

Empowering Sustainable E-Waste Management in Malaysia

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 Ready to Serve for
a Better Environment

Ir. Ammar Mohd Rashid
Managing Director
AMR Environmental Sdn. Bhd.







COMPANY PROFILE



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21 YEARS OF
SERVICE
★ ★ ★ Since 2001



CERTIFIED ISO9001:2015
QUALITY MANAGEMENT SYSTEM



ACCREDITED ISO/IEC 17025
CHEMICAL LABORATORY



REGISTERED
TRAINING PROVIDER



Environmental



Industrial Hygiene



Remediation



Engineering



Laboratory



Training

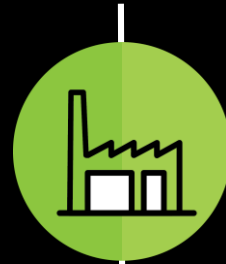
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Specializing in Scheduled Waste
Integrated Facilities in Malaysia

Treatment, Recovery and Disposal



Incinerators



E-Waste,
Metal, Cables,
Transformers, etc



Secure Landfill

COMPANY PROFILE



Specializing in Scheduled Waste Integrated Facilities in Malaysia Incinerator Training

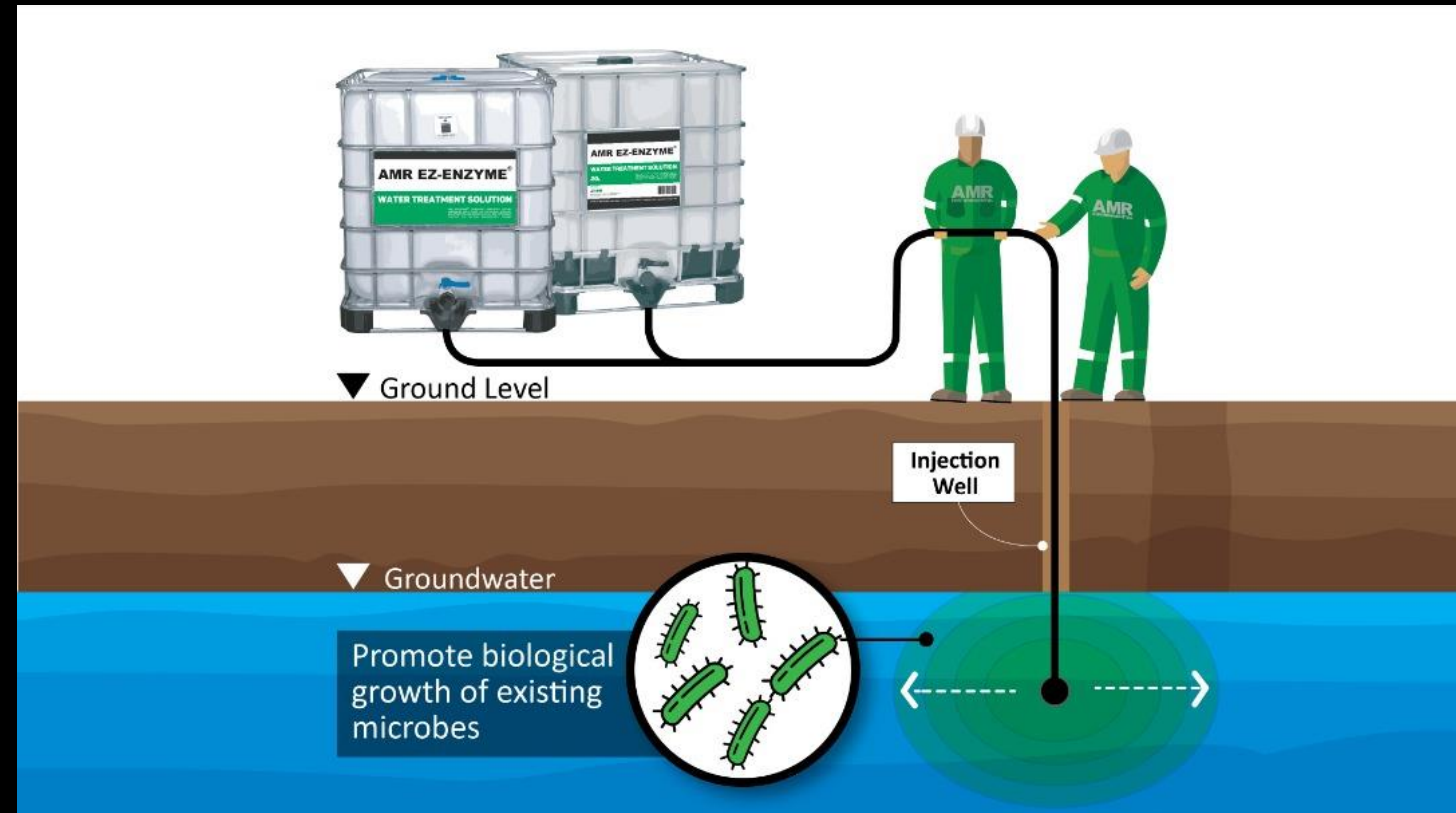


COMPANY PROFILE



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Specializing in Site Bio-Remediation Clean-up



What is E-WASTE



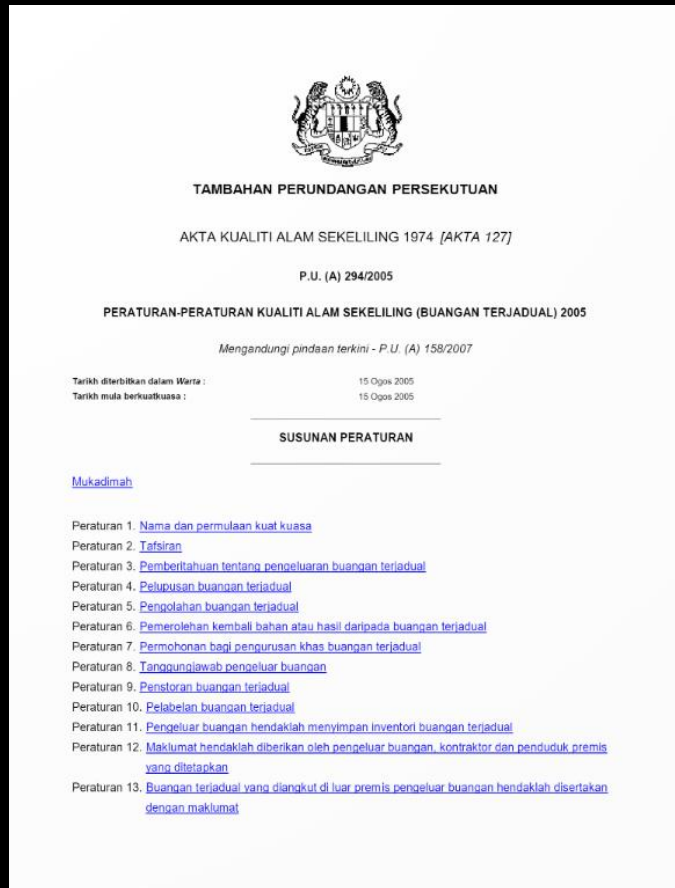
What is E-WASTE?

