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ECOSERV Brief



ECOSERV is a non-profit organization, reg.no.20368 at Ministry of Interior and Municipalities. Its primary goal is to promote good environmental practices among the Lebanese communities for sustainable solutions and sound development.

ECOSERV focuses on Electronic waste. The e-waste harms are still currently misunderstood by a large majority of the population. Our mission is to create the needed awareness, and lead by example on how to safely dispose of and recycle electronic waste

Electronics are becoming more and more disposable. Indeed, built-in obsolescence, high cost of repair, as well as leaps in technology have caused a shortening in the lifespan of electronics. According to a Gallup poll, large electronic equipment replacement within three years of purchase has risen from 13% in 2004 to 27% in 2013, and expected to be well above 42% by 2018. E-waste is the fastest growing waste stream. This shortened lifespan of electronics has brought about a whole new environmental crisis: Large quantities of e-waste that could spell disaster for the environment unless they are disposed of appropriately.

E-waste contains more than 1,000 Toxins and many developed countries have already taken steps to develop policy guidelines and legislation for developing e-waste management systems. Lebanon faces challenges at the level of consumer awareness, collection, recycling processes, and disposal of e-waste.

Informal processing by 'so-called' local recyclers in Lebanon can generate adverse human health effects and environmental pollution.

Improper recycling techniques lead to toxic chemicals and heavy metals leaking into the soils in landfills and other 'unofficial' dumping grounds, and the accompanying disintegration will also generate water as well as air pollution.



Proper processing is essential to make sure that these materials are not released into the environment. These concerns call for collective action from all stakeholders in dealing with the e-waste challenge.

Why is e-waste an issue?

When e-waste is not adequately treated, toxic materials and economically valuable materials alike are discarded and dumped. Such a haphazard disposal of e-waste inevitably leads to risks both to the environment and human health.

Material	Effects/Dangers	Where Do You Find It?
Arsenic	In case of regular low dose exposure: Disruption of cell communication and growth, cardiovascular diseases, cancer, diabetes	Microwaves, electronic circuits boards, switches, relays
Cadmium	Loss of calcium in bones: bone pain, fragile bones. In case of inhalation: lungs damage, death	Batteries, Cellular phones
Chromium	Skin irritation, rashes, potentially carcinogenic	Hardener in plastics, a dye in pigments and coating for metal parts
Copper	Throat and lungs irritation. Liver and kidneys damage	Copper wire, printed circuit board tracks
Lead	Whole slew of health problems: impairment of cognitive and verbal activity, paralysis, coma and death	Solder, computer or TV monitors (in glass), batteries
Nickel	Carcinogenic in large doses	Rechargeable batteries
Silver	If frequent: risk of argyria (staining your skin a blue-gray shade)	Cellular phones
Beryllium	Carcinogenic	Motherboards, connectors
Plastics- PVC	In case of land filling, toxic materials in plastic are released into the ground and water. Dioxins are released in the air in case of burning PVC, harming the immune system and causing cancer	Screens, Keyboards, mouse, Laptops, Flash Memories, etc.
Mercury	Short term exposure: Diarrhea, lungs damage, nausea, vomiting. Long term: permanent brain and kidneys and foetus	Batteries, flat screens, switches

When e-waste is discarded into landfills or incinerated, it has disastrous effects on its surroundings. . Indeed, inappropriate e-waste disposal incurs primary, secondary and tertiary emissions of hazardous wastes.



Primary emissions are due to heavy

metals often present in e-waste such as lead and mercury. Secondary emissions are due to incomplete treatment of e-waste which generates dioxins and furans also known as Persistent Organic Pollutants that cause a multitude of adverse health effects (e.g. Skin lesions, weakening of the immune system, etc.). Tertiary emissions are caused by the harmful chemicals used to recycle hazardous waste.

E-waste has been conclusively proven to have nefarious effects on both health and environment as proven by scientific literature. It is thus of the utmost importance for this waste to be properly handled and treated in order to minimize its negative effects.

How can e-waste be treated?

After proper refurbishment and repair is not possible anymore, electronic waste has to be properly recycled to optimize the recovery and handle toxic materials properly.

Modern electronics can contain up to 60 different elements, many of which are hazardous. The most complex mix of substances is usually present in the printed wiring boards (PWBs) and those are unfortunately the main targeted components by local 'artisanal' recyclers.

Toxic substances in e-waste can be safely treated by;

- Advanced component recycling
- Use in the production of cement and asphalt
- Incineration and conversion of toxins into energy
- Starve air incineration (Pyrolysis)

However all of the above treatments require sophisticated chemical and heat application technologies in suitable integrated specialized recycling plants.

Such recycling plants are currently not available in Lebanon

E-waste disposal in Lebanon?

In order for an e-waste disposal framework to function adequately, proper policies and regulations must be put in place to ensure awareness exists in the market and local businesses as well as consumers dispose of their electronic waste in an environmentally aware manner.



No such framework exists in Lebanon. E-waste disposal is ineffective in the country mainly due to:

- ✓ No clear legislation for disposal of e-waste in Lebanon.
- ✓ Some institutions sell their e-waste to scrappers and would be recyclers that 'Cherry pick' and use archaic methods such as acid leaching or open air burning to subtract some components, carelessly generating toxic fumes and hazardous pollution in the process, then throw the dismantled highly polluting equipment in the nearest ordinary waste bins or worse.
- ✓ Solid waste management companies do not take e-waste, as it is not in their mandate nor is it within their expertise to dispose of it.

