Towards a Circular Economy Waste Management in Malaysia

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Overview of the Solid Waste Management In Malaysia

TRANSFORMATION OF THE SOLID WASTE MANAGEMENT IN MALAYSIA

BEFORE FEDERALIZATION

Local Authority

2006

Under Purview Of Local Authority Act 171

2007

Solid Waste and Public Cleansing Management Act (Act 672)

2008

Establishment of Solid Waste and Public Cleansing Management Corporation

2011

Federalization Of Solid Waste and Public Cleansing Management

AFTER FEDERALIZATION

2013

Monitoring of Solid Waste and Public Cleansing Management

2015

Regulation on Separation At Source

2016

Enforcement on Separation At Source

Overarching issues related to Solid Waste Industry…

1 Gaps in appropriate policies, guidelines, standards and governance

There are gaps in existing policies, guidelines and standards *hindering the actual implementation*.

2 Inadequate Resources:- Technical Expertise & Skilled Manpower

Targets cannot be met as there is an insufficiency in *current manpower, technical expertise & financial resources*. There are also *delays* in receiving the designated funding, setting back implementation of prior National Plan on Solid Waste.

3 Inadequate of fund and mismatch between revenue and cost

- Inadequate fund to support implementation plans - *delay some implementation plan*
- The *current revenue-cost model* is *unsustainable* - contribution from the PBTs is insufficient and the Federal Government has to cover the losses hence increasing the financial burden.

4 Inadequate waste facilities

Only a fraction of the waste facilities planned were approved due to constraint in funds and also due to *limited manpower*.

5 Inadequacy of data

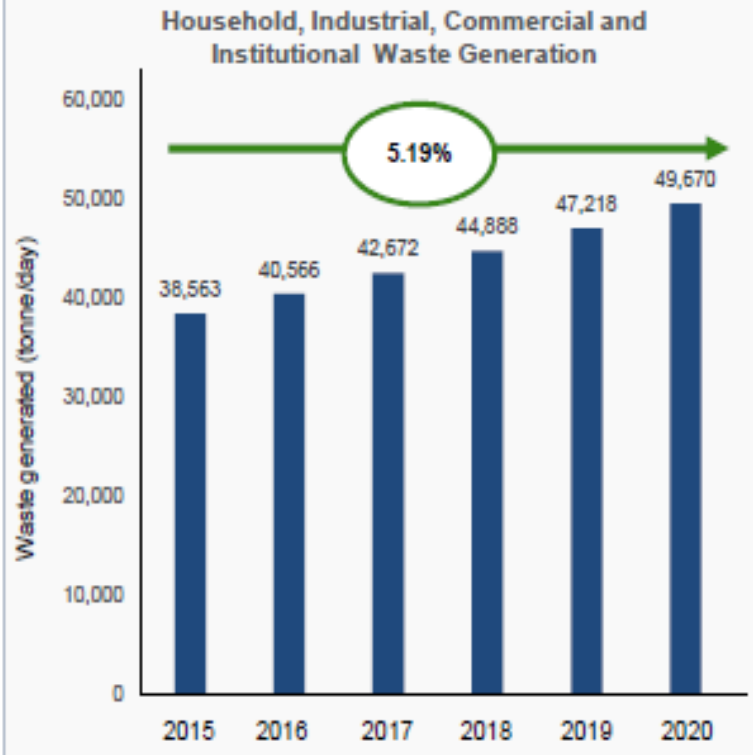
There are gaps in *existing data management practice* such as lack of a proper data system, data obsoletion, complications in data handover, and a lack of supporting facilities.