“E-waste” is an electrical and electronic appliances that is broken, non-working or old/obsolete.

What is E-WASTE?

In Malaysia, E-waste is categorized as **Scheduled Wastes** under the Code **SW110**, First Schedule, Environmental Quality (Scheduled Wastes) Regulations 2005.

What is E-WASTE?

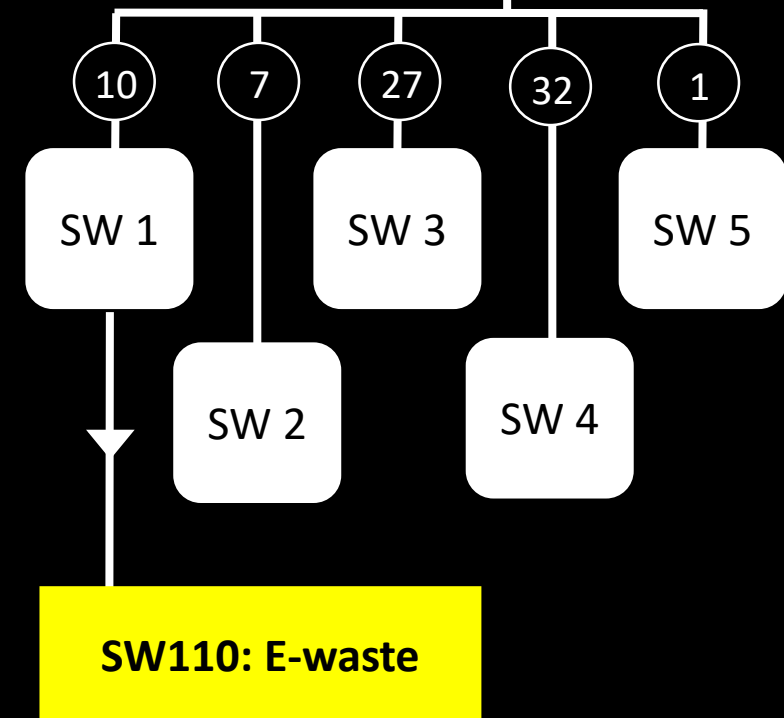


17
Regulations

7
Schedule

Schedule
1

77 Scheduled
Waste Codes



Environmental Quality (Scheduled Wastes) Regulations, 2005

What is E-WASTE?

**E-waste
sources**

Household



Industrial



What is E-WASTE?



Household E-waste



Other small appliances



What is E-WASTE?



Industrial E-waste

waste from electrical and electronic assemblies containing components such as:

1. accumulators
2. mercury-switches
3. glass from cathode-ray tubes and other activated glass
4. polychlorinated biphenyl-capacitors
5. cadmium
6. mercury
7. lead
8. nickel
9. chromium
10. copper
11. lithium
12. silver
13. manganese
14. polychlorinated biphenyl

