activities, and contributes to supporting competitiveness, providing new job opportunities, and the judiciary On poverty and achieve social justice while providing a clean, healthy and safe environment for the Egyptian Citizen. "

Vision 2030
strategy

That the solid waste management system be sustainable, organized, and economically active,
working to raise the quality of life for the Egyptian citizen

Vision of the
waste sector
strategy

To be an efficient and effective body capable of leading and organizing the waste sector in Egypt

Vision of the
WMRA

Enterprise:
Wednesday, 8 July
2020

Where did things go wrong with Egypt's waste management?

Egypt's private-sector waste management industry is struggling. Here's why.

Almost two decades ago, Egypt embarked on a mission to manage waste properly instead of using traditional open-air incineration or dumping waste in unsanitary landfills. Key to what policymakers hoped would be a landmark change: Giving the private sector an incentive to process waste and recycle part of it into intermediary raw materials. To back the strategy, the government allocated billions of pounds of investment and took on loans and grants from multilateral organizations, international cooperation agencies, and western governments, the CEO/Head of the Waste Management Regulatory Authority (WMRA) Ahmed El Berri tells Enterprise.

Where did things go wrong with Egypt's waste management?

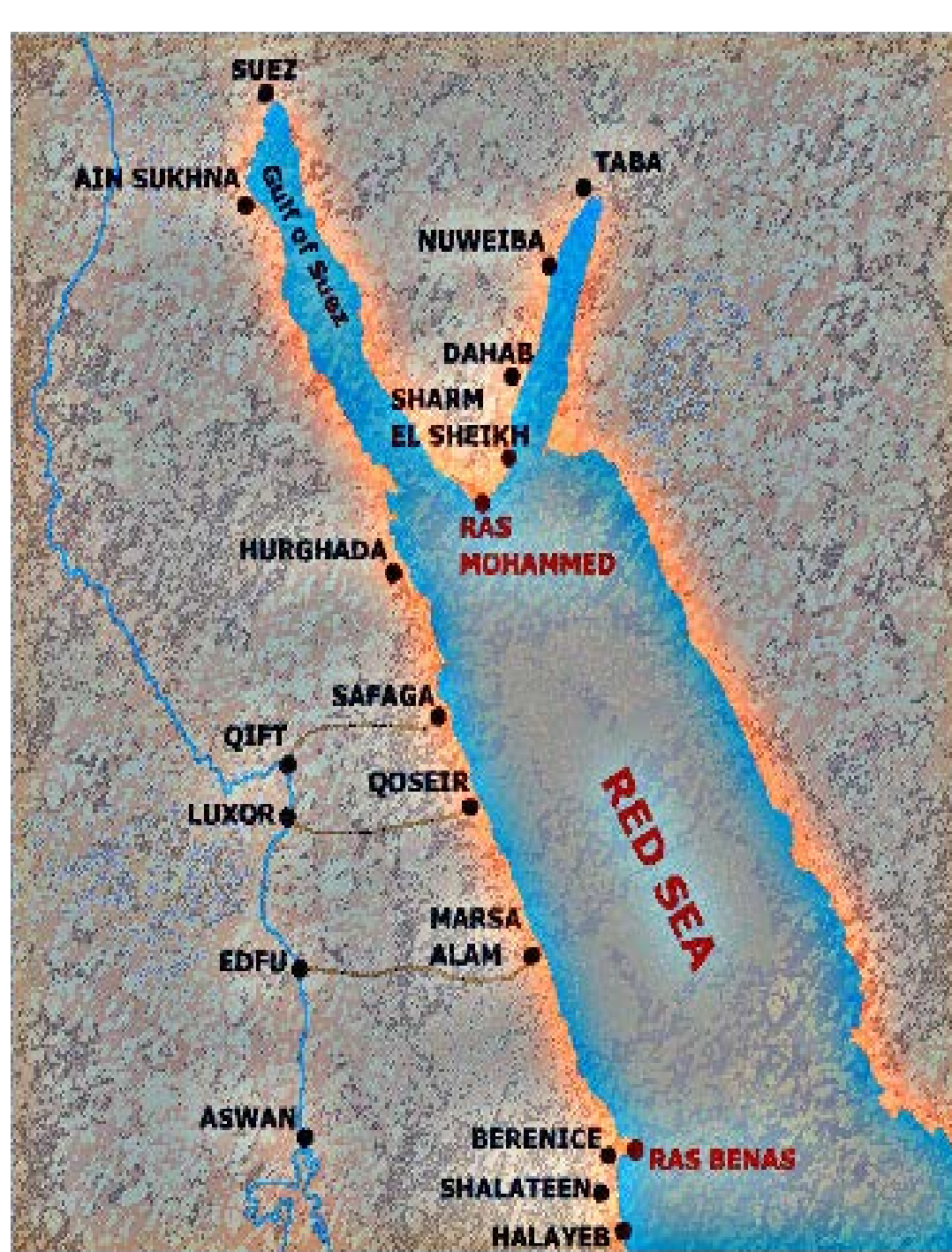
But the private sector end of that program has stalled with as many as 15 companies closing down since 2013, says Karim El Sabee, CEO of waste management company Reliance Investments.