6 Unregulated and unmonitored recyclables market

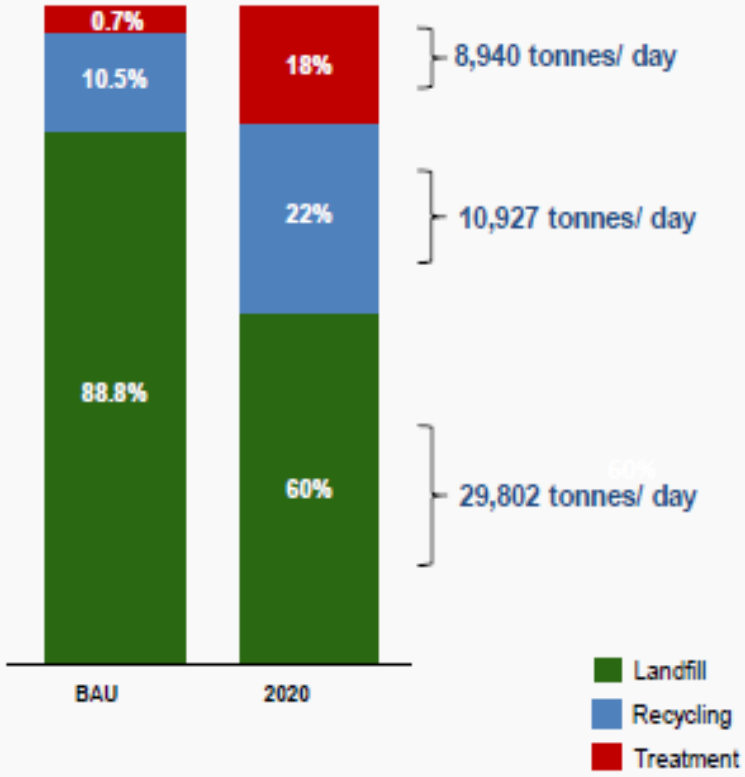
Currently the recyclable market is highly unregulated and *operates as a grey market*. Its vast economic potential is undervalued as market demand for products from the waste stream cannot be properly *analysed or tracked*.

Malaysia is currently dependent on landfills with ~89% of waste collected ending up in landfills

49,670 tonne/ day of waste is expected to be generated by Malaysians in the year 2020



19,867 ton/day waste nationwide need to be treated and recycled in order to achieve the 40% waste diversion from landfill by year 2020



Source: JPSPN – SWM 2012

Waste in Malaysia

- **Malaysian households produce 42,672 tonnes of rubbish every day**! That's almost **140 Boeing 747 planes** stuffed all the way up with trash, every single day. (Thailand-39,000 & Philippines-29,000)
- **The average Malaysian throws away 1.64kgs of waste every day,** compared to the worldwide average of 1.2kgs.
- **Household waste has always been on a rise**. A study shows that solid waste generation in Malaysia has **gone up 91%** over the past 10 years, and the main reasons for this are **urban development, higher salaries**, and just a **shift from how we use things as consumers**– for example, with online shopping.

