

E - TAFKEEK

COMPANY PROFILE



OVERVIEW

Electronic waste has become a major problem in Jordan in terms of increasing quantities and limited experience in dealing with such material that may contain high quantities of harmful substances to humans and the environment. A study that was carried out in 2011 showed that there was no established system for collection, storage, transportation, disposal or recycling of Waste Electrical and Electronic Equipment (WEEE). Moreover, from the date of study until this year (2018), Jordan has neither acquired nor developed any efficient technologies or methodologies to recycle waste. In most cases, WEEE was mixed with municipal solid waste or, on a very small scale, managed by informal open dumps and backyard recycling. The main challenges can be summarized as follows:

- **Hazard Waste:** e-waste is considered a hazardous material that requires special handling and treatment.
- **Lack Of Landfill Capacity:** there is just one specialized landfill in Jordan, that is equipped to receive liquid and hazardous waste called Swagah, however, its area is very limited, hence cannot accommodate all the generated hazardous waste from all sectors.
- **Lack of Experience:** severe shortage of well-trained personnel in treating e-waste in Jordan.
- **Lack of Facilities:** there are neither specialized nor authorized e-waste disposal or handling facilities in Jordan.
- **High Cost of Storage:** storing e-waste very costly, at the rate of 100 Jordanian Dinars (JD) per metric ton, for legal disposal through the Ministry of Environment (MoEnv), however, the latter does not provide any kind of treatment.
- **Targeted Area:** Amman and Zarqa areas are suitable for this type of work, due to:

The population in Amman and Zarqa is high, at about 5.3 million (4,007,526 and 1,364,878 respectively), as per the General Census of Population and Housing 2015

The fact that E-waste is causing environmental problems for the local communities in the Zarqa city (commercial and industrial), void of waste management.



ABOUT US

E-TAFKEEK is a company that is specialized in electronic waste recycling. It was established in response to the urgent and persistent need to treat electronics waste in an environmentally friendly manner, while providing jobs for an economy in need of stimulation. According to the Establishments Census of Jordan, about **52%** of the industry is concentrated in the Zarqa city wherein E-TAFKEEK plant facility will be located as well as. The population in Zarqa is represents **14.8%** of Jordan's population .

According to the Establishments Census of Jordan

Mission

Lead the e-waste recovery market in an eco-efficient and environmentally sound manner in Jordan.

Vision

Utilize e-waste through sustainable recovery procedures and practices; provide cost-effective resources to stakeholders

Goal

Establish an industrial facility for recycling electronic waste in Jordan against profits from selling produced materials while taking into consideration environmental conditions that would reduce the impacts of electronic waste in Jordan.



OBJECTIVES

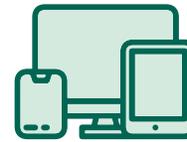
E-TAFKEEK is established with the aim of maximizing profits and will generate income by selling and supplying the following services and products:

- Recycled and refurbished used computers or usable parts (Hard Drive, CD Drive, RAMs... etc.)
- Supply sorted materials for smelting factories
- Sale of non-recyclable parts (Motherboards, PC Cards, PCB Boards)
- Legal disposal service to support the Ministry's (MoEnv) 100 JD / MT fee policy
- Establish the first electronic waste recycling investment project in Jordan that would establish a vital connection between informal recyclers and official stakeholders
- Create jobs for youth through the collection and treatment of harmful electronic waste to be sold as recyclable and useful materials in Jordan and abroad
- The project can help achieve environmental targets within the SDGs related to waste management and climate change resilience, as well as achieving the goals of the Jordanian Waste Management Strategy that issued in 2015.
- Reduction of toxic waste streams





53.7 M E-waste
Global E-waste generated in 2019



E-waste is a fast-growing and toxic waste stream

Containing both valuable materials

And toxic substances



Gold



Plastic



Greenhouse gas emissions



Flame

57\$ Billion USD

Value of raw materials in e-waste



Brominated Flame (Retardants (BFR



Mercury

17%



Documented to be collected and re-cycled in an environmentally sound manner by depolluting it and recycling the valuable materials

83%



Undocumented to be collected and re-cycled in an environmentally sound manner by depolluting it and recycling the valuable materials



The vast majority of e-waste is unknown and is managed in substandard ways, depending on the e-waste and a country's waste management infrastructure

E-Tafkeek Contribution of the Circular Economic



1. ENVIRONMENT

The main objective of this business is to divert e-waste from landfills in order to provide an alternative sustainable source of metal, plastic, and other resources, as well as reducing the expected damage to the environment from electronic waste that is considered hazardous waste.