The private sector couldn't find a way around structural problems in the industry, including the lack of a nationwide collection infrastructure and a market that is no longer conducive to the byproducts of recycling, according to industry players we've spoken with. On top of that, the government stopped paying service fees to recyclers who handle waste — which had been mitigating these structural issues. **Private sector players are now asking the government to step in with incentives to save the industry.**

A Case Study: The Red Sea Governorate

- The Red Sea Governorate is one of the largest Egyptian governorates in terms of area with about 119,099 square kilometers, representing approximately 12% of the area of the Arab Republic of Egypt.
- There are 6 administrative departments in the Governorate (Hurghada, Safaga, Quseir, Marsa Alam, Ras Gharib, and Shalateen-Halayeb)
- The estimated population of the Red Sea Governorate reached 361,000 people in 2017, equivalent to 0.3% of the total population of the Arab Republic of Egypt.

(WRMA January 2020)



Average amount of waste in the governorate (WRMA January 2020)



Weight of waste in tons / day	Average per capita waste generation (kg per day)	Average population	City	N
363.5	1.3	279635	Hurghada	1
78.3	1.4	55930	Ras-Gharib	2
60.3	0.9	66948	Safaga	3
37.4	0.8	49841	Al-Quseir	4
31.6	1.0	33249	Marsa Alam	5
10.6	0.7	15139	Shalatin	6
6.8	0.7	9718	Halayeb	7
588.4	1.0	510460	Total	

588.4 tons/day is equal to 214,766 tons/year

The current collection efficiency (WRMA January 2020)

collection %efficiency	The amount of waste transported / ton	Approved disposal point	The amount of waste generated per day / ton	City	n
77	320	Land fill	363.5	Hurghada	1
80	61	Dumpsite	78.3	Ras Gharib	2
75	48	Dumpsite	60.3	Safaga	3
77	15.3	Dumpsite	37.4	Al-Quseir	4
82	42.5	Land fill	31.6	Marsa Alam	5
85	6	Land fill	10.6	Shalatin	6
88	3.5	Land fill	6.8	Halayeb	7
81 %	496.3	---	588.4	Total	