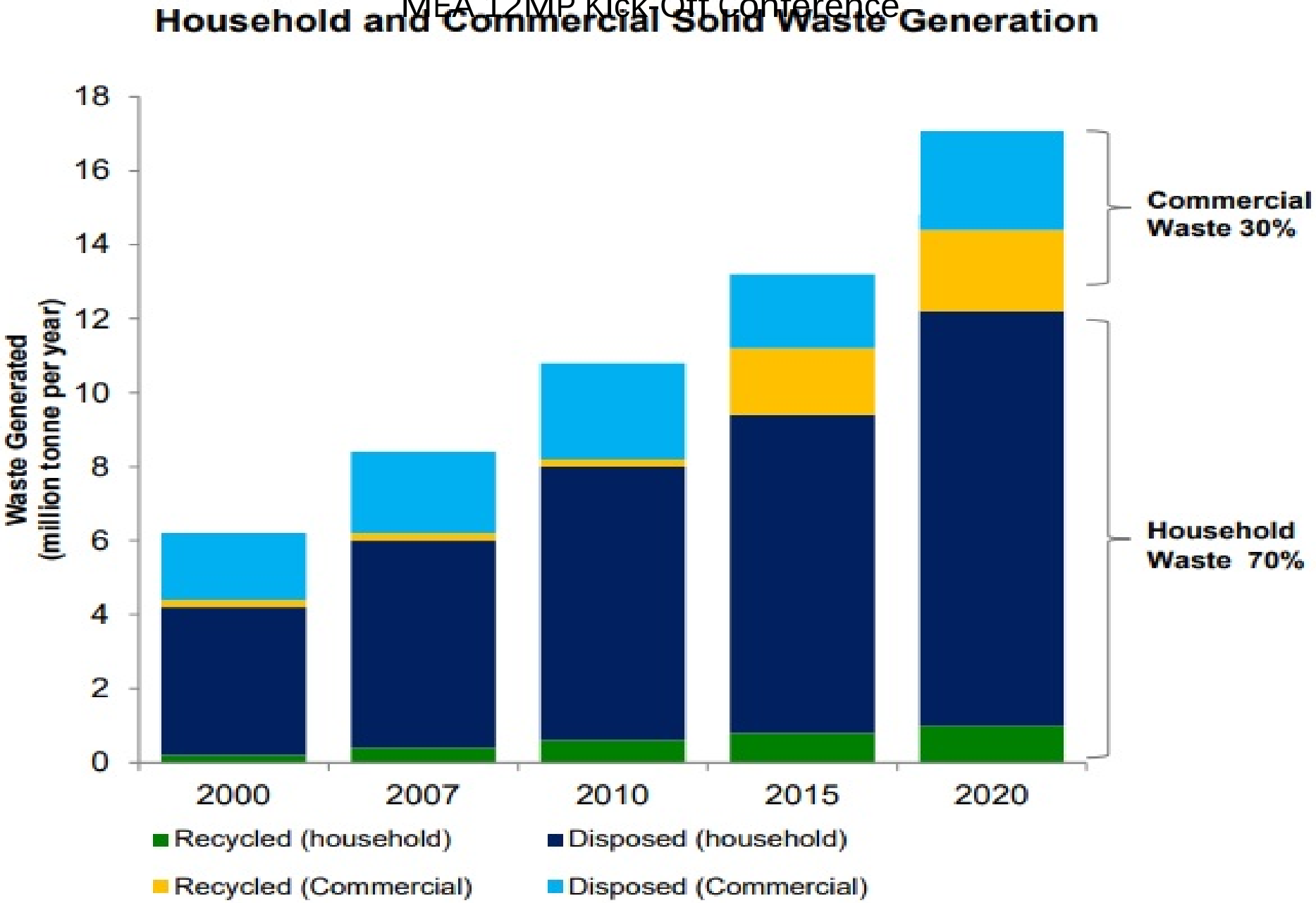
Issues and Challenges

ISSUES AND CHALLENGES

Environmental risks & impacts on key economic sectors

- Agriculture – food shortage
- Water Resources – waste shortage
- Forestry and Biodiversity - disruption of terrestrial ecosystem
- Coastal and marine areas - disruption of marine ecosystem
- Energy and transport
- Public health
- Heavy rain – flood
- Sea level rise – high tides
- Outrage of infrastructure
- Heat stroke

- **All these impacts of climate change may cause negative socio-economic change, including deterioration in economic growth, livelihood opportunities, actual incomes, workforce capacity and human health**.



Source: SW CORP Malaysia

Current Scenario on Wastes in Malaysia

1) Waste Composition – of the total MSW
2) Waste based on type
3) Waste is calculated based on percentage & average weight
4) Brand Owners are NOT involved
5) NO RRI (Recovery & Recycling Index) analysis – NO Data, NO report
6) NO Sustainability & Circular Economy efforts

Layers of Waste Generators/Recycling Process in Malaysia

1) Brand Owners
2) Manufacturers (Raw Material Suppliers)
3) Suppliers & Distributors
4) Retailers (Hypermarkets, Malls, Sundry Shops, etc.)
5) Consumers
6) Formal Waste Collectors (Separate – Sell)
7) Informal Collectors (Separate – Sell)
8) 1st Recycler (Collect/Buy – Compact – Sell)
9) 2nd Recycler (Buy – Segregate – Crush – Sell)
10) 3rd Recycler (Buy – Wash – Recycle – Sell)
11) Buyers from several industries

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GENERATION → COLLECTION / TRANSPORT → RECYCLING / COMPOSTING / DIGESTION → ENERGY RECOVERY → Disposal

Municipal and Industrial waste

Why a Circular Economy?

