



# A local NGO implementing an integrated waste management system in the cities of Hurghada and Marsa Alam, Egypt

How a local NGO designed and implemented an integrated waste management system, boosting recycling and recovery, and creating local jobs.

## EXPECTED OBJECTIVES

The first driver behind the implementation of the waste management systems was the protection of the environment that was endangered by the presence of littered and unmanaged waste. Over time, the project has evolved into an integrated waste management system, with the following objectives:

- Provide a proper waste collection service to citizens and the hospitality sector, ensuring cleanliness and preventing littering;
- Propose a service free of charge for the public authorities;
- Promote local employment

## BACKGROUND INFORMATION AND LOCATION

### General information on waste management in Hurghada, Egypt:

- Generated quantities of municipal waste: 363.5 t/day
- Collection rate: 77%
- Main fractions (national figures): organic waste (56%), plastic (13%), paper and cardboard (10%)

### General information on the territory:

- Location: City of Hurghada
- Country: Egypt
- Population of the urban area: 250,000 inhabitants
- Density: 800 inh./km<sup>2</sup>
- Number of hotels: 161

### General information on the Hurghanda sorting centre

- Capacity: 400 t/day
- Quantity of RDF sent to energy recovery: 25% of the input
- Quantity of extracted recyclables: 5% to 10% of the input
- Quantity of organic sent to landfilling: 40% of the input
- Quantity of sorting residues sent to landfilling: 25% of the input

## KEY INFORMATION

- **Topic:** recycling
- **Waste fraction:** municipal waste, paper and packaging waste, biowaste
- **Target group:** households, hotels, resorts
- **Instruments:** infrastructure, communication, planning

## DATE OF IMPLEMENTATION

Since 2009.





## IMPLEMENTING BODIES

This action was initiated by HEPCA (Hurghada Environmental Protection and Conservation Association), a local NGO specialised in land and marine conservation in the Red Sea region. Their role in waste management started in August 2009, when a protocol was signed between the Red Sea Governorate and HEPCA, giving them exclusive responsibility over waste management in Marsa Alam. In 2011, they expanded their scope of activities with the city of Hurghada.

## KEY STAKEHOLDERS INVOLVED

Besides HEPCA and the Red Sea Governorate, the waste management system focuses both on households, and the hospitality sector (hotels, resorts). Tourism is the key economic sector in the area.

The design of the waste strategy was elaborated with the support of USAID and the Ministry of Environment. The project also benefited from private sponsorship from various companies, including the Coca Cola Company and Vodafone.

## GENERAL CONTEXT

HEPCA's actions on solid waste originated from the ineffectiveness of the previous waste management system which led to issues with cleanliness, as well as the presence of waste in the environment, which negatively impacted the land and marine environment as well as the different local diving sites.

In Egypt, it is assessed that only 60% of the generated waste is properly collected, while the rest is littered or brought to illegal dumpsites. Most municipal waste is landfilled and the recovery rate is about 10%.

The involvement of HEPCA in marine and land protection and its various activities in tackling littering has led to the signing of a protocol between the Red Sea Governorate and HEPCA in August 2009 for the responsibility of waste management in the Marsa Alam. But HEPCA's activities started even earlier, in 2007, when they implemented a clean-up service with a fleet of vehicles and staff, and started to collect organic waste to provide feed for the Bedouins' livestock.

As for the city of Hurghada, the project started in February 2010 with the Hadaba Clean-up Campaign, focusing on the district of Hadaba. Over a year, the project focused on implementing changes in the waste collection system and disposal habits. One year later, HEPCA extended its approach to the entire city.

One specificity of Hurghada and the surrounding area is the importance of tourism for the local economy, and the fact that the city has experienced a very fast development in the last 3 decades. It includes more than 150 hotels and an estimated 3 million tourists per year.

## DESCRIPTION OF THE ACTIVITIES

HEPCA's first activities on waste management focused on Marsa Alma in 2007, where a first recycling plant was implemented. HEPCA started with a collection service for 18 hotels and resorts, of about 100 tonnes of waste per day. A sorting facility was established in the industrial area of Marsa Alma to process the collected waste. In two years, the collected quantities doubled, with 35 hotels and resorts being collected. In 2009, a protocol was signed with the Governorate to entrust the entire waste management system for the city. Two years later and following the Hadaba pilot project, HEPCA took over the organisation of waste management for the city of Hurghada, the capital of the Red Sea region, representing about 250,000 inhabitants and about 450 tonnes of waste per day.

The waste management plan was established with the support of the Egyptian Ministry of Environment and USAID. The plan focused on the specificities of each district (density, urban structure, socioeconomic



characteristics, etc.), with street surveys to collect information and data on the size and occupancies of building, the status of infrastructure and roads, and assessment of waste generation. Demographic projections were also made to assess the future waste generation. This study led to the definition of four collection methods:

- **Touristic areas:** they are characterised by a significant waste generation (half of the total), and a large share of organic waste (60%), the rest containing many recyclables. Resorts are required to separate organic waste from dry waste, both being collected twice a day.
- **Residential and commercial areas:** they are characterised by the presence of proper infrastructure and roads, allowing the circulation of large collection vehicles. Street containers are available within a maximum of 75 m from every home (with a total of about 900 containers), and are emptied twice a day by large trucks with compactors.
- **Informal settlements:** there are five of them, including about 60,000 inhabitants. They are characterised by a lack of infrastructure, unpaved, narrow roads with many obstacles. Collection is made door-to-door with ten tippers with a capacity of 2 m<sup>3</sup>, and then tip the collected waste in fourteen different 12-m<sup>3</sup> containers that are centrally located. Collection is done every day to every other day with trucks equipped with a hook that lifts the containers, depending on the filling levels.
- **City streets and small industrial districts:** cleanliness is ensured by mechanical street sweepers and manual sweepers present on a daily basis.

