



مؤسسة مصطفى الجوار للاستشارات

MUSTAFA AL-JAAR FOR CONSULTATIONS



Results of the Waste Sorting Analysis

– Short version –

Realised in Amman, Jordan in April 2021

Background information

The GIZ global project “Support of the Export Initiative for Green Technologies” contributes to solving key environmental problems on behalf of the German Federal Ministry for the Environment (BMU). The BMU initiative, launched in 2016, aims to export know-how available in Germany and support sustainable development worldwide. It includes topics such as poor waste management, air and water pollution or supporting infrastructures for sustainable urban development. Partner countries are Egypt, Jordan, India, Thailand, Malaysia, Indonesia and Ukraine. Project measures focus on building up technical and institutional know-how as well as laying the groundwork for the introduction and use of environmental and climate protection technologies “Made in Germany”.

The project contributes to the UN’s sustainable development goals (SDGs). The supported activities are embedded in the national strategies of the partner countries. They are implemented in cooperation with bilateral GIZ projects.

INTRODUCTION

As part of the GIZ global project “Support of the Export Initiative for Green Technologies”, the project module in Jordan “Introduction of an Extended Producer Responsibility system for packaging” has been commissioned. The project aims at establishing a long-term mechanism to ensure financing of solid waste management activities as a base for facilitating (private) investments in the field. In order to achieve this goal, GIZ is supporting the Jordanian Ministry of Environment with know-how and organizational capabilities.

The company cyclos GmbH together with Al Jaar Consulting, on behalf of GIZ, are providing their expertise for the GIZ project module in Jordan. To this end, a waste sorting analysis represents an important step to identify the waste composition and particularly the type of existent packaging to support decision making. In order to better identify the existent packaging materials in households and commercial waste, a detailed waste sorting analysis was elaborated in Amman.

The sampling was carried out from different areas in Amman, having different income levels: high income, low income, middle income. Samples for the sorting analyses were also collected from commercial centres and from Zahran zone, where the GIZ waste sorting at source project is progressing. The analyzed waste was sampled from different vehicles to ensure the accuracy and reliability of the received sample. Table 1 shows the different sampling areas:

Table 1: Samples and studied areas

	Sample 1	Sample 2	Sample 3	Sample 4
High income	Abdoun district	Abdoun district	Abdoun district	
Medium income	Jubaihah	Jubaihah	Tela’a Alali	Tela’a Alali
Low income	Jabal alnasr	Jabal alnasr	Qweismeh	Qweismeh
Commercial areas	Sultan Markets	Downtown		
GIZ - sorting	Dry trash (Zahran)	Wet trash (Zahran)		

Greater Amman Municipality (GAM) has provided the project with the following actualized data (2020) indicating the number of inhabitants, amount of generated waste, the income level in some areas, as appeared in table 2:

Table 2: Targeted districts with the amount of generated waste and the income level

Districts	Average amount of generated waste per day "kg"	Inhabitants 2020	Average of waste kg / inhabitant	Income level
Zahran	106,000	116,904	0.91	High income
Jubaihah	162,000	223,259	0.73	Medium income
Tela'a Alali	200,000	284,226	0.70	Medium income
Jabal alnasr	163,000	293,095	0.56	Low income
Qweismeh	160,000	336,045	0.48	Low income

The total amount of the sample is as follows:

Table 3: Sample mass

Original sample mass (received from selected areas / kg)	47,268.00
Sample mass (kg)	2,268.79 (4.8 % of the received amount to the sorting centre Al'Chaaer)

The operation was elaborated in "Sha'aer transfer station". All needed tools were prepared to elaborate it adequately. The technical and organizational assistance was provided by **Dr Wassim Chaabane**, **Dr Mustafa Jaar** and **Eng. Anas Altawarah**, with the support of five workers from GAM. The Ministry of Environment and GAM were very collaborative and significantly supported the success of the operation.