As well as creating new opportunities for growth, a more circular economy will:

- reduce waste, energy consumption & CO2 emissions;
- drive greater resource productivity;
- deliver an innovative & more competitive Malaysia economy;
- position Malaysia to better address emerging resource security/scarcity issues in the future;
- help reduce the environmental impacts of our production and consumption in both Malaysia & abroad.

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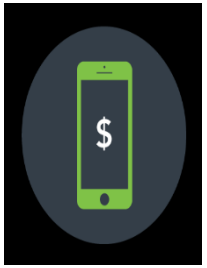
Consumer uses the product

Used product

Consumer Waste Disposal App

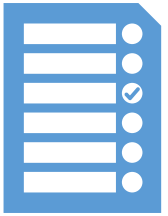
Collector : Consumer returns crushed plastic

Consumer rewarded with points

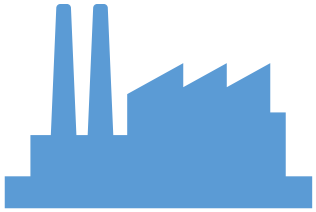


Collector equipped with Computer Vision

Detailed Report automatically made



Product



Detailed report sent to brand owners

Waste segregated

Processed raw material to brand owners

Processed raw material for other industries

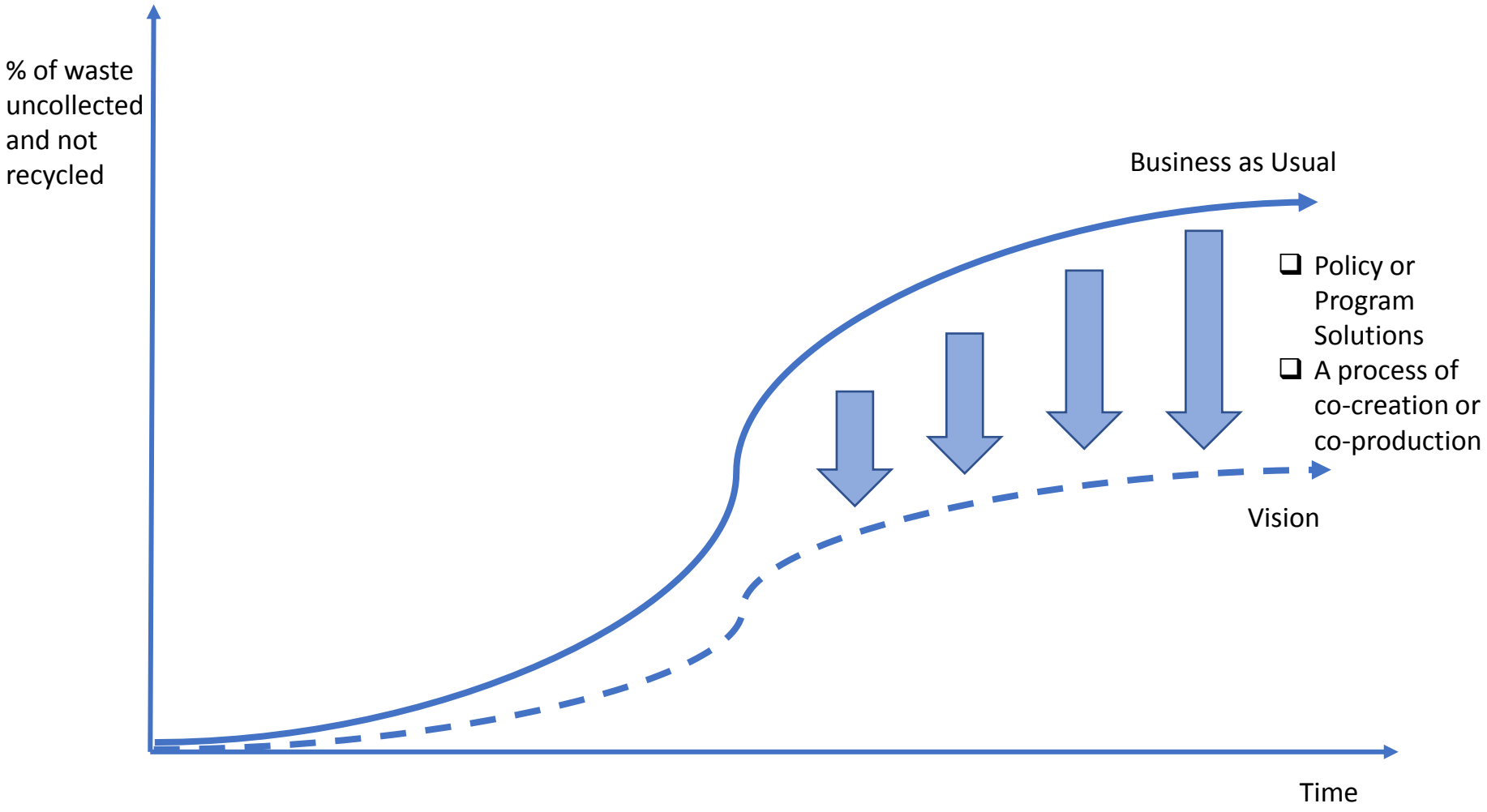
Dedicated Recycling Process

BENEFITS

Collection through circular economy offers:

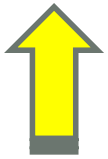
1. Can deploy at all location
2. Customer can be rewarded when they recycle
3. Real time data collection help informed decision
4. **Extended Producer Responsibility (EPR)** can be implemented because manufacturer can know whether their product is being recycle
