

E-WASTE MANAGEMENT IN INDONESIA



Directorate of Waste Handling
Ministry of Environment and Forestry
2024

INDONESIA'S SOLID WASTE MANAGEMENT REGULATIONS



Law No. 18/2008 on Solid Waste Management

Government Regulation No. 81/2012 on the Management of Household Waste and Waste similar to Household Waste



Household Waste



Waste Similar to Household Waste

Government Regulation No. 27/2020 on Specific Waste

Household waste containing of hazardous substances



Household waste containing of hazardous waste



Disaster Waste



Building demolition



Waste that is technologically unable to be processed



Not periodically Waste

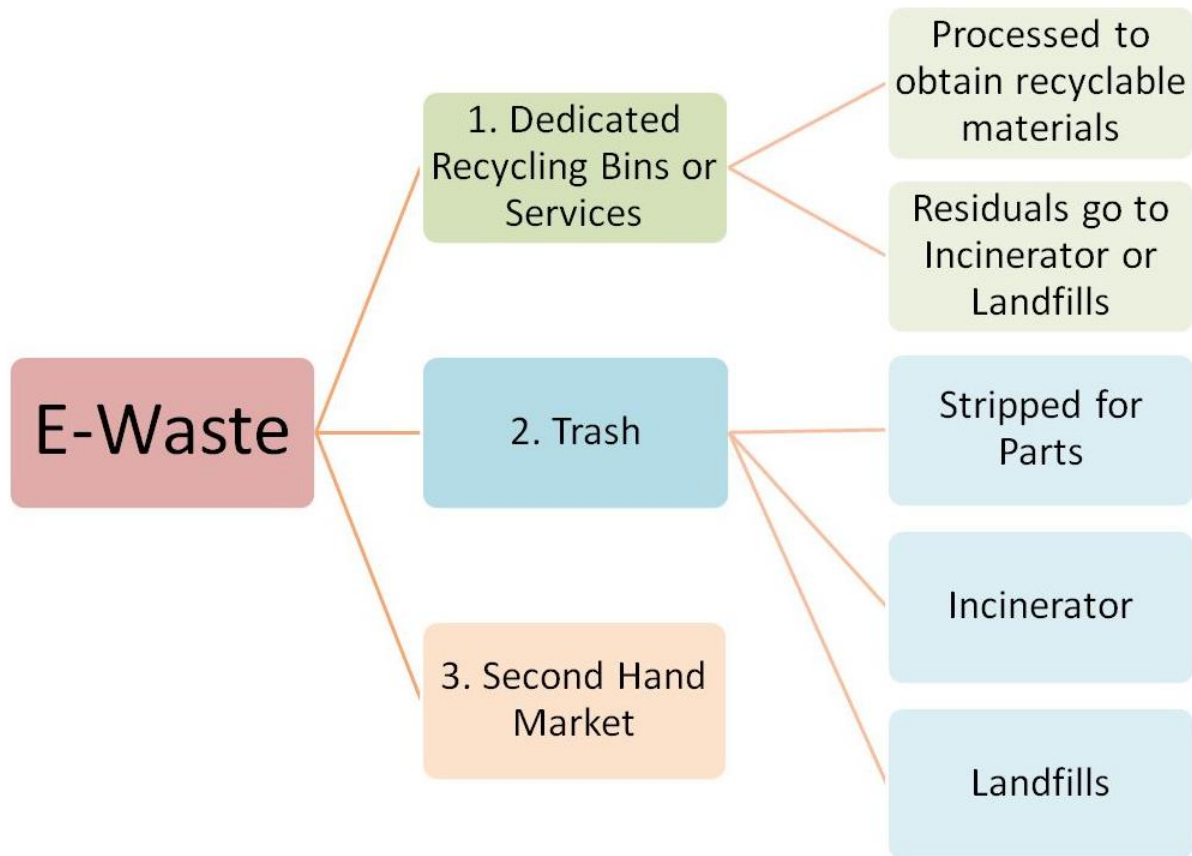


The responsibility for waste management is the local government

ISSUES AND CHALLENGES

NO.	ISSUES	CHALLENGES
1.	Waste is managed by reduction and handling activity	Reduction activities have not been carried out optimally because there is a need to change the production process and change technology which costly, and need to change the people's behavior
		Waste handling in Indonesia requires high operational costs considering that Indonesia is an archipelagic country so it requires intermodal transportation
2.	Public awareness in managing waste is still inadequate	There are many open dumping locations or waste is dumped directly into landfills
		The informal sector plays an important role in handling of e-waste
3.	Indonesia is encouraging the implementation of circular economy of ewaste	<ul style="list-style-type: none">- off taker is not adequate- The financing mechanism for e waste management has not been implemented- Producer's obligation to limitation, take back, and manage of post consume of e-waste has not been implemented