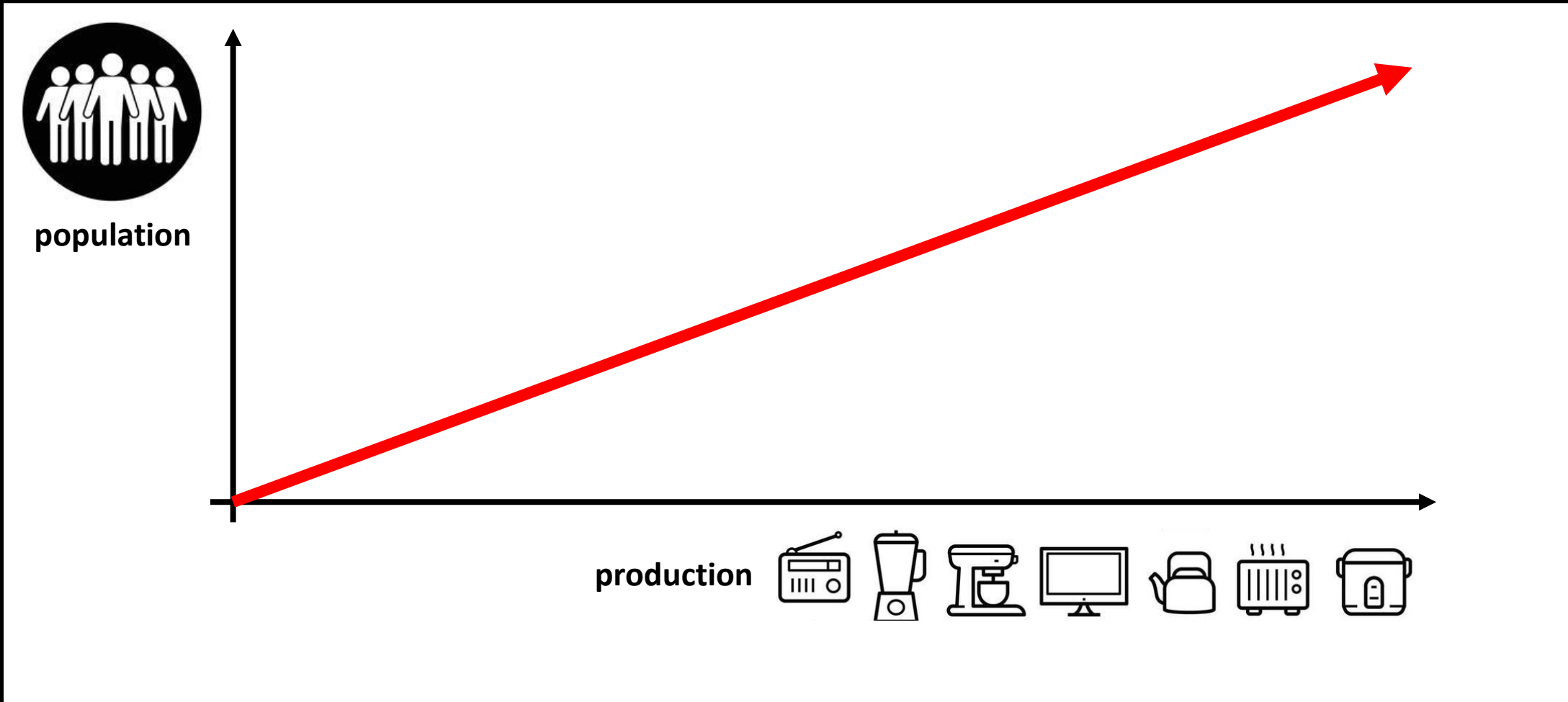


Why do we need to
manage E-WASTE



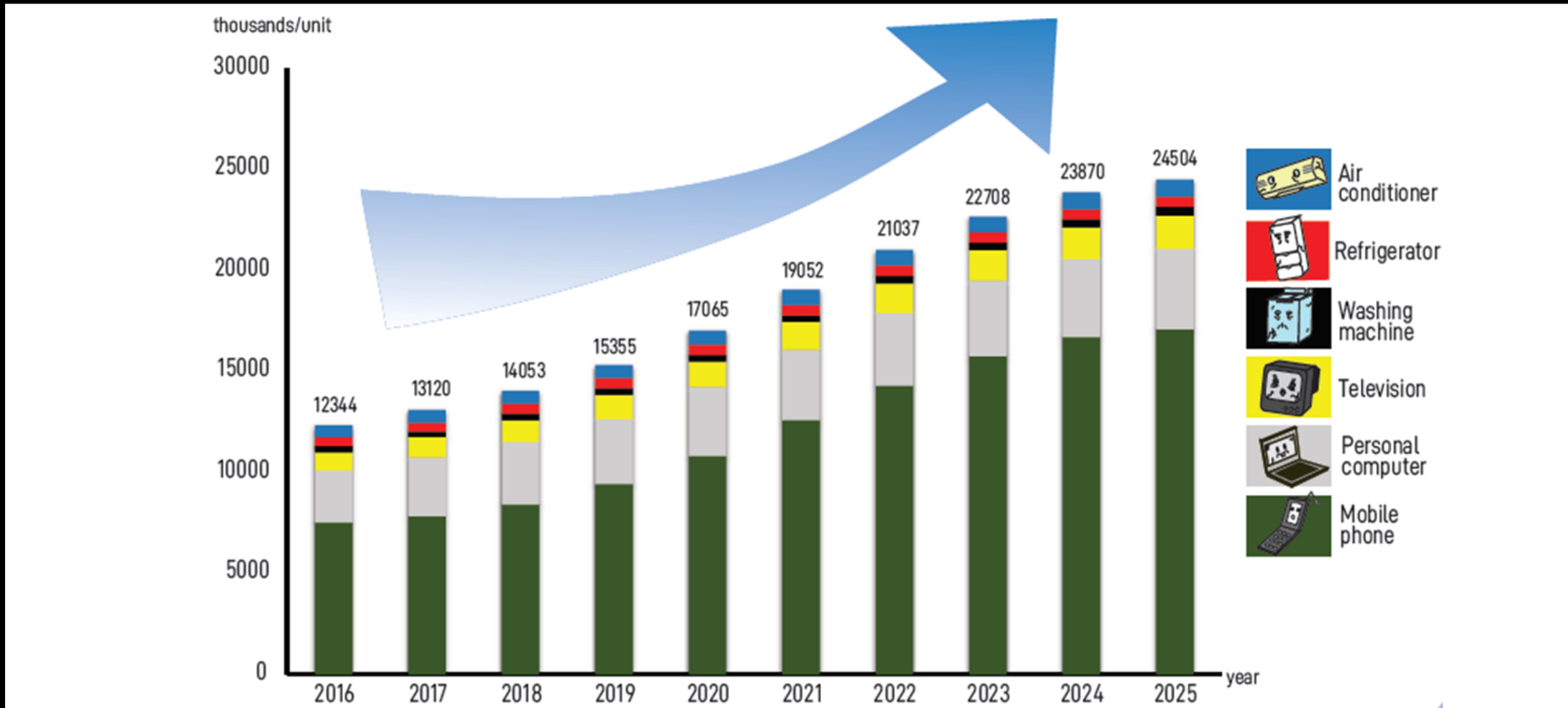
Why manage E-WASTE?

Increase in electrical and electronic production.



Why manage E-WASTE?

Estimation shows Malaysia generates **24.5 million units** of E-waste in 2025.



Source: Department of Environment

Why manage E-WASTE?

More than **380 companies** producing a wide range of products such as electrical appliances, wire, cables and electrical industrial equipment.