In addition, the project takes into account all environmental and safety requirements, to reduce emissions or any leakages of hazardous materials into the soil or groundwater.

Carbon dioxide equivalent emissions reduction that can be saved through the E-TAFKEEK recovery activities. As expected, E-TAFKEEK business activities have an environmental impact represented by carbon footprint reduction by 421.46 metric tons CO₂e.



Other green activities

Machines and equipment will be energy efficient in order to save a large amount of energy. Solar panels system will be installed in order to help the business save money by generating free, green electricity to be used. The QC, QA Department will control all quality requirements and planned green aspects.

2. ECONOMY

E-TAFKEEK is a company that is specialized in electronic waste recycling.

It was established in response to the urgent and persistent need to treat electronics waste in an environmentally friendly manner, while providing jobs for an economy in need of stimulation.



We will prepare products to meet the raw-materials needs of the many different customer groups. We also provide services to multi faceted institutes to help them in how to best handle their e-waste safely. In the future, we will expand our business to cover the treatment of precious materials and disposal of the hazardous material.

3. SOCIETY

Creating green job opportunities: Hire specialists in the sustainability field, as well as increasing awareness through training and employment of members of the local community.

Underserved populations: The factory location was chosen at underserved areas in order to hire underserved populations.

A safe working environment: General safety requirements will be provided and implemented through:



SOURCE OF INCOME

In order to determine the annual production capacity of E-TAFKEEK facility, the recovery activities will only target old PCs, new PCs, mobiles, and TVs. According to the published data of potential E-waste generation in Jordan, the expected amounts of e-waste that can be utilized at the E-TAFKEEK facility are as follows:

TABLE: THE EXPECTED AMOUNTS OF E-WASTE IN JORDAN

Item	Annual Amount (tons)	Monthly Amount (tons)	E-tafkeek Monthly Share (5%) (tons)	E-tafkeek Annual Share (5%) (tons)
Old PCs	1000	83.3	4.17	50
New PCs	1000	83.3	4.17	50
Mobiles	70	5.83	0.2917	3.5
TVs	3000	250	12.5	150
Total			21.125	253.5



This is the annual E-waste production expected in Jordan published by Saidan et al in 2015 (Ekoloji 24,97, 60-64)

WASTE TYPES

E-waste may be categorized by product type or size or other different classifications. The European Union's WEEE Directive and the 'E-waste Statistics Standards Guidelines' use the treatment-based classification. However e-Tafkeek has adopted the UNU Classification, as follows:



Temperature Exchange Equipment, including fridges, freezers, air- conditioners and heat pumps;



Screens and Monitors, including liquid crystal displays (LCD) and light-emitting diodes (LED) televisions and monitors, laptops and tablets;



Lamps, including LED lamps, high intensity discharge lamps, compact and straight tube fluorescent lamps;



Large Equipment, including products such as dishwashers, washing machines, ovens and central heating systems, large printing systems and photovoltaic panels;



Small Equipment, including microwaves, grills and toasters, personal care products, speakers, cameras, audio sets and headphones, but also toys, household tools, medical and monitoring systems;



Small IT and Telecommunication Equipment, including products such as desktop personal computers, printers, mobile phones, cordless phones, keyboards, routers, and consoles.