ELECTRONIC WASTE: CURRENT SITUATION IN INDONESIA



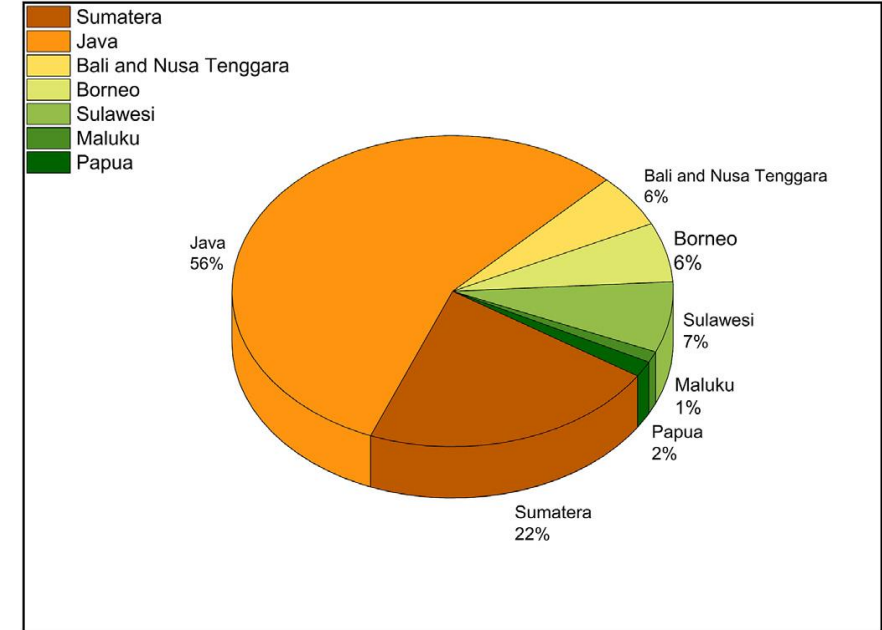
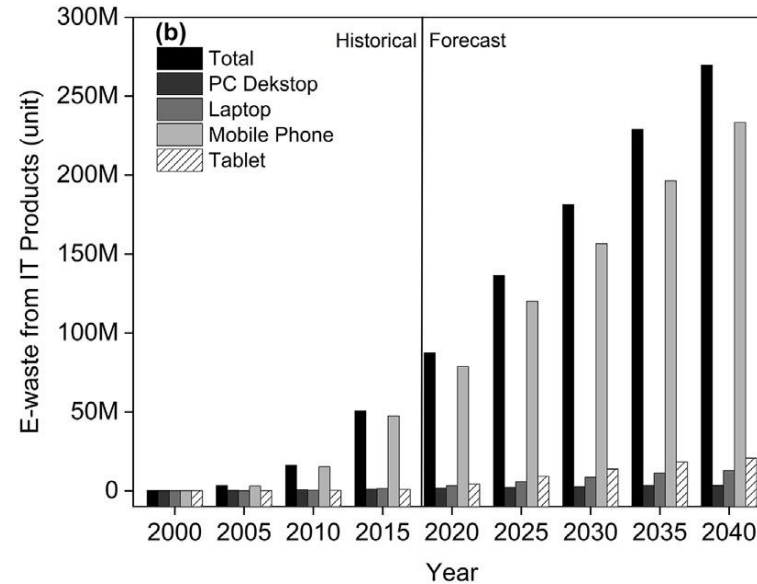
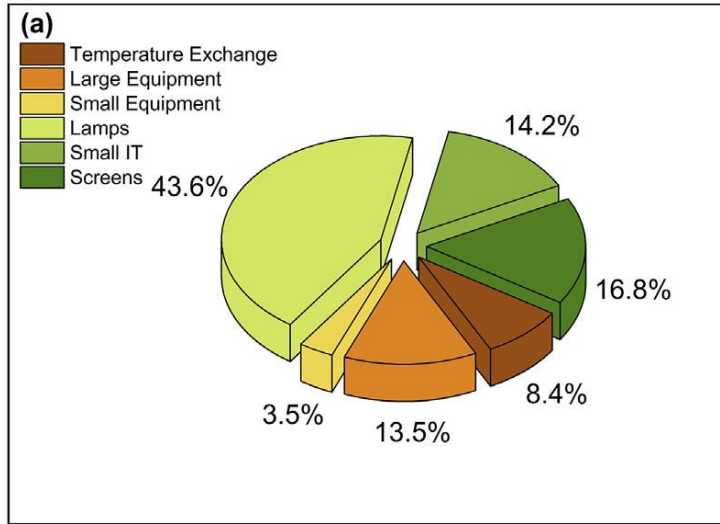
There are 3 main ways that consumers dispose their e-waste in Indonesia, through:

1. dedicated Recycling Bins or E-waste Management Services,
2. directly into our trash bins, or
3. selling them to the Second Hand Market.

Which right now **in Indonesia the number 2 and 3 is more favourable to the community**

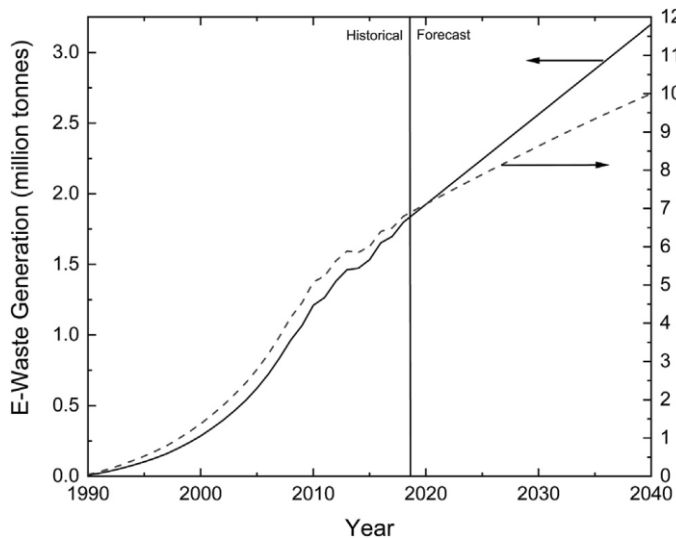
Indonesian Government believe that poor management of E-waste not only **causes loss of valuable materials and resources**, it also **causes pollution to the environment**. There is continued exploitation of the environment, and also adverse effects on human health. As obsolescence of the product and increasing of economic level cause increases in the amount of E-waste, poor management causes that increasing amount of E-waste to be a huge global hazard.

Accretion and Distribution of E-Waste Potential Generated in Indonesia



Estimated e-waste generation in Indonesia for: (a) all types of e-waste category in 2021; and (b) selected IT products waste (mobile phone, laptop, desktop) in unit