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Haier

SAMSUNG



Electrolux

infineon

Life Expectancy of Devices



**SMARTPHONE :
2 YEARS**



**LAPTOP :
3 YEARS**



**TELEVISION :
5 YEARS**



**WASHING MACHINE :
8 YEARS**

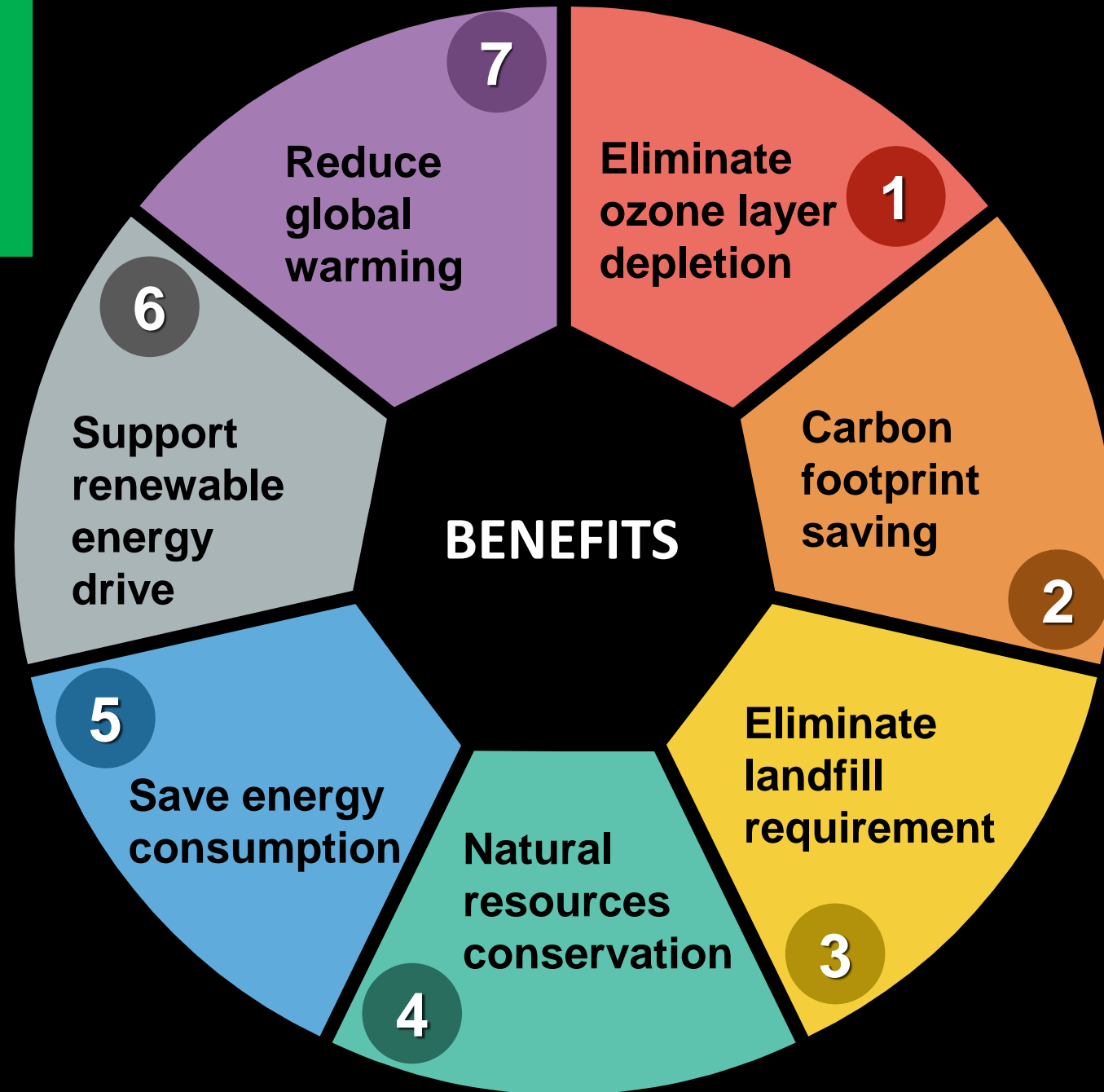


**REFRIGERATOR :
10 YEARS**



**AIR CONDITIONER :
12 YEARS**

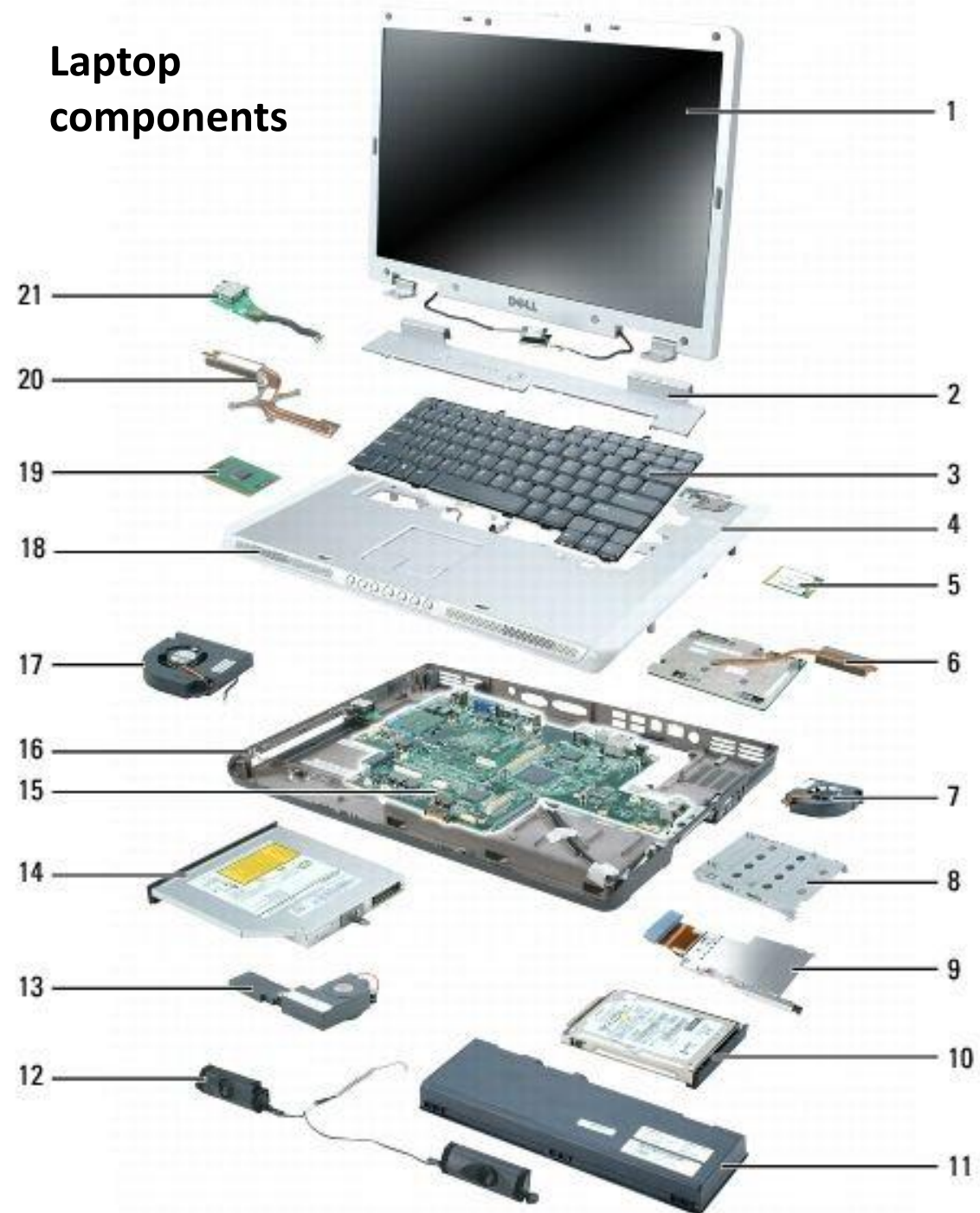
Why manage E-WASTE?



Why manage E-WASTE?

**Hazardous to humans
and the
environment if not
properly managed.**

Laptop
components







Source: CNN

MANGILIA ROMANO/PACIFIC PRESS/ALAMY







**The
Guardian**

Source: The Guardian

Why manage E-WASTE?

