



EDAMA
Energy, Water & Environment

Policy Paper

Solid Waste Collection Scheme in Aqaba

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“Solid Waste Collection Scheme in Aqaba”

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Introduction

Jordan is facing various environmental challenges resulting from decades of non-sustainable production and consumption patterns; in addition to the increase in produced wastes' quantities, losing biodiversity, air and water pollution, land Degradation ; which led to the increase in pressure over local ecological systems.

The national action plan of sustainable production and consumption (SCP NAP) is set to determine a proper base for working on the creation of a development style that uses resources efficiently while reducing environmental implications. after holding discussions with stakeholders, Priority is given to three fields; agriculture, transportation and waste management, while concentrating on them in the action plan.

Within the programs working on waste management; appeared the joint project between EDAMA Association for Energy Water and Environment , Ministry of Environment and UN Environmental Program with the support of SwitchMed Program of the European Union. The project aims at institutionalization of solid waste management concepts and practices in the Hotel industry ,In addition to develop a national training program in solid waste management, that meets the Jordanian market needs and requirements and that can bridge the gap between the available and needed knowledge and skills.

Status Que

Solid Wastes in Aqaba

Aqaba city generates around 150 Tons of solid wastes daily¹ which consist of organic wastes, paper, plastic, metals and other; as indicated in the figure below:

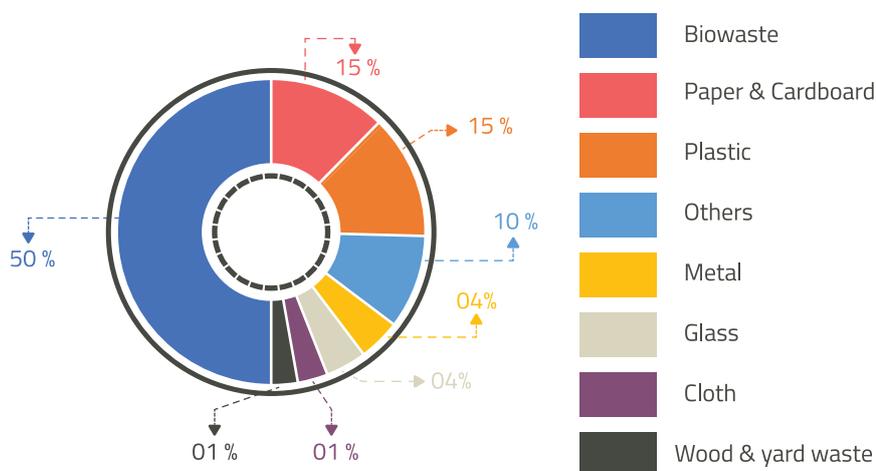


Figure 1: Composition of wastes in Aqaba, Source: Ministry of Municipal Affairs

1. According to ASEZA and Waste Collection Company in Aqaba (Urbaser)



It is noticed that the percentage of organic wastes constitutes around half the total amount of wastes of all sectors, while the percentage reaches around 45% of wastes resulting from the hotels in the city, as indicated in the study conducted during the project², which included auditing the entire waste quantity produced by three and four stars hotels, as indicated below:

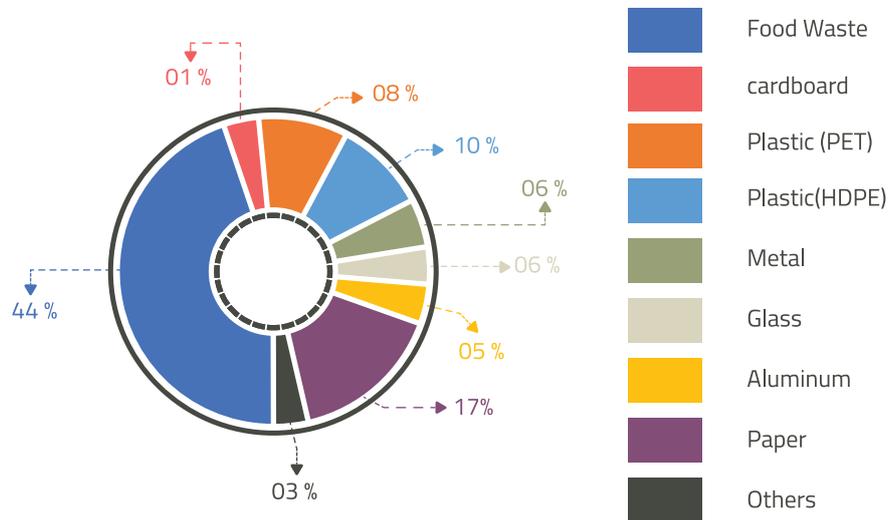


Figure 2: Composition of wastes in Aqaba Hotels, Source: EDAMA for Energy, Water and Environment

The tourism sector represented in restaurants and hotels, generates quantities of organic wastes ranging between 20 – 400 Kg daily as indicated below. It is worth mentioning that no segregation is done and all wastes are disposed in the same mechanism.

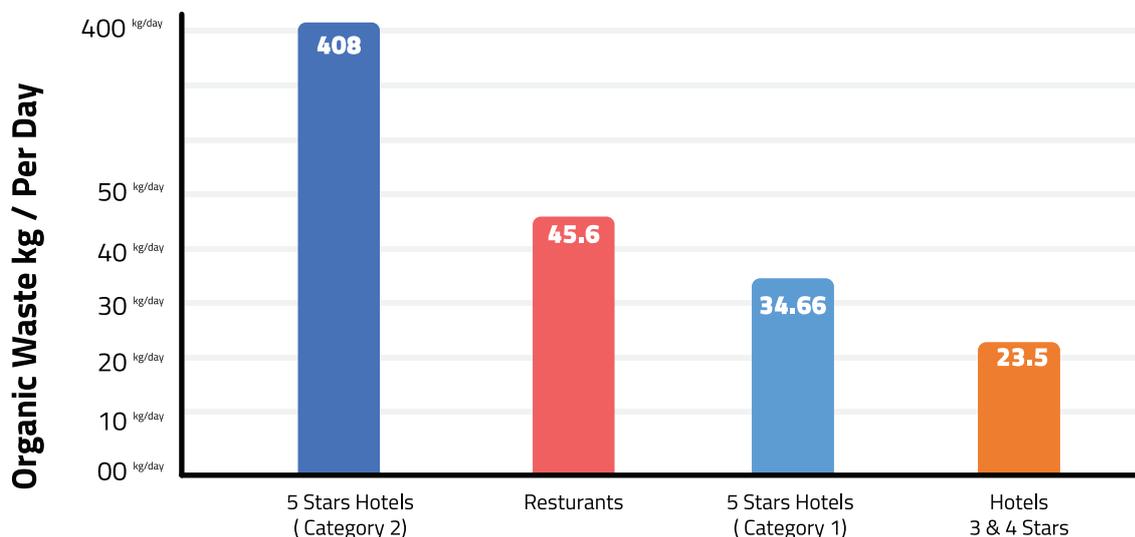


Figure 3: Quantity of organic waste according to source, source: EDAMA for Energy, Water and Environment

*Five stars' hotels were divided into two categories based on the quantity of wastes which is varying hugely

2. Assessment of Existing Solid Waste Situation at Aqaba Hotel Industry (EDAMA, Sept. 2018)



Waste Management Legislative framework

The responsibility of waste collection and cleaning in Aqaba lies upon ASEZA, which collects wastes daily through specialized companies contracted periodically, while wastes are transferred to the city landfill.

Waste Collection Allowance Instructions

According to the general sanitation and waste collection instructions of the year 2015; the regulation of waste collection allowance is based on the nature of the economic activity of association and calculated as per square meter of building area; while specialized waste collection companies earn fixed amounts of money regardless of waste quantity based on the clauses of agreement with ASEZA.