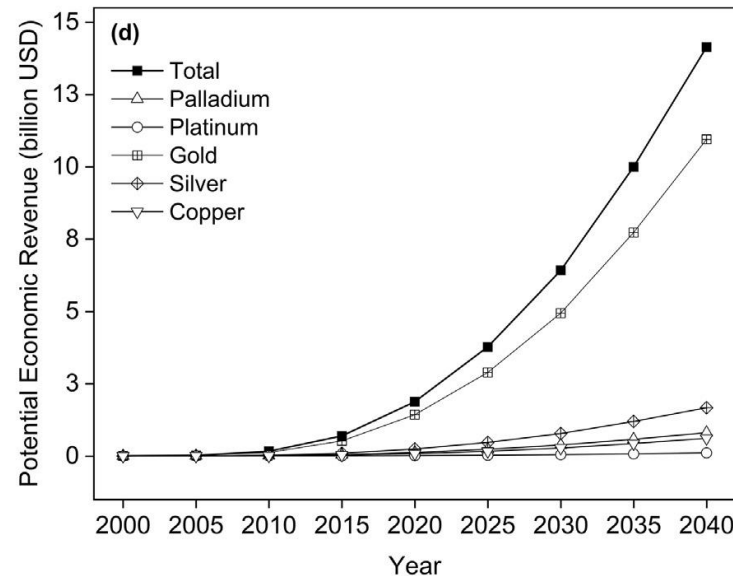
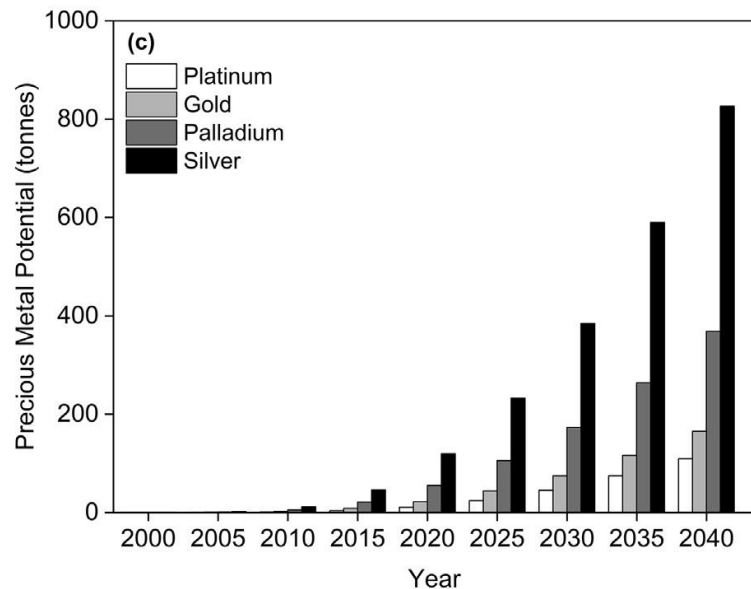
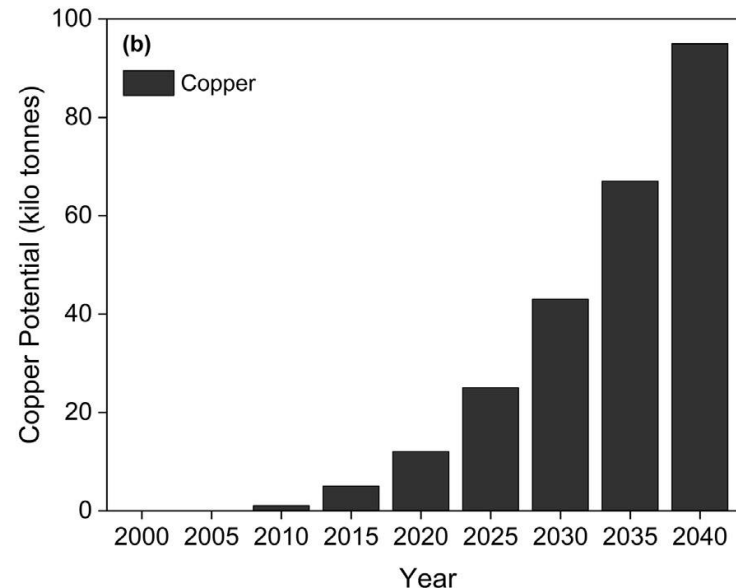
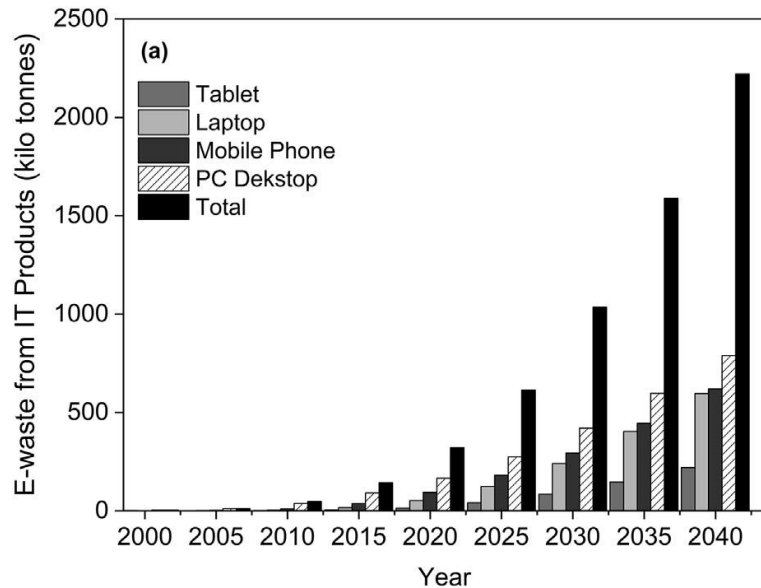
Estimated e-waste generation distribution (all types) in major islands in Indonesia in 2021, based on weight percentage