Pollution Pathway



AIR

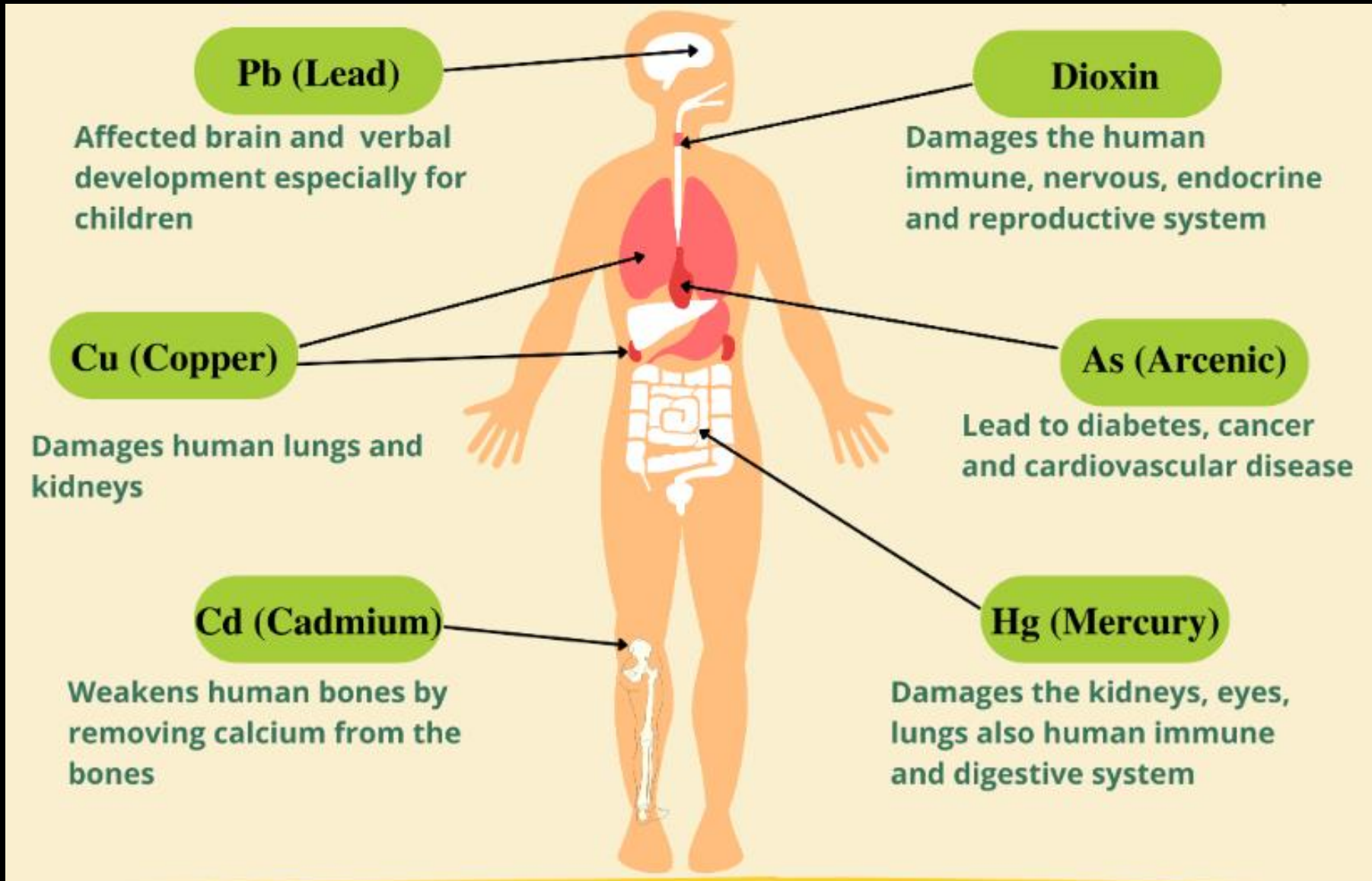
RIVER

SOIL

GROUNDWATER

Why manage E-WASTE?

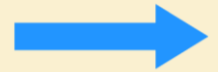
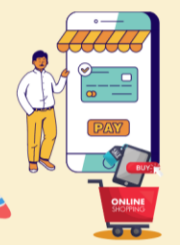
Hazards to humans



How to manage E-WASTE



ONLINE PURCHASE



Pay **Deposit**
(Recycling Fees) to DOE



Report the number of electrical and electronic products put on market (POM)

DEPARTMENT OF ENVIRONMENT (DOE)



Manage **Deposit** (Recycling Fees) :
i. Distribute Rebate (Subsidy)
ii. Awareness Program
iii. R&D
iv. Administration



MANUFACTURER AND IMPORTER

Report the quantity and types of e-waste collected, received, recovered by:
• Collection Center
• Recovery Facility

Distribute **Rebate** (Subsidy) to
• Collection Center
• Recovery Facility



Electrical & electronic equipments on the market



CONSUMER / WASTE GENERATOR

Send e-waste to Registered Collection Center

Reporting System

REGISTERED COLLECTION CENTER

LICENSED TRANSPORTER

LICENSED RECOVERY FACILITY



Send e-waste to Licensed Recovery Facility

Manage and recover e-waste in an environmentally sound manner



Submit proof of acceptance



- Precious metals
- Materials that can be recycled (plastic, paper, etc)
- Final disposal of residues

Re-acquisition

LEGEND

E-waste Flow

Reporting Flow

Deposit Flow

Rebate Flow

How to manage E-Waste



RESPONSIBILITIES OF STAKEHOLDERS IN E-WASTE MANAGEMENT



RECOVERY FACILITY

- Recover valuable material from e-waste
- Dispose hazardous material from recovery process to licensed disposal facility by Department of Environment (DOE)

COLLECTOR

- Receive e-waste from consumer
- Send e-waste only to licensed recovery facility

CONSUMER

- Return back e-waste to retailer
- Send e-waste only to registered collector

MANUFACTURER / IMPORTER

- Produce or import electrical and electronic equipment with less toxic substances

RETAILER

- Sell electrical and electronic equipment with less toxic substances
- Ready to receive e-waste from consumer



E-waste Centers

Collection Centers/Recovery Facilities

Collection Center (112)