In Marsa Alma, two collection shifts are conducted every day, including collection of street containers, hotels, shops, markets, and marina. Beach cleaning operations are done three times a week.

HEPCA kept improving and expanding the collection system with new containers for inhabitants and shops. It took over the waste management site of Hurghada in 2014, and implemented a new sorting facility in 2018.

In 2016, an online service allowing inhabitants to report any garbage problem was implemented via a Facebook page.

HEPCA operates sorting facilities and landfilling sites in Marsa Alma and in Hurghada. On these sites, the organic fraction is extracted to be landfilled. The non-organic part undergoes several sorting stages to extract aluminium, plastic, metal, glass, and papers. Refuse derived fuel (RDF) is also generated and sold to cement companies. Sorted materials are mostly sold to recycling facilities in Cairo.

In 2017, the contracts were renewed with HEPCA.

## FINANCING AND COST RECOVERY CONTEXT

The system is entirely self-sustaining. Resources come from the fees paid by big waste producers (e.g. the hotels and resorts) and the sale of recovered materials. The service is provided free of charge for households.

HEPCA received support for the initial investments and part of the collection and sorting equipment from several private companies.

## MAIN ACHIEVEMENTS AND RESULTS

**Environmental impact:** the system now collects about 600 tonnes of waste per day from about 300,00 inhabitants and close to 200 hotels and resorts. Every month, the following quantities of materials are sorted for recycling:

- 95 tonnes of carton
- 78 tonnes of plastic
- 58 tonnes of plastic bags



- 5 tonnes of metal
- 110 tonnes of glass

Plastic waste is recycled on-site, while the rest is sold to recycling factories in Cairo.

**Social impact:** the project gave much importance to the creation of local jobs, and includes over 700 employees who benefit from health insurance. Besides, the system provides 12 tonnes of organic waste to local Bedouins every day, that is used as feed for their livestock, which gave them the possibility to increase the size of their livestock and sustain their families.

## KEY FACTORS OF SUCCESS

Several elements can be regarded as success factors:

- The strong and long-lasting commitment of HEPCA in promoting land and marine preservation and sustainable tourism, which helped with the involvement of the hospitality sector and the development of awareness-raising activities;
- The waste strategy taking into consideration the specificities of each different area to design collection systems that take local constraints into consideration, based on an extensive survey;
- The Hadaba pilot project was very successful in involving the local community and introducing the transition to an integrated waste collection system. When each street was cleaned by HEPCA's teams, communication materials were distributed, including simple instruction for proper waste disposal. Door-to-door collection started in parallel with the communication campaign, which contributed to securing the involvement of inhabitants.

## BOTTLENECKS, LIMITATIONS AND CHALLENGES

It is assessed that about 30% of the waste generated in Hurghada is collected by the informal sector and sold to waste traders and this represents a loss for HEPCA.

HEPCA has several plans to improve the system: extend their collection capacity, improve the separation process, provide incentives to get source-separated plastic waste directly from inhabitants, and involve the informal sector to retrieve more materials.

## LESSONS LEARNED AND REPLICABILITY

This experience shows how an integrated waste management system could be implemented by a local NGO and reach financial stability, which makes it interesting for replicability. The system seems to partly rely on the involvement of the hospitality sector which seems invested in developing a more sustainable tourism; and that provides part of the revenues. To be replicated, the (economic) involvement of local private organisations and big waste producers might be important.

## REFERENCES, LINKS TO FURTHER INFORMATION

- HEPCA (2021), website, accessed on 25/08/2021, <https://www.hepca.org/solidwaste>
- HEPCA (2015), The South's Solid Waste Management Plan: Collection, Recycle, Disposal
- HEPCA (2015), HEPCA's Solid Waste Management Plan of Hurghada
- HEPCA (2015), The Hadaba Pilot Project
- GIZ (2021), Extended Producer Responsibility Scheme for Packaging Waste in Egypt
- Bain D. (2020), Natural capital accounts: Waste accounts for Egypt – presentation given during the Expert Group Meeting on Resource Efficiency: Monitoring progress on SDG12, October 2020



- Red Sea Bulletin (2019), hepca's recycling plant in Hurghada, accessed on 25/08/2021, <https://redseapages.com/index.php/interesting-articles/special-interest/878-hepca%E2%80%99s-recycling-plant-in-hurghada.html>
- Heine A. (2013), HEPCA, from diving to development, accessed on 25/08/2021, <https://dailyfeed.dailynewsegypt.com/2013/05/16/hepca-from-diving-to-development/>
- El Hebeishy M. (2011), In the Red Sea it is war on solid waste, accessed on 25/08/2021, <https://english.ahram.org.eg/NewsContent/1/2/10473/Egypt/Society/AboutUs.aspx>



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