Estimated historic and future (>2019) total e-waste generation in Indonesia from 1990 to 2040 (for all types of categories, in million tonnes (left y-axis) and in kg/person (right y-axis).

the detailed estimation results of the generation of these e-waste types in Indonesia from 2000 to 2040 based on the total unit discarded. The result shows that the e-waste generation from the four IT products is expected to reach **132 kt** which equivalent to **270 million units** in 2040.

Economic Value of Generated E-Waste in Indonesia



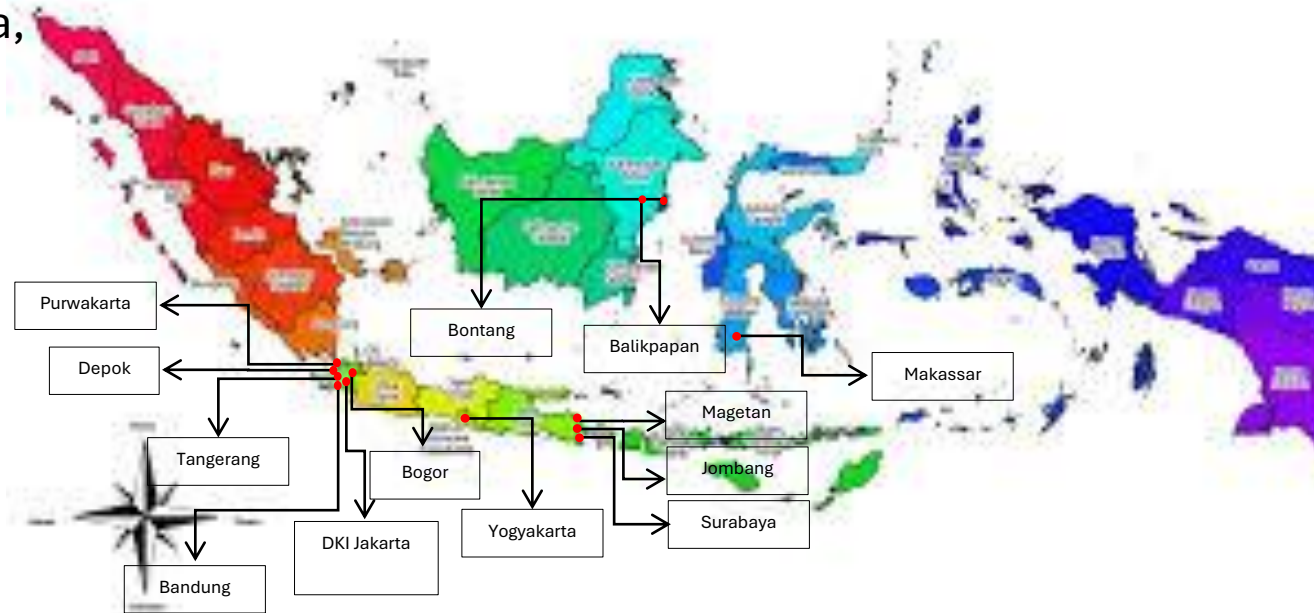
- (a) Estimated historic and future (>2019) e-waste generation (from tablet, mobile phone, laptop, and PC) in kilo tonnes,
- (b) cumulative Cu potential (kt),
- (c) cumulative Au, Ag, Pt, Pd potential (kt),
- (d) potential economic revenue in US\$ billion (2000-2040)

The current study estimated that, in 2020, up to **12.5 kilo tonnes** of **copper (Cu)**, **119 tonnes** of **silver (Ag)**, **21 tonnes** of **gold (Au)**, **54 tonnes** **Palladium (Pd)** and **10 tonnes** **Platinum (Pt)**

can potentially be recovered. The current market value from London Metal Exchange is US\$ 6.45/kg of Cu, US\$ 2020/kg of Ag, US\$ 66,500/kg of Au, US\$ 2184/kg of Pd and US\$ 974/kg of Pt. Currently, Indonesian ewaste recycling rate is estimated to be maximum 5%. This means that by 2020 only **US\$ 93,787,009** worth of metals is recovered, leading to an opportunity loss of **US\$ 1,781,953,175** (US\$1.8 billion).