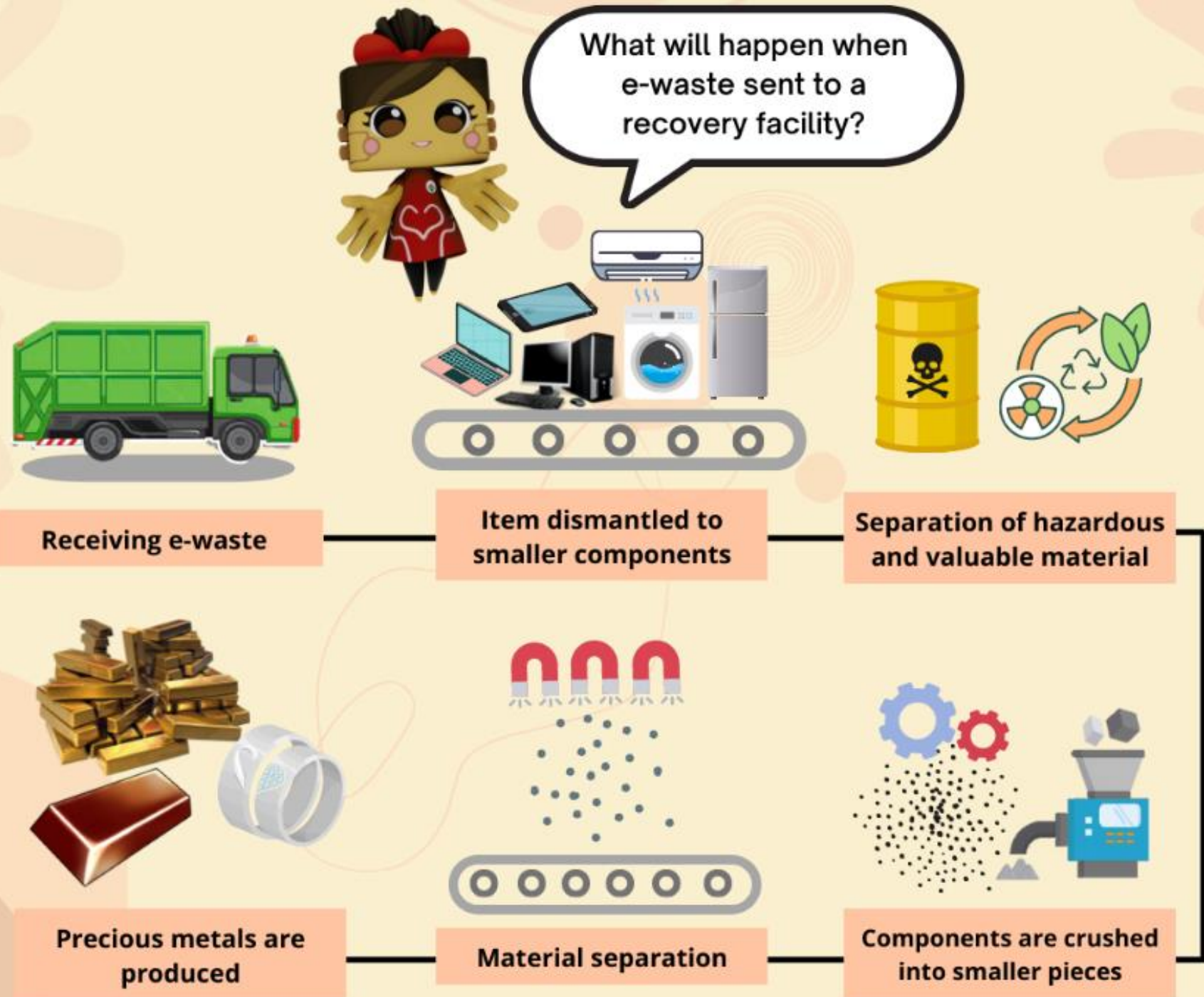
Collection Center - Retailer (88)



Recovery Facility (57)



E-Waste Recovery Process



E-Waste Recovery Process

Separation Process

PRODUCTION PROCESS -----Waste PCB recycling plant



Raw materials



Shredder



Crusher



Grinder machine



Metal Powder



Resin fiber powder



Electrostatic separator



Air separator



Pulse dust collector

E-Waste Recovery Process

Ingot Making Process



E-Waste Recovery Process

Ingot Making Process



E-Waste Recovery Process

Ingot Making Process



How to manage E-WASTE?



**Waste
Generators**

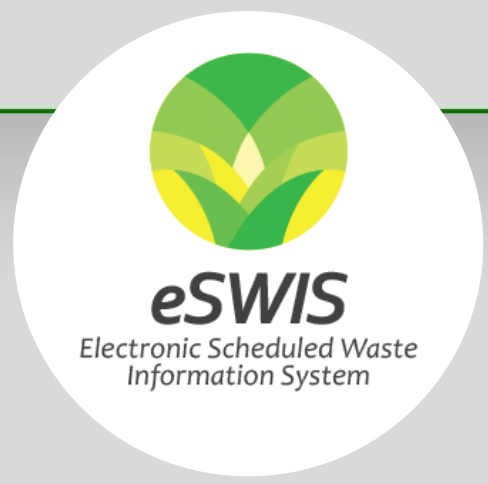


**Registered Collection
Centre**



**Licensed Recovery
Facility**

*for household e-waste





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Welcome to Electronic Scheduled Waste Information System



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General Line: 03 - 8871 2000 / 8871 2200 Fax Number : 03 - 8889 1973/75



How to manage E-WASTE?



- **Registered vehicle with DOE**
- **Registered driver with DOE**
- **Registered under 1 facility only**
- **To use dedicated route only**

How to manage E-WASTE?



**Licensed Recovery
Facility Development**

**Environmental Quality
(Prescribed Activities)
(Environmental Impact Assessment) Order,
2015**



14. WASTE TREATMENT AND DISPOSAL

(a) Scheduled Waste

(i) Construction of Recovery Plant (Off-site)