5. **IoT** allow operator to plan their collection, hence reduce cost
6. Now manufactures can know if their product waste/packaging being recycled or not therefore increase **'Creating Shared Value' (CSV)** effort

Producers/
Manufacturers
(Eco-design)
Product &
Packaging
recycled &
recyclable
content
Retailers/
consumers
for sale & use
Recovery /
Collection
Other Industries
Tranform to Upcyle
New Raw
Materials
Recycling
Process

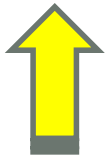

% of waste uncollected and not recycled
Business as Usual
Policy or Program Solutions
A process of co-creation or co-production
Vision
Time

Case Study – Circular Economy

- Konica Minolta Copy Machine – up-cycle – uses recycled PET and PC
- Nestle Japan – openly printed CO2 emission
- Nissan Japan (Automotive)
- Toyo Seikan (Packaging)
- Unilever – Sustainable Living Plan (Packaging)



Environmental Management
Circular Economy



Profit, Globalization
Sustainability, Trust

CSR vs CSV

- **CSR – Corporate Social Responsibility**

  - ‘Good conduct’ performed outside core business, such as donation, patronage of artists & culture, and philanthropy.

  - **Economy + Society + Environment = Maximizing corporate value**

- **CSV – Created Shared Value**

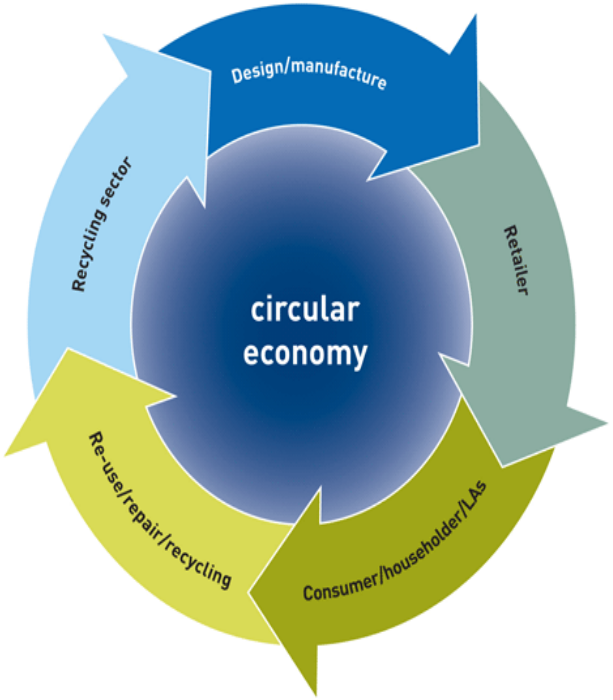
  - introduced by Michael E.Porter, Professor at Harvard Business School in 2011.