ELECTRONIC WASTE MANAGEMENT IN INDONESIA

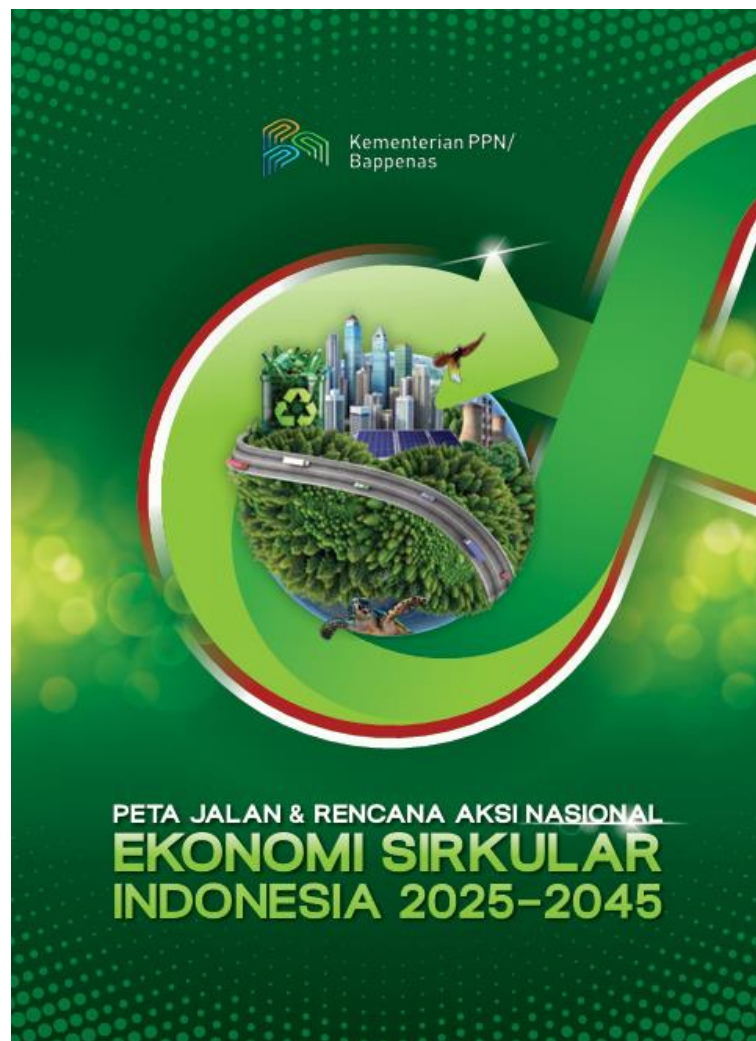
- consists of 18,307 islands with 5 large islands are Java, Sumatera, Kalimantan, Sulawesi and Papua
- population in 2024 will be 281,603,800 people
- has Law No. 18/2008 concerning Waste Management and Government Regulation Number 27 of 2020 concerning Specific Waste Management
- in the process of preparing technical guidance for electronic waste management and producer's obligations in limiting, take back and recycling of e-waste



- 13 local governments have taken the initiative in implementing of e-waste management
- For example:
 - (1) Jakarta have 14 collecting point facilities, consist of 5 facilities of city scale and 9 facilities of district scale
 - (2) E-waste that has been managed by recycler in the DKI Jakarta (from 2019 to May 2024) is 165 tons