Table 4: Summary of the results of the sorting analyses in selected areas

No. الرقم	Material fraction / Super-group No. نوع المادة	High income zones (%)	Medium income zones (%)	Low income zones (%)	Commercial areas (%)	GIZ sorting project (%) Dry fraction's container only
1 Organic عضوي	1. Organic waste نفايات عضوية	48.3	38.4	51.4	38.2	9.5
2 Paper / carton ورق / كرتون	2.1 Paper and carton packaging ورق وكرتون لتغليف المواد	14	9.4	4.4	23.7	32.8
	2.2 Other paper waste without packaging أنواع أخرى من الورق لاستخدامات غير التغليف	5.6	5.5	4.1	5.7	5
3 Beverage cartons علب المواد الغذائية والمشروبات	3. Beverage cartons علب المواد الغذائية والمشروبات	0.6	1.8	0.8	0.2	0.4
4 Glass زجاج	4.1 Glass packaging زجاج مستخدم للتغليف	1.8	2.3	2.3	1.7	5.8
	4.2 Other glass items (without packaging) أنواع أخرى من الزجاج (استخدامات أخرى)	0	0.4	0.1	0	0
5 Plastic البلاستيك	5.1 Plastic packaging – only films بلاستيك مستخدم للتغليف	11.4	14.5	9.6	10.6	24.8
	5.2 Plastic containers and plastic bottles and without PET-bottles حاويات بلاستيكية وعلب البلاستيك بدون البولي إيثيلين	3.7	4.9	4	3.2	6.7
	5.3 PET-beverage bottles العلب الغذائية وتحديدًا البولي إيثيلين	2.1	2.9	1.3	2.3	5.6
	5.4 Other plastic / non-packaging أنواع أخرى من البلاستيك / لغير التغليف	1.7	1.6	1.4	25	0.5
6 Tinplate and tinplate compounds packaging مواد التغليف باستخدام مادة القصدير أو الألمنيوم	6.1 Tinplate beverage cans (top cover aluminum) and other tin cans علب المواد الغذائية (مغطاة من الأعلى بالقصدير أو الألمنيوم) أو إبرة علب أخرى	0.6	2.6	0.8	0.7	1.2
	6.2 Other cans other tinplate packaging علب أخرى ، علب تغليف أخرى تستخدم القصدير أو الألمنيوم	0.3	0.4	0	0.1	0.8
7 Aluminium الألمنيوم	7.1 Beverage cans made of aluminium علب المواد الغذائية المصنوعة من الألمنيوم	0.4	1.9	0.7	0.8	1.1
	7.2 Other cans made of aluminum and other packaging mainly consisting of aluminum or having aluminum proportions (aluminous compounds) العلب الأخرى المصنوعة من الألمنيوم ، ومواد التغليف الأخرى والمكونة أساساً من الألمنيوم أو تحتوي على نسب الألمنيوم	0	0.7	0.1	0	0
	7.3 Other aluminum objects items without packaging أغراض أخرى موجودة فيها الألومنيوم ليست للتغليف	0.5	0.8	0.2	0	0
8 Other packaging مواد التغليف الأخرى	8. Packaging compounds, mixed materials مواد التغليف المختلفة، المواد المختلطة	0	1.2	0	0.2	0
9 E-waste النفايات الإلكترونية	9. Waste electrical and electronic equipment نفايات المعدات الكهربائية والإلكترونية	0.2	0	0	0.2	2.6
10 Other waste نفايات أخرى	10. Other waste fractions نفايات الأخرى	8.8	10.7	18.8	9.9	3.2

- All zones (high, medium, low income zones as well as commercial areas) showed a higher organic waste content ranging from 38 % to 51 %.
- Carton packaging and plastic packaging represents the main fractions in all studied areas.
- The most important fraction of packaging materials was identified in commercial areas (43.5 %), with an important carton packaging fraction (24 %) and plastic packaging (16 %).
- The sorted dry fraction's container (GIZ sorting project) shows the presence of an important amount of packaging materials.

Table 5: Distribution of packaging materials in selected areas

No.	High income zones (%)	Medium income zones (%)	Low income zones (%)	Commercial areas (%)	GIZ sorting project (%) Dry fraction's container only
2 Paper / carton	14	9.4	4.4	23.7	33
3 Beverage cartons	0.6	1.8	0.8	0.2	0.4
4 Glass packaging	1.8	2.3	2.3	1.7	6
5 Plastic packaging	17.2	22.3	14.9	16.1	38
6 Tinplate and tinplate compounds packaging	0.9	3	0.8	0.8	2
7 Aluminium packaging	0.4	2.6	0.8	0.8	1
8 Other packaging	0	1.2	0	0.2	0
Total	34.9	42.6	24.0	43.5	80.4

- Packaging generated in all zones include paper / carton, beverage cartons, glass packaging, plastic packaging, tinplate and tinplate compounds packaging and other packaging. These fractions would be potentially included in an Extended Producer Responsibility (EPR) system for packaging with the exception of categories 2.2 other paper waste, 4.2 other glass without packaging, 5.4 other plastic / non-packaging and 7.3 other aluminium objects, 9 Waste electrical and electronic equipment (WEEE) and 10 "other waste".
- Packaging waste is more important in middle income areas (42.5 %) and high-income areas (34,9 %), compared to low income areas (24 %).
- The largest share of packaging for high income zones is plastic packaging with 17 % and paper / carton with 14 %. For medium and low-income zones, the share of plastic packaging is 22 % and 15 % and paper / carton makes 9 % and 4 % respectively.

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Global Project "Support of the Export Initiative for Green Technologies" (BMU)
Köthener Str. 2
10963 Berlin / Germany
Tel. +49 (0) 30 338 424 646
E markus.luecke@giz.de

P.O. Box 92 62 38
Amman 11190 / Jordan
Tel. +962-6-5692545
E gabriele.janikowski@giz.de
I www.giz.de

More information:

<https://www.giz.de/en/worldwide/78869.html>

Authors

Dr. Mustafa Jaar (Al Jaar Consulting)
Dr. Wassim Chaabane (cyclos GmbH)

Edited by

Al Jaar Consulting
Al-Youbeel Sq. (Al-Waha Circle) - Al Medina Al Manawrah St.- Al-Kesswani Complex (No. 211)
Amman / Jordan
Tel. +962 6 55 45 45 5
E JaarEst@gmail.com

In cooperation with
cyclos GmbH
Westerbreite 7
49084 Osnabrück / Germany
Tel. +49 541 77080-56
E Wassim.Chaabane@cyclos.de
I www.cyclos.de

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