  - aims to simultaneously realize solutions to social issues and the improvement of corporate competitiveness.

  - **Social value X Economic value = Maximizing competitiveness**

Potential of Recycling & the Circular Economy

Brand Owner	Commitment
Coca-Cola	100% by 2030
PepsiCo	100% by 2025
Unilever	100% by 2025
Nestle	25% - 100% by 2025
Dell	100% current
Panasonic	25% current
HP	25% current
Volvo	25% by 2025



*** *According to the research documented in* ***"Finding growth within: A new framework for Europe," a circular economy could generate a net economic gain of €1.8 trillion per year by 2030.***
Source: McKinsey 'The circular economy: Moving from theory to practice'

The circular economy could unlock $4.5 trillion in growth, according to Waste to Wealth from Accenture Strategy.

Industry Commitments

By **2030**, 100% of our packaging will be recyclable or reusable and we will find solutions so no P&G packaging will find its way to the ocean

By **2025**, 100% recyclability of the plastic we use in our packaging and 25% recycled content in all plastic packaging. Committed to **exiting PVC** by **2020**

By **2019**, work with suppliers to remove all packaging that is hard to recycle from its business and by **2025** make all packaging fully recyclable, or compostable, and to halve packaging weight, against a 2007 baseline

By **2025,** Walmart's private brand packaging to be 100% recyclable

By **2025**, all our packaging to be recyclable or reusable, significantly increasing our use of recycled material, and helping drive consistently greater recycling of packaging around the world

By **2025**, 100% of McDonald's packaging will come from renewable, recycled, or certified sources with a preference for Forest Stewardship Council certification. Also by 2025, the company has set a goal to recycle packaging in 100% of McDonald's restaurants.

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Possible circular economy options

Supply Chain Coalition - example

Manufacturing	Converter	Brands	Waste Mgmt	Retailers	Technology	Auto / Durables / Pharma	NGOs, Associations, & Others
Dow	Popular Interplast	Colgate-Palmolive	geocycle	Starbucks Coffee	Microsoft	Interface	World Plastics Council
ExxonMobil	Scientex	Danone	Veolia	McDonald's	Samsung	Whirlpool	bcsd singapore
amcor	Tetra Pak	Kimberly-Clark	Suez	Yum! Brands	Dell	Michelin	ASEAN Federation of Plastic Industries (AFPI)
Borouge	Thành Phú	P&G	TerraCycle	Alibaba Group	Apple	Mahindra	Asia Plastics Forum
Chevron Phillips	(Thong Guan)	Nestlé	ES ECO Circular Economy Experts			BMW	Closed Loop Ocean
Clariant		Unilever				Novartis	FIA Food Industry Asia
Eastman		Coca-Cola					Japan Chemical Industry Association (JCIA)
lyondellbasell		Indofood					MPMA
Petronas		Ajinomoto					Ocean Conservancy
ptt Global Chemical							Philippine Alliance for Recycling and Materials Sustainability (PARMS)
sabic							PPIA
Borealis							Systemiq
Mitsui Chemicals							ES ECO Circular Economy Experts
Mitsubishi Chemical							

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APPLICATION FORM

ASSESSMENT TAX REBATE FOR ECO-FRIENDLY HOUSE OWNERS LOW CARBON GREEN CITY OF PETALING JAYA YEAR 2019

Reference Number :	
Date Received :	
Received By :	
Position/Designatio :	
Signature :	

CONTENT

SECTION I	-	Application Guidelines and Conditions
SECTION II	-	Applicant Details
SECTION III	-	Application Form and Recommendation/Certification