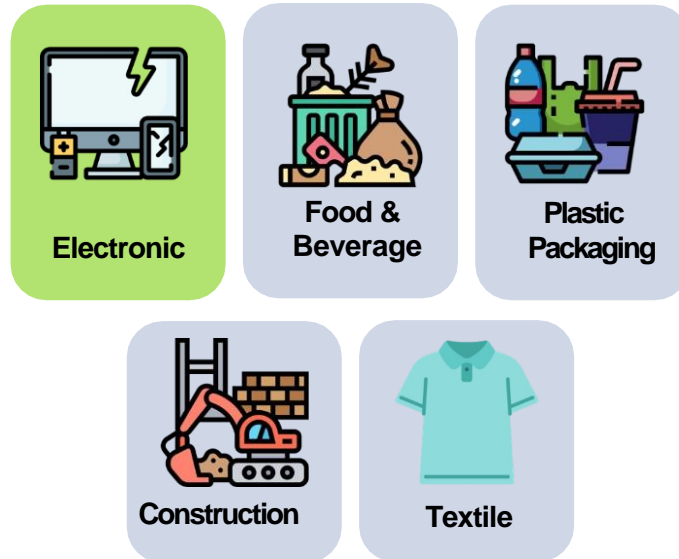
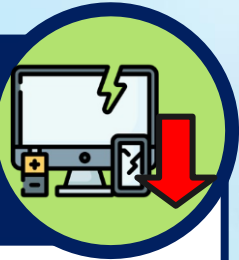
- Tangerang, Surabaya, Yogyakarta, Bandung, Balikpapan, Jombang, Magetan have Drop Boxes to collect e waste and transport to recycler
- Depok has 1 units of e-waste collecting facility supported by UNDP, but has not operational yet
- Purwakarta, Bogor, Bontang, and Makassar just the initial stage by socializing the e waste management to the several communities

NATIONAL ACTION PLAN ON ECONOMY CIRCULAR



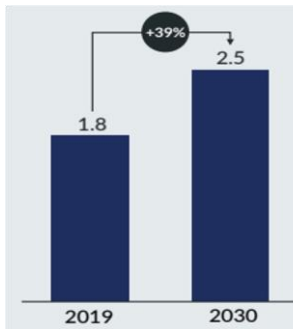
Advantages of Circular Economy in Waste Reduction

A circular economy can help reduce waste in 5 priority sectors by 18-52% compared to the “Business As-Usual” (BaU) scenario in 2030



These five sectors contribute up to 1/3 of Indonesia's GDP, are capable of absorbing a workforce of >43 million people, have stakeholder support and have higher potential to adopt a circular approach compared to other sectors.

Waste Generated (Million tones)



Economic Impact The loss of value of valuable materials contained in e-waste reaches IDR 26 trillion (USD 1.8 billion) or around 11 percent of GDP contribution

Social Impact 90% of e-waste in Indonesia is managed by workers in the informal sector, who face the greatest health risks from e-waste

Environmental Impact Landfilling of electronic waste can cause the leakage of dangerous elements which cause environmental contamination.

Potential Applications of the Electronic Circular Economy

Economy

Generating an economic impact worth US\$2.2 billion to US\$14 billion, or the equivalent of IDR 200 trillion

Social

The electronic device recycling and repair sector can **create local jobs**.

Environment

The risk of environmental pollution can be reduced significantly

STRATEGY AND ACTION PLAN

Electronic Sector



Development and Implementation Policy on EPR of Electronic Product

Action Plan #1 Establishment of electronic EPR regulations

Action Plan #2 Implementation of EPR on priority product

Circular Economy Infrastructure Development

Action Plan #1 Increase in the number of material recovery facilities for e-waste

Action Plan #2 Increase e-waste collection through existing facilities

Action Plan #3 Increasing the capacity of the informal sector to support material recovery facilities

Action Plan #4 Strengthening circular economy-based businesses

Action Plan #5 Integrated of SMEs and the informal sector in circular business ecosystem

Action Plan #6 Research and development of recycling technology



STRATEGY AND ACTION PLAN

Electronic Sector

PART
#2



Implementation of Eco Design and Product Innovation

Action Plan #1 Development of industry standards (ecolabels) with eco-design principles

Action Plan #2 Application of ecodesign principles to electronic products and electrical equipment



Development of CE ecosystem for new Technology and Batteries for Battery-Based Electric Motor Vehicles (EMV)

Action Plan #1 Establishment of regulations that cover the entire product life cycle and the use of renewable energy for battery operations