The average area of a sample from the touristic contemporary restaurants in Aqaba reaches around 400 sqm, while sample of 5 stars hotels reaches around 20000 sqm; while the restaurant production of organic wastes exceeds 30%³ the production of 5 stars hotels (category one), and the hotel pays more than twelve times the paid by restaurants as waste collection fees.

World Bank indicates that the cost of waste collection in the class of upper middle income countries including Jordan is ranging between 30 to 60 JOD⁴, while the cost for collection per ton in Aqaba is around the upper limit, which is 60.5 JOD⁵ per ton. The annual cost of collecting and transporting waste carried by ASEZA is 3,326,412 JOD paid to the waste collecting

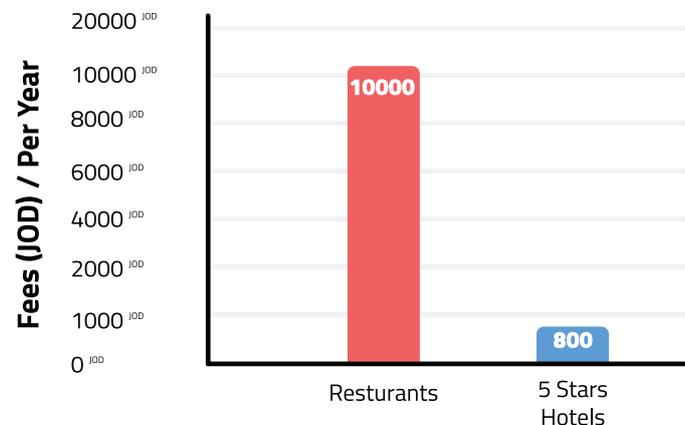


Figure 4: Waste Collection Allowance, Source: ASEZA

company, while the average annual fees collected by ASEZA from Aqaba residents and institutions amounts to 1,237,630 JOD⁶ which means that this annual fees only covers 37.2% of waste collection and transportation cost and ASEZA covers the rest of it, and that is considered as burden upon ASEZA and indicates an opportunity for amendments that may contribute in reducing such costs.

³ (Restaurant production - stars hotels production) / stars hotels production = (45.6-34.66)/34.66= 0.31

⁴ Urban Development Series – Knowledge Papers, Annex E Estimated Solid Waste Management Costs (World Bank)

⁵ Cost of collecting and transporting wastes annually (Dinar) / quantity of wastes generated per year (ton) =3326412/55000= 60.48 Dinars per ton (information based on ASEZA)

⁶ Average of fees collected by ASEZA for the years: 2015, 2016, 2017



Recommendations

The concluded study for the development of a national strategy for solid waste management in Jordan in 2014 recommended the necessity of having an organizational scope for waste management process that is aiming at reducing waste at source and to accredit the “Polluter-pays principle” as a base for formulating instructions determining waste collection allowance.

After reviewing solid waste management situation in Aqaba, appears the importance of undertaking steps on legislative level, which may contribute in supporting sustainable production and consumption patterns, including:

- **Amendment of Waste Collection Allowance Instructions**

Amending article six of waste collection and general sanitation instructions in ASEZA through changing the mechanism of calculation per quantity instead of area that is currently used; which leads to be reflected to the wastes’ producer, and that method is considered one of the most important legislative procedures supporting reduction of waste quantity from source.

The quantity of wastes generated by facility is determined through an annual audit conducted by the concerned body for the various facilities or estimated based on facility type and size; while the **Annual waste collection allowance** is calculated through the following equation:

- **Annual waste collection allowance = cost of collection, transportation and treatment per ton * quantity of wastes produced (ton)**

It is worth mentioning that Greater Amman Municipality applies this system by dividing facilities into 15 categories according to the quantity of produced wastes, while calculating the cost of collection and transportation per ton; thus calculating final cost due upon facility . Appendix 1 indicates the process of calculation in details.