496.3 tons transported per day equals 181,150 ton/year

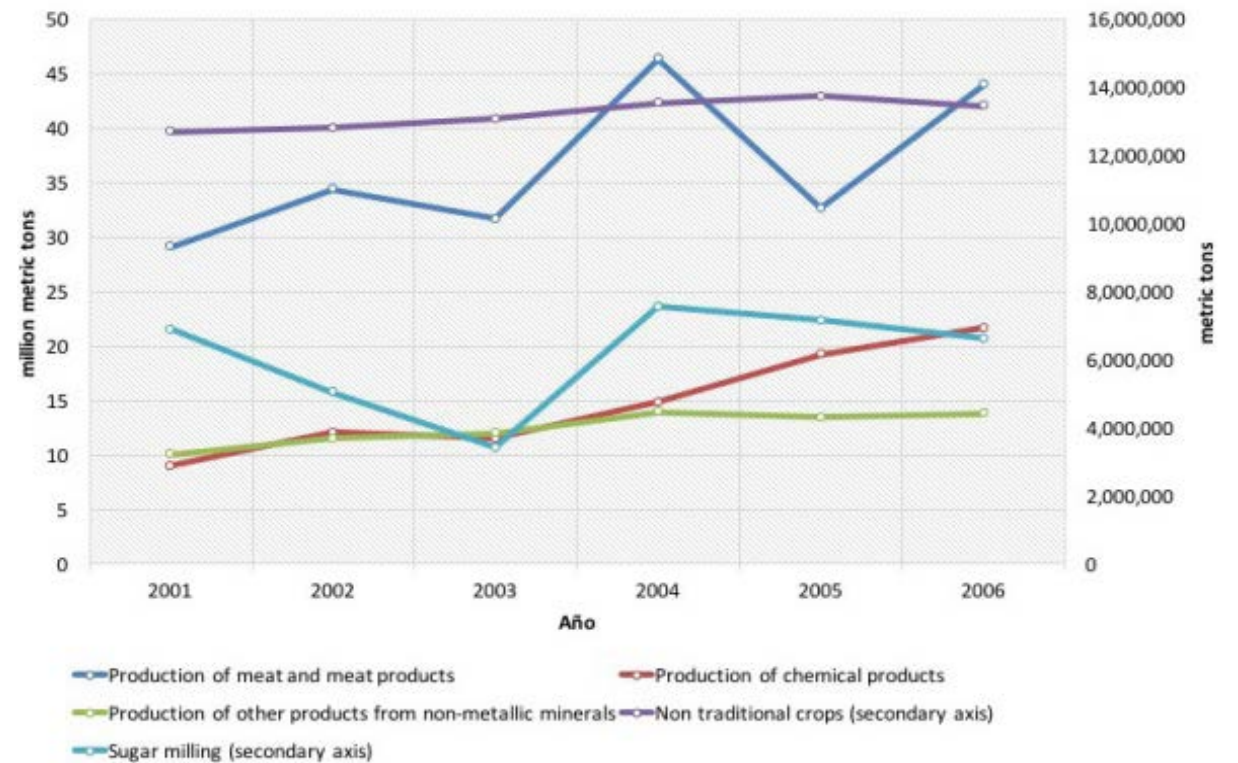
Australian Bureau of Statistics	
Waste category	Waste type
Masonry materials	Asphalt
	Bricks
	Concrete
	Rubble (d)
	Plasterboard & cement sheeting
Metals	Steel
	Aluminium
	Non-ferrous metals (e)
Organics	Food organics
	Garden organics
	Timber
	Other organics
	Non-contaminated biosolids
Paper & Cardboard	Cardboard
	Liquid paperboard
	New sprint & magazines
	Office paper
Plastics	Polyethylene terephthalate (PET)
	High density polyethylene (HDPE)
	Polyvinyl chloride (PVC)
	Low density polyethylene (LDPE)
	Polypropylene (PP)
	Polystyrene (PS)
	Other plastics
Glass	Glass
Textiles, leather & rubber (f)	Textiles
	Leather & rubber (f)
Hazardous waste	Tyres
	Other hazardous waste
Ash	Ash from coal-fired power stations
Other	Other unclassified materials
Total	

Solid waste accounts

SEEA provides guidelines for developing solid waste accounts, however there is no agreed international standard for waste types/categories. Countries decide what is important for their circumstances.

Waste Account,
Australia,
Experimental
Estimates, 2016-17

Figure 2. Solid waste output in Guatemala 2001-2006 (million metric metric tons)



Ministerio de Finanzas Públicas



Solid waste accounts for Egypt

Data was collected from each of the Municipal Divisions in the Red Sea Governorate for the waste categories and types that are important

Waste category	Waste type
Masonry materials (a)	
Metals	Tins & cans
	Other metal waste
Discarded equipment	
Organics	Food organics
	Reed juicers waste
Medical	Medical waste
Paper & Cardboard	
Plastics	Mineral water bottles
	Hard plastic
	Yogurt boxes
	Plastic bags
Glass	
Textiles, leather & rubber	Excluding tyres
	Tyres
Chemicals	Used edible oils
	Machine oils
Electronic	
Other/Mixed waste	
Total	