Petaling Jaya Initiative towards a Low-Carbon Green City

SECTION III : ASSESSMENT TAX REBATE FOR ECO-FRIENDLY HOUSE OWNERS LOW CARBON GREEN CITY OF PETALING JAYA 2019

Aspect	Initiative (details on what has been carried out according to aspect, state year and positive impact, if any)	Improvements made on components that were applied in past years. (minimum 50%)	Quantity (in form of numbers / expenditure(RM)	Rebate Percentage applied for (%)	Supporting Documents / deficiency (Please state and prepare a copy)
Energy					
Water					
Waste					
Transportation					
Biodiversity					

* Use another sheet if space is insufficient.

MBPJ acknowledges MyReturns app as to submit a measurable result/data as a evidence to claim this rebate

MBPJ
مجلس بنداراي ڤتالينج جايا
MAJLIS BANDARAYA PETALING JAYA

PERMOHONAN GERAN KOMUNITI

UNTUK PETALING JAYA MAMPAN

PJ S.E.E.D
Petaling Jaya Social, Environment, Economy, Development

PENGENALAN

MBPJ telah menyediakan peruntukan RM3juta kepada komuniti untuk mereka merancang dan melaksanakan projek atau inisiatif yang akan membantu MBPJ meningkatkan prestasi dalam bidang yang berkaitan seperti SMART PJ, Bandaraya Berkarbon Rendah Petaling Jaya, Kota Seni PJ dan lain-lain.

OBJEKTIF PERUNTUKAN

Untuk meningkatkan prestasi MBPJ dalam BIDANG BERKAITAN menerusi konsep penyertaan masyarakat, rakan perkongsian dan inklusif ke arah PJ MAMPAN 2030

11 BIDANG YANG BOLEH DIPOHON

PROJEK YANG BOLEH DILAKSANAKAN

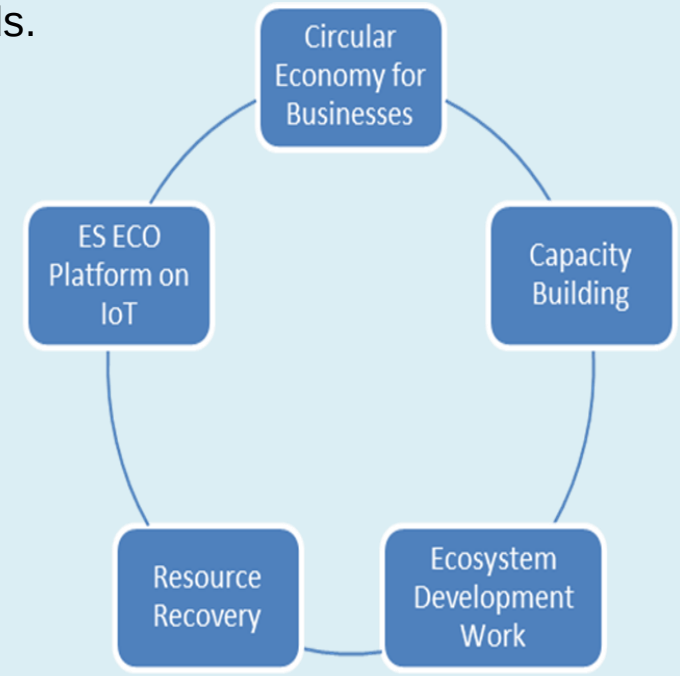
How ES ECO supports a CE

- A circular economy is about valuing our products differently and creating a more robust economy in the process. By assessing how we design, make, sell, re-use and recycle products we can determine how to get the maximum value from them, both in use and at the end of their life. What does this mean in practical terms? As a company, how do you move to more ‘circular’ models? Where are the new business opportunities?

- We are the first CE Solution Provider in Malaysia that acts as an enabler for industries moving towards CE.

- We assists government agencies, corporates & brands.