- **Changing approach of contracting with waste collection companies**

The process of settlement accredited by ASEZA with the specialized waste collection companies is mainly focusing on paying fixed financial value along the contracted period not being related to the quantity of wastes collected by company. Changing basis of contracting to be based on the quantity of wastes all along the production process from sources, collection and transportation, will reduce costs upon ASEZA and will create a new type of



competitiveness between the specialized companies for providing competitive pricing depending on quantities.

- **Developing waste collection process**

Dealing with wastes as heterogenous mix of material is considered one of the processes that include huge difficulties while at the same time contains several investment opportunities. The process of waste segregation is considered the first step for dealing with wastes and opportunity for income generation.

By reviewing the study conducted during the project; it is clearly found that around half of the wastes produced in hotels are organic; whereas benefitting from such quantities in several method was clarified in the action plan attached to study, and it is worth mentioning the organic wastes' segregation requires separation at source in specific bins.

The study prepared for developing a national solid waste management strategy in Jordan in 2014 recommends partnership with the private sector in the process of solid waste management for the purposes of raising service efficiency; accordingly, the opportunity of developing waste collection, extending from segregation into particular bins to producing reusable materials, is the best mean for merging private sector and dedicating sustainable production and consumption patterns.

Appendix Two sheds the light on the most important strengths and weaknesses in the suggested recommendations.



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Appendix One: Recommendations SWOT Analysis

Table 1: Recommendations SWOT Analysis

Recommendations	Strengths	Weaknesses	Opportunities	Threats
Amending waste collection allowance instructions	Covering costs of collection transportation and treatment wastes by producers while guaranteeing that the polluter pays the cost	<ul style="list-style-type: none"> - The need for a new monitoring mechanism or periodical estimation of waste generated in facilities - the Need for building the capacity of workforce on the new mechanism 	Reduce volume of wastes generated by facilities	Accept change in instructions by stakeholders
Developing waste collection process	Reduce amount of waste delivered to landfill	Needs to set general policy and instructions in addition to building the capacity of workforce training	Create jobs and investment opportunities thus involving the private sector	Accept change in instructions by stakeholders
Changing the approach of contracting with waste collection companies	Having a clear system and mechanism for calculating costs, which contribute in enhancing competitiveness	Needs methods for measuring amounts of generated waste accurately by ASEZA or third party	Achieve financial solvency through controlling generated waste quantities	



Appendix Two: Regulation and instructions of waste collection fees

Pursuant to the Regulation of Adversity Prevention and Waste Collection Fees no. 150 of 2016 and the instructions of Greater Amman Municipality for waste services, transportation, collection and disposal allowance as amended of 2014; the Municipality collects waste fees annually as follows:

1- Residential unit

Residential units pay against waste collection, transportation, treatment and disposal as per the following classification:

A) Residential units of electric power consumption less than 200 KW = 20 Dinars divided upon months of the year equally to be paid through electricity bill

B) Residential units of electric power consumption exceeding 200 KW = 20 Dinars divided upon months of the year equally while adding 5 Fils for each KW exceeding 200

2- Institutions

facilities pay against waste collection, transportation, treatment and disposal 20% of fees due upon professions' license while adding waste transportation, treatment and disposal as per the following equation:

Fees of transportation and treatment one ton = cost of the transportation and treatment (one ton) * 365 (days per year) * Estimated daily generated waste (Ton per day)

Whereas the cost of transportation and treatment of one ton, is annually determined by a committee assigned by the Mayor according to a study of costs and the estimated daily generated waste is determined for the facility from association from the following categories:



Table 2: Categories of waste producers according to GAM

Category	Estimated generated waste (kg/day)	Category	Estimated generated waste (kg/day)
First	10	Eighth	80
Second	20	Ninth	90
Third	30	Tenth	100
Fourth	40	Eleventh	150
Fifth	50	Twelfth	200
Sixth	60	Thirteenth	250
Seventh	70	Fourteenth	300
		Fifteenth	300

Those categories are determined by facility as per the following criteria:

- Volume, density and nature of wastes
- Number of working days
- Nature of effective profession
- Area and number of employees