The role of ECOSERV

ECOSERV is currently among those leading the Climate for Change in Lebanon by offering services towards green CSR, through e-waste solutions and social awareness.

This awareness could and must be made even more effective and impactful with the support of the municipalities, as well as private and public institutions.

ECOSERV collects all old, end of life, obsolete, and defective electronic products for recycling and/or disposal with environmentally sound processes. In some instances, if the equipment is in reclaimable condition, these could be restored, refurbished and forwarded over to other NGOs we closely cooperate with to donate them to humanitarian institutions.



ECOSERV are fitting drop zones all over the Lebanese territory with e-waste drop bins that are collected on a periodical basis.

The NGO is also planning a stream of awareness workshops in Schools, Universities as well as municipalities.

ECOSERV collects the following:

- ✓ Telephones, Cellular phones, and Pagers
- ✓ Routers and switches
- ✓ Computers, Servers, and Laptops
- ✓ Printers, Scanners, Plotters, and Shredders
- ✓ CD/DVD players, Video players/recorders, Disk players
- ✓ TVs, All type of Screens and Monitors, and Media Projectors
- ✓ Digital cameras, Videocams
- ✓ Audio equipment, Power amplifiers, Speakers, Home theater systems, and Radios
- ✓ Electric batteries and Electronic tuners
- ✓ Chargers, and Extension cords
- ✓ Electronic Medical Equipment
- ✓ Gaming consoles



ECOSERV's methodology is quite rigorous



Collection and Storage



Collection is done from scheduled periodic pick-ups from our drop zones and/or the reception of material from institutions or households directly into our warehouses in Sarba.

In order to facilitate the collection from households, **ECOSERV** has availed drop zones in electronic stores, Universities, and institutions throughout the Lebanese territory with specially conceived bins for electronic waste. Drop zones will soon be shown on Google maps for ease of access.

All equipment is stored by type awaiting proper dismantling.



Dismantling

First level (Secondary Material Recovery)

Main purpose is to insure secondary material recovery



At this stage a large variety of metals, plastics, and glass are recovered and duly prepared to be recycled into the Lebanese industry.



Second level (Primary Material Recovery and categorization)

Hazardous material components are carefully removed from equipment and stored separately by category in containers. This phase is called equipment decontamination.



Packaging

Pack components that may contain hazardous material in segregated and sealed containers and store them in a proper environment awaiting shipment to our internationally certified recyclers to undergo Third level treatment or Chemical treatment.



NB. Reason for shipping is mainly due to economies of scale and to scarce financial and technical resources in Lebanon that limit the capabilities of the local recycling sector and prevent it from offering safe and environmentally sound treatment of hazardous waste and recovery of specific materials. Consequently, the hazardous/non-hazardous waste resulting from the e-waste stream is exported for treatment or recycling subject to international safety norms.

ECOSERV's Certificate of material Reception and Disposal

It is to be noted that, upon request, ECOSERV issues a signed and sealed official reception letter of all material received, as well as a components that may contain hazardous (usually requested by banks, financial from our Internationally certified recyclers.

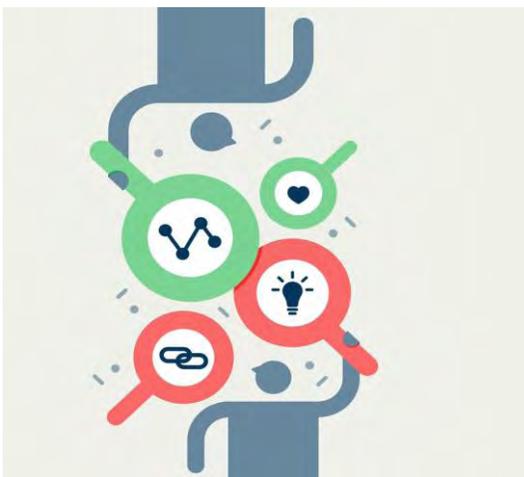


Certificate of disposal/recycling of the material, also for data destruction institutions, Insurance companies, ..)



ECOSERV partnerships

In line with its principles of cooperation towards the common goal of a sustainable environment that will provide a better quality of life and encourage the development of Eco-friendly solutions,



ECOSERV is partnering with environmental as well as humanitarian NGOs, and private organizations to create a self-sufficient eco-system to work on the preservation of the environment and the human dignity alike

WE BELIEVE IN PARTNERSHIPS



Permanent Exhibition Space

ECOSERV is also providing a permanent exhibition space for solid waste artists to show their creations and Eco innovators to demonstrate their concepts in line with its strategy of “How to change things when change is hard”.



In other words, make the change more manageable and within reach by providing an open showcase and empowering individuals with simple solutions to the problem of solid waste.

LIST OF ELECTRONIC RECYCLABLES COLLECTED BY ECOSERV:

- Telephones, Cellular phones, and Pagers
- Routers and switches
- Computers, Servers, and Laptops
- Printers, Scanners, Plotters, and Shredders
- CD/DVD players, Video players/recorders, Disk players
- TVs, All type of Screens and Monitors, and Media Projectors
- Digital cameras, Videocams
- Audio equipment, Power amplifiers, Speakers, Home theater systems, and Radios
- Electric dry-cell batteries and Electronic tuners
- Chargers, and Extension cords
- Electronic Medical Equipment (that do not need decontamination)
- Gaming consoles