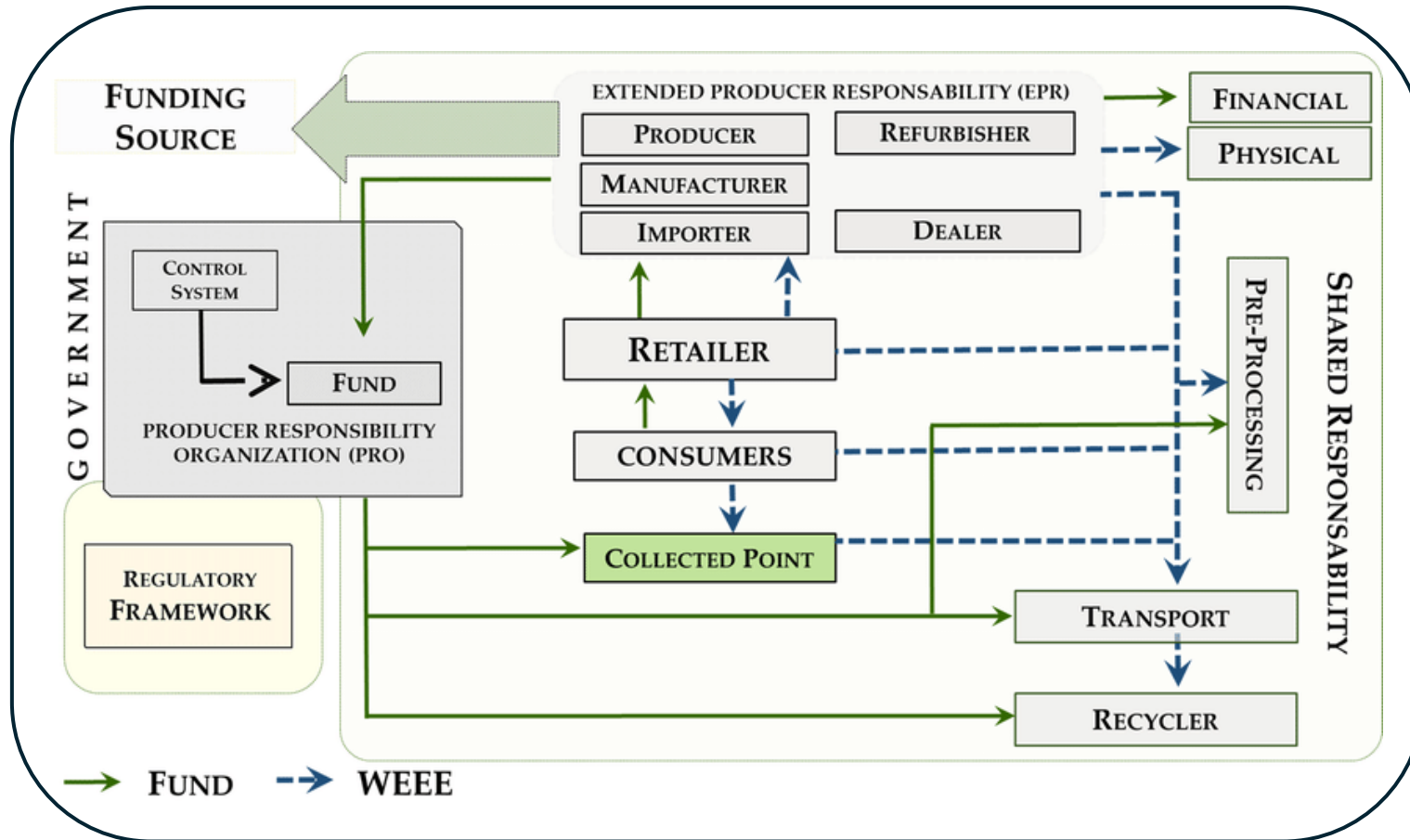
Action Plan #2 Determination of logistics infrastructure for handling and utilization of End of Life (EoL) (repurpose/recycling) which has sufficient capacity, adequate facilities, and is accessible to the public

Action Plan #3 increasing the proportion of renewable energy use for EMV charging infrastructure



Grand Design of E-Waste Management in Indonesia

The Grand Design will be easier to accomplished by carrying out 4 phases for short term approach



Phase 1

- Developing of regulation regarding the responsibility for managing e-waste by producers
- Developing of guidelines and publication material

Phase 2

- Encourage the implementation of e-waste management involving all stakeholders
- creating champions in e-waste management

Phase 3

Strengthening the E-Waste management database system

Phase 4

Strengthening awareness through campaigns, education and publications to the public



KEMENTERIAN
LINGKUNGAN HIDUP
DAN KEHUTANAN
REPUBLIK INDONESIA

Thank You



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