(a) Asphalt, bricks, concrete, rubble, plasterboard & cement sheeting

Preliminary results from WAVES (World Bank) study of solid waste management in Red Sea Governorate

Red Sea Governorate, 2016-2019	Total Solid Waste Supply, tonnes			
Waste category	2016	2017	2018	2019
Masonry materials (a)	-	-	-	900,000
Metals	97	139	170	206
Discarded equipment	-	-	-	-
Organics	356	393	3,620	3,389
Medical	162	209	250	279
Paper & Cardboard	1,453	1,451	1,536	1,311
Plastics	2,663	2,883	2,953	2,090
Glass	5,403	5,109	5,507	5,000
Textiles, leather & rubber	-	-	-	-
Chemicals	-	-	-	-
Electronic	-	-	-	-
Other/Mixed waste	10,485	23,712	24,542	146,657
Total	20,620	33,896	38,578	1,058,933
Tons/day	57	93	106	2,901
(a) Asphalt, bricks, concrete, rubble, plasterboard & cement sheeting				

The amount of recorded waste supplied is equal to the recorded amount used in each year



2019 total **excluding masonry** is 158,933 tons, equal to 435 tons/day

Preliminary results from WAVES (World Bank) study of solid waste management in Red Sea Governorate

Red Sea Governorate, 2019	Supply of solid waste, 2016 (Tonnes)								
	Industry							Households	Total
Waste category	Municipal waste collection	Agriculture, forestry and fishing	Mining	Manufacturing	Construction and demolition	Health and medical services	All other industries		
Masonry materials (a)					900,000.0				900,000.0
Metals	205.8								205.8
Discarded equipment									0.0
Organics	3,330.0			58.8					3,388.8
Medical						279.4			279.4
Paper & Cardboard	1,311.0			0.2					1,311.2
Plastics	2,090.0			0.2					2,090.2
Glass	5,000.0			0.1					5,000.1
Textiles, leather & rubber									0.0
Chemicals									0.0
Electronic									0.0
Other/Mixed waste	146,657.0								146,657.0
Total	158,593.8	0.0	0.0	59.4	900,000.0	279.4	0.0	0.0	1,058,932.5

Preliminary results from WAVES (World Bank) study of solid waste management in Red Sea Governorate

Red Sea Governorate, 2019	Use of solid waste in, by Industry (Tonnes)											
	Municipal waste disposal						Industry use of Waste					Total
Waste category	Incineration			Landfill		Recovery	Agriculture forestry and fisheries	Mining	Manufacturing	Construction and demolition	All other industries	
	Controlled		Uncontrolled	Controlled	Uncontrolled							
	Energy recovery	Non-energy recovery										
Masonry materials (a)										900,000.0		900,000.0
Metals						205.8						205.8
Discarded equipment												-
Organics						3,330.0			58.8			3,388.8
Medical		279.4										279.4
Paper & Cardboard						1,311.0			0.2			1,311.2
Plastics						2,090.0			0.2			2,090.2
Glass						5,000.0			0.1			5,000.1
Textiles, leather & rubber												-
Chemicals												-
Electronic												-
Other/Mixed waste				146,657.0								146,657.0
Total	-	279.4	-	146,657.0	-	11,936.8	-	-	59.4	900,000.0	-	1,058,932.5