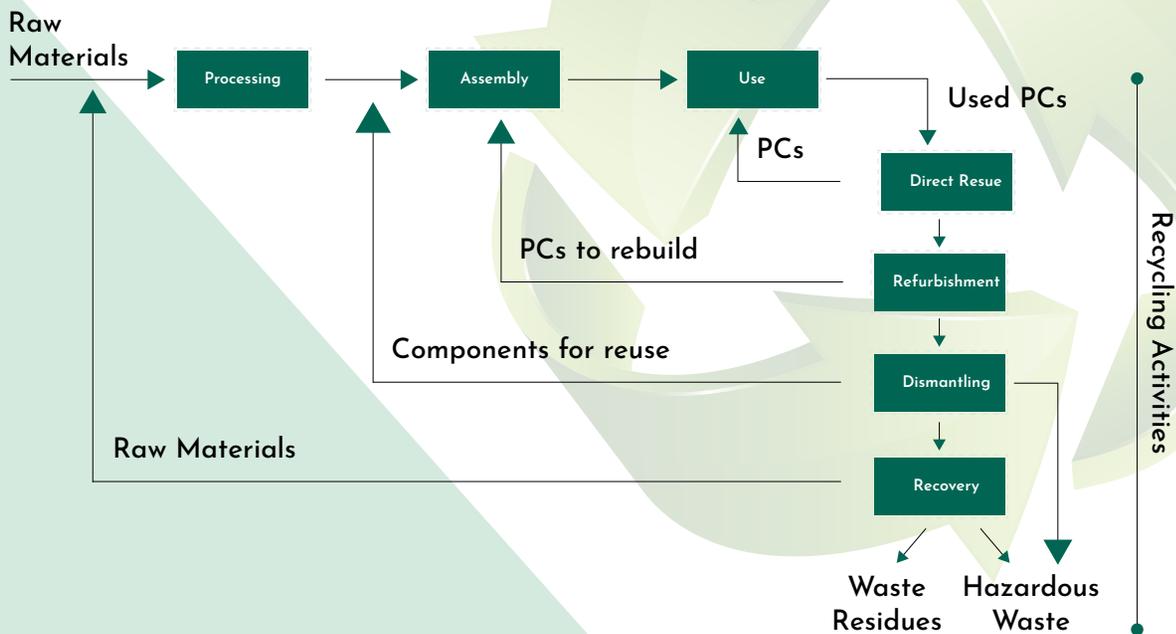
PROPOSED PROCESS

- Apply all possible measures to sign long-term agreements with local entities that have e-waste producing activities, such as IT-related, NGOs and Education, in order to guarantee a continuance flow of raw materials (e-waste).
- Attempt to sign long-term agreements with available entities, in order to sell the project's outputs.
- Fitting the workplace with all required equipment, from the receiving and sorting sites, as well as, ready material from recycled materials or materials to be reused such as the electrical parts in good condition, which can be sold to local electrical maintenance stores in Zarqa at a competitive price.
- Develop and implement a scientific-practical procedure for collecting and sorting e-waste within authorized sites, classify them based on type, market value and selling scenarios, e.g., parts containing recyclable material, such as plastic and copper: the recyclable components of the waste (copper, aluminum, ferrous metal and plastic) will be subjected to manual separation processes followed by a sorting process, boosting domestic supplies of such materials and reducing the need for import.
- Start working with full capacity to test and verify all the proposed methodologies, and check and apply any corrective actions.
- Provides data protection services, in line with global standards.
- Record and document all steps, figures and numbers; in order to come up with standard operating procedures (SOPs).
- Monitors and televisions, to protect users from radiation generated by the picture tube which also can be used to connect electronic components because of its flexibility and durability under extreme conditions.
- Arsenic in cathode ray tubes in old and used screens
- Antimony trioxide as a flame-resistant matter
- Other materials resistant to the flame used in manufacturing plastic envelopes, cables, circuit boards, and electronics
- Selenium which is used in the manufacturing of circuit boards and electronics
- Cadmium in circuit boards, electronics and semiconductor
- Chrome to protect the Iron from rusting
- Cobalt with iron in order to strengthen and magnetize
- Mercury found in switches, laptops, computers, digital cameras and other electronics

PROPOSED PROCESS

Kindly note that we recycle all hardware and hard disk drive taking into consideration the priority of the data it contains with top confidentiality. In addition, the recycling applies to all PCs, 'mice', PC screens, cameras, DVDRs, electronics and electric devices.