EIA Scope



Licensed Recovery Facility Development



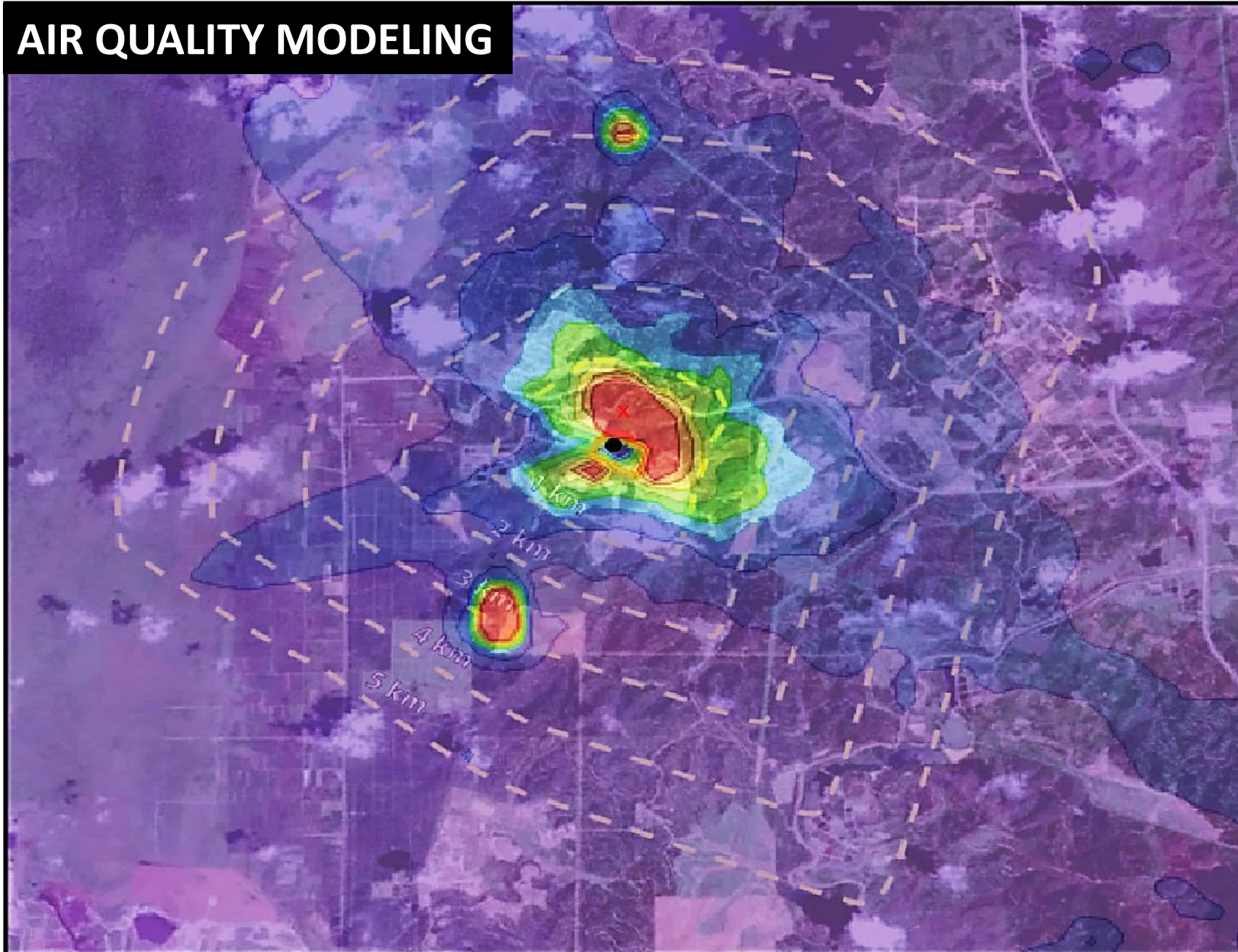
*study scope varies

EIA Scope



Licensed Recovery
Facility Development

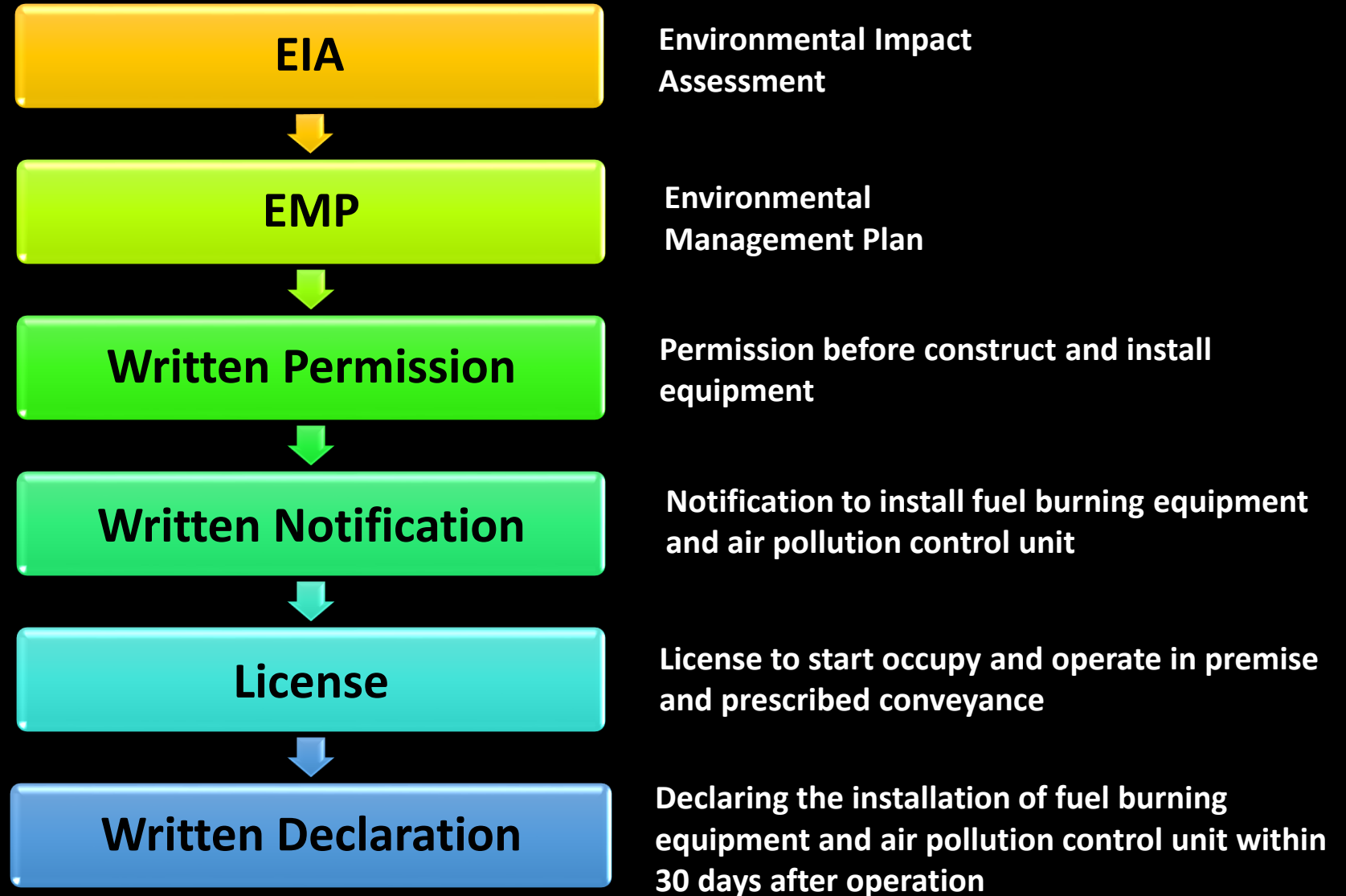
AIR QUALITY MODELING



Approval Procedures



Licensed Recovery Facility Development



Operational Conditions



**Licensed Recovery
Facility**

- **Equipped with Air Pollution Control System (APCS).**
- **APCS operated by Competent Person registered with the DOE & to conduct Performance Monitoring (daily/monthly/yearly).**
- **Installation of Continuous Emission Monitoring System (CEMS).**
- **To conduct environmental audit by auditor registered with the DOE.**
- **Conduct environmental monitoring**