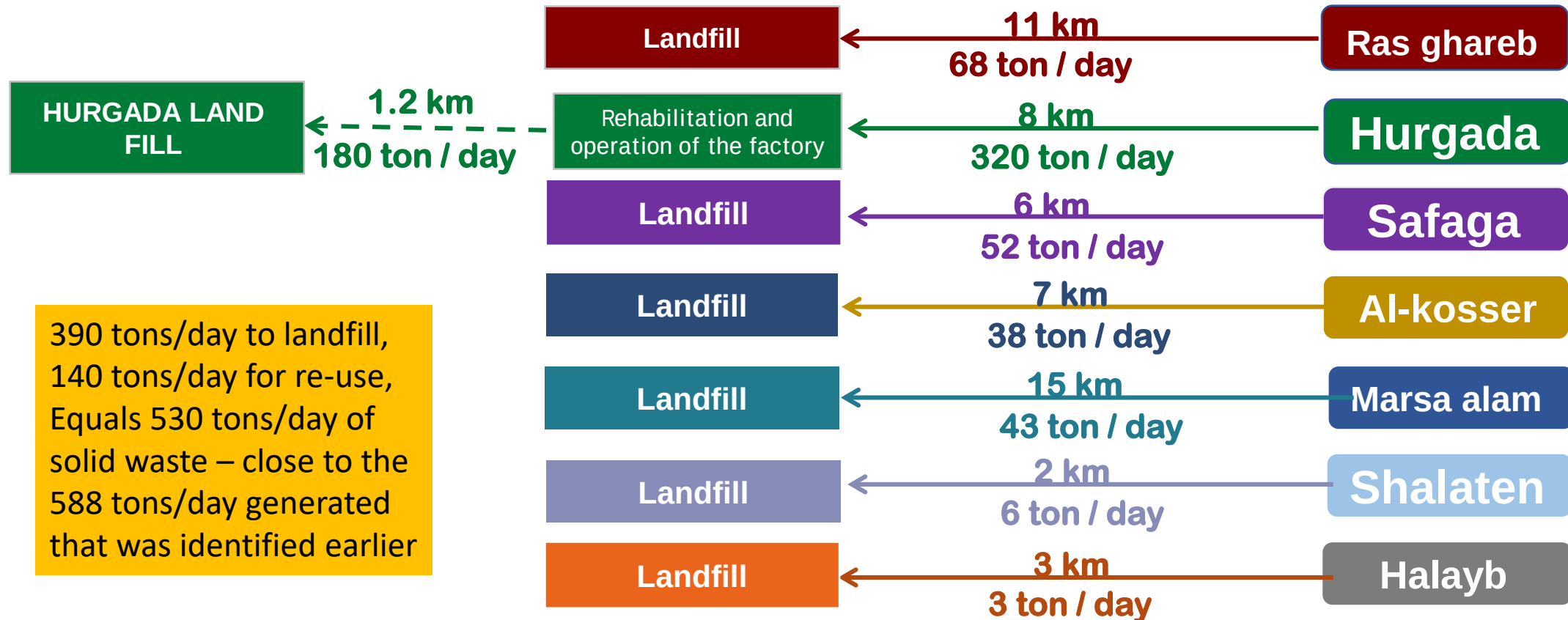
Solid waste management Success Stories in the Red Sea Governorate (Dr Karam Amara, WAVES Draft Report)

- 1- The application of the waste accounts and preparing the data in all aspects.
- 2- The success story of Barka Factory for Oil. How can we use the waste of compressed oil?
- 3- The success story of HEPCA Society by the cooperation with the governmental agencies in Marsa Alam and Hurghada. They have already run the dumping site.
- 4- The success story of Kowyh Farm and the use of the agricultural waste to produce the compost.
- 5- The running of the waste management in some of the hotels and Gouna Touristic village with distinguished performance. This has been done by the separation and classification of the waste. This was done by transferring the waste from the hotels to the dumping site for recycling.



NEXT STEPS....

The proposed concept for improving and developing the waste system (WRMA January 2020)



Acknowledgement - Material in this presentation is based on data and commentary from various sources, including:

- SWEEP-Net: Dr. Tarek Zaki and Mr. Amine Khial, 2014
- Sciencedirect: Mohamed Ibrahim, Nanis Abd El Monem Mohamed, (Procedia Environmental Sciences 34, 336 – 347 2016)
- Waste Management Regulatory Authority: presentation on Strategy and Plan, January 2020
- Enterprise: Wednesday, 8 July 2020, interview with Ahmed El Berri, head of WRMA, and Karim El Sabee, CEO of waste management company Reliance Investments
- Preliminary results from WAVES (World Bank) study of solid waste management in Red Sea Governorate
- Dr Karam Amara: WAVES Draft Report