Below is a diagram that illustrates and summarizes the main steps of assembling raw materials of computers and electronic devices, refurbishing and recycling for direct reuse.



KEY STAKEHOLDERS & PARTNERS

- Ministry of Environment
- Ministry of Municipalities
- Existing recycling companies (JO Recycle, BE)
- Insurance companies and banks
- Scrap dealers and shops
- Goods software and hardware maintenance
- Owners of factories
- Vocational training
- Samsung
- EJABI - Euro Jordanian Advanced Business Institute
- LG Electronics
- WHO
- Switchmed
- Huawei
- Blackthorne
- UNHCR
- HUAWEI
- Basel convention
- Global e-waste solution
- Zarqa Municipality
- Zarqa Chamber of Industry
- Amman Chamber of Industry
- EJABI
- بيئي بيئي
- USAED
- SCYCLE Sustainable Cycles Programmed
- Electronic waste, synonym as Waste Electrical and Electronic Equipment (WEEE)
- UNU



Box 4.2

Safer workplaces and low-carbon production using e-waste inputs: example from Jordan

In 2018, an estimated 13 kilotons of electronic and electrical equipment were discarded by households in Jordan, and only 6.8% of that waste was recycled using sound environmental methods (5, 23).

E-TAFKEEK, established with support from the European Union's SwitchMed project, specializes in electronic waste recycling. The initiative aims to recycle e-waste in an environmentally friendly manner, while providing safe e-waste jobs in the broader economy (24). Recycled materials include portable computers, mobile phones and televisions. The facility is located in Al Zarqa city, which hosts some 52% of Jordan's industry, despite the city's residents representing only 4.8% of the national population. E-TAFKEEK's activities include dismantling, recycling and refurbishing computers and computer parts, supplying sorted materials to smelting factories, selling non-reusable computer parts and providing legal disposal services. Additionally, the company has supported awareness-raising activities among school children in Al Zarqa, Amman and Irbid. These activities teach students about different types of hazardous waste, sorting of e-waste, and how e-waste can be better managed.

The initiative, in which PPE-clad employees work using modern equipment in an organized factory setting, is also an example of how shifting e-waste management to the formal sector can both reduce environmental impacts from e-waste and ensure better working conditions. This model is relevant to other countries in the region, where awareness of the hazards and negative health impacts of e-waste tends to be very low, and data are scarce and often outdated (25).

Source: Children and Digital Dumpsites e-waste exposure and child health

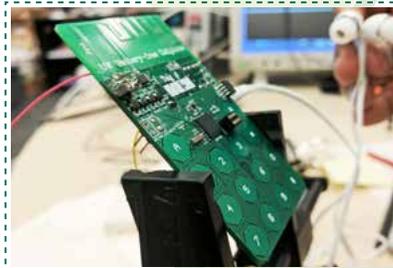
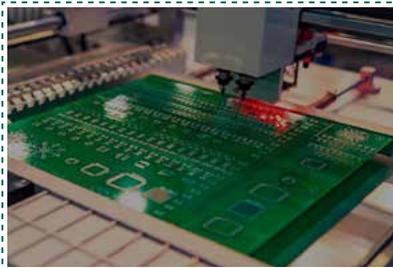


We seek your kind assistance in the process of organizing the selling used computers and electronics to prevent random selling to various destinations that are unaware of how to deal with such devices and consequently would damage the environment and contaminate underground and harvested water. We also ensure that toxic waste will not be mixed with the used parts of computers and informal #eWaste recycling may cause adverse health effects in children, such as:

- lung function & respiratory diseases
- impaired neurodevelopment & behavior
- increased risk of some chronic diseases



Our input products



Our output products



AWARDS



SUDKI SAMEER HAMDAN

Founder of Tafkeek Company for Electronic Waste Recycling in Jordan

Expert and researcher in environmental studies and sustainable development

Expert in green entrepreneurship

Environmental and human rights activist

sudki@e-tafkeek.com

00962777194940 Amman - Jordan

www.e-tafkeek.com