Ambient Air Monitoring



Boundary Noise Monitoring



Surface Water Monitoring



Odour Monitoring

Let's Do
Our Part

REAKSI

Sepanjang program ini saya dapat belajar cara-cara melupuskan sisa elektronik terpakai di tempat berselesaian supaya tidak memberi kesan kepada alam sekitar." - Amira Zahra Zaidiarni, 12



Sekarang saya sudah tahu bagaimana untuk menggunakan semula barang-barang terpakai yang boleh dikitar semula seperti botol kosong dan kertas." - Saarvess Kreesniah, 12



Saya sudah beberapa kali sertai program seperti ini. Di rumah saya juga asingkan sampah yang boleh dikitar semula dan bergotong-royong bersama keluarga dan jiran." - Narimah Ismail, 12



Jom kitar semula e-waste

AMR dan SKSPP jayakan program kesedaran cara lupus sisa elektronik dengan betul

JOHOR BAHRU - Buat jujung kalinya, syarikat AMR Environmental Sdn Bhd menjalin kerjasama bersama pihak Sekolah Kebangsaan Sri Pual Perdana (SKSPP) dan Persatuan Ibu Bapa dan Guru (PIBG) bagi menganjurkan Program Kitar Semula Sisa Elektronik (E-Waste) & Perasian Mapela, semalam.

Program itu yang berlangsung di pekangan SKSPP bermula jam 7.30 pagi turut mendapat kerjasama Cerwiro Sdn Bhd, Universiti Teknologi Malaysia (UTM), SWM Environment Sdn Bhd, Jabatan Alam Sekitar (JAS) dan Majlis Perbandaran Johor Bahru Tengah (MPJBT) dan turut dihadiri ibu bapa serta masyarakat setempat yang memberi sokongan.

Pengarah Usuhan AMR, Ammar Mohd Rashid berkata, program ini bertujuan memberi pendidikan kepada masyarakat dan mendidik anak-anak mengenai cara pelupusan sisa elektronik dengan betul agar tidak mencemarkan alam sekitar. "Kebanyakan penduduk hanya menyimpan barang elektronik terpakai mereka kerana tidak tahu tempat sesuai untuk melupuskan barang-barang berkenaan. "Jadi program yang kami adakan ini sedikit-sebanyak dapat memberi pendidikan kepada mereka mengenai cara yang tepat untuk membuang dan melupuskan barang berkenaan," katanya.

Katanya, usaha itu juga bagi membaruti pihak sekolah, mengumpul data dan bahan mengenai pengalihan sisa-sisa elektronik yang dikumpul dari masyarakat setempat

PPD galak lebih banyak kerjasama swasta dan sekolah

JOHOR BAHRU -Pejabat Pendidikan Daerah (PPD) Kulai menyumbat baik pernganjanan Program Kitar Semula Sisa Elektronik (E-Waste) & Perasian Mapela dan mengalu-alukan lebih banyak kerjasama antara pihak swasta dan sekolah bagi meragalkan budaya kitar semula.

Pengarah PPD Kulai, Ishak Mahbob berkata, masyarakat khususnya di peringkat usia kanak-kanak dan remaja perlu diberi pendidikan awal agar amalan kitar semula menjadi sebahagian dari rutin harian.

Katanya, usaha mengumpul sisa e-waste dan mewujudkan laman Perdana Mapela (Multi-purpose Learning Hub) secara tidak langsung dapat meningkatkan penyedaran murid-murid untuk bergiat aktif dalam pel-



Wakil pihak Cerwiro menyerahkan cek hasil jualan sisa e-waste yang berjaya dikumpul menerusi Program Kitar Semula Sisa Elektronik (E-Waste), kepada SKSPP.

dan dijual kepada pihak Cerwiro.

"Usaha mengumpul sisa e-waste ini mula digerakkan sejak seminggu lalu, di mana kita menggerakkan kart dari rumah ke rumah bagi memudahkan penduduk setempat membuang barang-barang terpakai mereka yang tidak dingini. "Barang-barang ini termasuk telefon bimbit, mesin basuh, peti sejuk, penialatan komputer, mesin pengisar, pengering rambut, pencetak dan lain-lain barangan elektronik yang rosak dan terpakai.

"Kutipan hasil penjualan barang terpakai ini akan disumbangkan sepenuhnya kepada tabung sekolah untuk menjalankan pelbagai aktiviti," katanya.

Ammar berkata, pelbagai aktiviti dijalankan sepanjang program termasuk pameran dan talimart kitar semula dan alam sekitar oleh agensi terlibat serta cabutan bertuah.



Ammar (kiri) dan Siti Haidah (dua, kiri) mengiringi Ishak (tiga, kiri) menyerahkan cek hasil jualan Program Kitar Semula Sisa Elektronik (E-Waste).

bagai aktiviti di sekolah.

"Meremisi usaha ini kita bukan sahaja dapat mendidik anak-anak mengenai alam sekitar tetapi pada masa sama meningkatkan kemahiran berfikir aras tinggi (KBAT) dalam kalangan murid. "Aktiviti setempat ini juga me-



Ammar (kanan) dan Siti Haidah (dua, kanan) menyerahkan cek hasil jualan barangan elektronik terpakai yang dikumpul ke- ditaman kitar.

"Selain itu kita turut mengedukakan semamiribik pada awal pagi dan pertandingan untuk murid-murid yang hadiri," katanya.

Katanya, pihaknya berhasrat memperluaskan program ini dengan menjalin kerjasama bersama lebih banyak sekolah pada masa akan datang bagi meningkatkan

kesedaran masyarakat secara lebih meluas mengenai pelupusan dan kitar semula sisa e-waste.

Pada majlis itu juga pihak Cerwiro turut menyerahkan cek kepada SKSPP bagi hasil jualan barangan sisa elektronik yang berjaya dikumpul menerusi program berkenaan.

wah Modul Impak 21 yang diperkenalkan oleh kerajaan negeri.

"Laman ini berfungsi sebagai hab pembelajaran luar bilik darjah sebagai salah usaha menarik minat murid-murid menjalani sesi pembelajaran dengan lebih cerna. "Ia dibina menerusi data yang dikumpul daripada orang ramai dan kita turut menggunakan barang-barang kitar semula seperti tyak, paip polivinil klorida (PVC), tempurung kelapa, papan terbuang, kain restang, tin kosong dan lain-lain barang terpakai," katanya.

Katanya, usaha mewujudkan laman Perdana Mapela juga secara tidak langsung dapat meningkatkan keedaran perkhidmatan sekolah dan mengupayakan penggunaan setiap ruang dan sudut sekitar sekolah.



THANK YOU

Visit our website: www.amr.com.my

Ir. Ammar Mohd Rashid