- ES ECO is working at all points of the CE by:
  - **making resource use more efficient;**
  - **reducing the production of waste;**
  - **maximising the recycling of waste; and**
  - **identifying alternative business models.**



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Key Partners:

Brand Owners/Producers:
- Clothing & Textiles
- E-Waste
- Food Waste
- Glass
- Metal/Aluminium Cans
- Papers
- Plastics
- Tetra Pak
- Used Cooking Oil
- Automotive
- Product/packaging wastes
- Rewarding partners

Suppliers:
- Consumers
- Collectors
- Waste Generators
- Recyclers (technology partners)
- RVM (reverse vending machine)

Key Activities:
- Consultancy
- Resource recovery (specialist collection scheme)
- Data analysis (recovery & recycling inventory – RRI)
- Upcycling (outsource)
- Promote 3Rs (reduce, reuse, recycle)
- Rewards

Key Capabilities & Resources:
- IoT System & Mobile App (MyReturns)
- Recovery & Recycling Inventory (RRI-Data)
- Systematic Collection (Resource Recovery)
- RVM (Reverse Vending Machine)
- Subject Matter Experts
- Green Technology Recycling Processes

Value Propositions:

Clients:
- Waste reduction –brand audit
- Cost reduction (OPEX)
- Recycling – Product Sustainability
- Resource recovery (RRI)
- Eco-friendly/Zero Waste

Consumers:
- Wealth out of waste (WOW)
- Reward for recycling

Customer Relationships:
- IoT System (MyReturns)
- Social Media
- Customer Support
- Review, Rating & Feedback System

Channels:
- MyReturns Mobile App for Android
- MyReturns Mobile App for IOS
- Websites
- Social Media
- Mainstream Media

Customer Segments:

Clients:
- Brands that do not want their product waste to end up at the landfill and oceans
- FMCGs Producers
- Those who wants to portrait eco-friendly product packaging & needs RRI
- Those who wants earn an extra income/rewarded by recycling – social entrepreneurship

Benefits of Circular Economy

Producer

- Zero waste and reduce CO2 & GHG emission from products waste (reduce carbon footprint)
- Support Circular Economy – Waste as Resource
- Data support RRI (Recovery & Recycling Index)
- Enables R&D (Research & Development)
- Encourage producers to take accountability of their products throughout the supply chain
- Create brand loyalty
- Sustainable and traceable products
- Cost reduction

Consumer/ Citizen

- Eradicate and reduce waste at landfill
- Encourage the habit of recycling and change in mindset
- Increase national recycling rate
- Obtain financial incentive for recycling
- Reduce Carbon Footprint
- Education & Awareness

Nation

- Zero Waste – Reduce waste at the landfill
- Reduce energy – transporting waste
- Reduce CO2 & GHG emission at the landfill
- Enhance Recycling Industry
- Reduce importation of waste
- Provide data support (RRI)
- Provide enhancement to waste management stream
- Change in public mindset towards material recycling
- Increase national recycling rate

Recycler

- Source of clean post-consumer waste
- Reduce energy – transporting waste
- Enhance Recycling Industry
- Reduce importation of waste
- Provide data support (RRI)
- Provide enhancement to waste management stream
- Increase national recycling rate
- Opportunity for Up-cycling

CIRCULAR ECONOMY PACKAGE

Enabling framework	Waste target review	Specific waste challenges	Resource efficiency target

Malaysia Resource Efficiency Platform recommendations

> Green Employment Initiative
> Green Action Plan for SMEs
> Progress Report on CE Roadmap

> Legislative proposal
> Impact assessment
> Fitness check (materials)

> Sustainable buildings Communications
> Sustainable food – including impact assessment
> Marine litter

> Analysis of a Malaysia target for Resource Productivity

Moving forward

- Promote/encourage companies towards circular economy
- Circular supply chain & reverse logistics
- Addressing Marine Litter & Climate Change
- Circular Economy for SMEs
- Public CSV campaigns
- Address/improvised resource recovery (collection)
- RRI (Recovery & Recycling Inventory Data)
- Stakeholders – policy makers, brand owners; producers; converters; recyclers; waste collectors (formal & informal)
- Standards for Eco-design/products made from recycled materials – SIRIM & Malaysian Standards

Thank you