MINISTRY OF HOUSING
AND LOCAL GOVERNMENT

BLUEPRINT

CIRCULAR ECONOMY

FOR SOLID WASTE IN MALAYSIA

2025–2035



BUILDING A SUSTAINABLE FUTURE

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AND LOCAL GOVERNMENT

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MESSAGE
BY THE MINISTER OF HOUSING AND LOCAL GOVERNMENT

Recently, Malaysia has been actively taking significant steps towards transitioning to a circular economy, in line with global developments focusing on climate change under the Sustainable Development Goals. The Twelfth Malaysia Plan lays the foundation for the aspiration towards a low-carbon, clean and resilient national development through initiatives to accelerate the transition to a circular economy. The National Solid Waste Management Policy and the National Cleanliness Policy are key documents that paved the way for adopting a circular economy model in solid waste management. Therefore, I am pleased to introduce the Circular Economy Blueprint for Solid Waste in Malaysia, a policy document that outlines a new direction for developing sustainable solid waste management from 2025 to 2035.

This Blueprint sets a vision for the year 2050, in which solid waste management in Malaysia is based on a circular economy model that maximises resource efficiency, minimises waste generation and contributes to economic growth, social well-being and environmental sustainability. The collaborative efforts of all stakeholders — including government, industry, non-governmental organisations, academia, and the public — are key to successfully implementing the circular economy initiatives proposed in this Blueprint and achieving the set vision.

The approach of maximising resource efficiency and minimising waste generation will create a sustainable production and consumption ecosystem that can be measured — including achieving a national recycling rate target of 40% by 2025, and contributing to the solid waste management sector's goal of net-zero carbon emissions as early as 2050.



Therefore, I urge all stakeholders to refer to this Blueprint as a guide and work together to adopt and practice sustainable solid waste management towards achieving competitive economic growth. A sustainable future awaits Malaysia, and I believe we will stand stronger together in this transformation.

"This Blueprint sets a vision for the year 2050, in which solid waste management in Malaysia is based on a circular economy model that maximises resource efficiency, minimises waste generation, and contributes to economic growth, social well-being, and environmental sustainability."

Nga Kor Ming
MINISTER OF HOUSING AND LOCAL GOVERNMENT

FOREWORD

BY THE SECRETARY GENERAL MINISTRY OF HOUSING AND LOCAL GOVERNMENT

Realising the importance of sustainable solid waste management in enhancing environmental integrity, public welfare and health, I am proud to dedicate the Circular Economy Blueprint for Solid Waste in Malaysia to all stakeholders as a guide for driving circular economy initiatives in Malaysia.

This Blueprint provides an understanding of the fundamentals, issues, challenges and steps required to drive the circular economy transformation in the solid waste management sector. The five strategic pillars of the Blueprint focus on strengthening governance and regulatory frameworks, establishing guidelines and procedures, implementing digitalisation and technological solutions, enhancing infrastructure and facilities and promoting market creation — all anchored in the principles of the Circular Economy Framework. The initiatives introduced under each strategic pillar serve as catalysts for transitioning to a circular economy and achieving the targeted outcomes.



The Ministry of Housing and Local Government remains committed to realising this transformative vision and ensuring that Malaysia keeps pace with the progress of developed nations. The efforts undertaken to realise this goal are aligned with national priorities and guided by internationally recognised targets for sustainable development. Therefore, I encourage all readers — particularly policymakers, implementers and industry players — to support the initiatives outlined in this Blueprint to accelerate the transition to a circular economy. Let us work together to shape the future of solid waste management and contribute to a greater goal: building a more sustainable nation for current and future generations.

"The five strategic pillars of the Blueprint focus on strengthening governance and regulatory frameworks, establishing guidelines and procedures, implementing digitalisation and technological solutions, enhancing infrastructure and facilities and promoting market creation — all anchored in the principles of the Circular Economy Framework."

Datuk Wira M Noor Azman bin Taib
SECRETARY GENERAL
MINISTRY OF HOUSING AND LOCAL GOVERNMENT

ABBREVIATIONS

3R	Reduce, Reuse, Recycle
ASEAN	Association of Southeast Asian Nations
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
CEI	Circular Economy Initiative
CEPA	Communication, Education and Public Awareness
CII	Commercial, Industry, Institutional
DDI	Domestic Direct Investment
DKN	Dasar Kebersihan Negara (National Cleanliness Policy)
EPR	Extended Producer Responsibility
ESG	Environmental, Social and Governance
FDI	Foreign Direct Investment
GGP	Government Green Procurement
GHG	Greenhouse Gas
GLIC	Government-Linked Investment Companies
IWMF	Integrated Waste Management Facility
JDN	Jabatan Digital Negara (Malaysia Digital Economy Corporation (MDEC))
JKDM	Jabatan Kastam Diraja Malaysia (Royal Malaysian Customs Department)
JSM	Jabatan Standard Malaysia (Department of Standards Malaysia)
KD	Kementerian Digital (Ministry of Digital)
KDN	Kementerian Dalam Negeri (Ministry of Home Affairs)
KE	Kementerian Ekonomi (Ministry of Economy)
KESUMA	Kementerian Sumber Manusia (Ministry of Human Resources)
KK	Kementerian Komunikasi (Ministry of Communications)
KKM	Kementerian Kesihatan Malaysia (Ministry of Health)
KKR	Kementerian Kerja Raya (Ministry of Works)
KPI	Key Performance Indicator
KPK	Kementerian Perladangan dan Komoditi (Ministry of Plantation and Commodities)
KPKM	Kementerian Pertanian dan Keterjaminan Makanan (Ministry of Agriculture and Food Security)
KPKT	Kementerian Perumahan dan Kerajaan Tempatan (Ministry of Housing and Local Government)
KPDN	Kementerian Perdagangan Dalam Negeri dan Kos Sara Hidup (Ministry of Domestic Trade and Cost of Living)
KPT	Kementerian Pendidikan Tinggi (Ministry of Higher Education)

KPN	Kementerian Perpaduan Negara (Ministry of National Unity)
KUSKOP	Kementerian Pembangunan Usahawan dan Koperasi (Ministry of Entrepreneurship and Cooperatives Development)
MGTC	Malaysian Green Technology and Climate Change Corporation
MIDA	Malaysian Investment Development Authority
MITI	Kementerian Perdagangan Antarabangsa dan Industri (Ministry of Investment, Trade and Industry)
MOF	Kementerian Kewangan (Ministry of Finance)
MOSTI	Kementerian Sains, Teknologi dan Inovasi (Ministry of Science, Technology and Innovation)
MRF	Material Recovery Facility
MT	Metric Tonne
MTVET	Majlis Pendidikan dan Latihan Teknikal dan Vokasional (Technical and Vocational Education and Training Council)
NCEA	National Circular Economy Association
NCEC	National Circular Economy Council
NGO	Non-governmental Organisation
NRES	Ministry of Natural Resources and Environmental Sustainability
OECD	Organisation for Economic Co-operation and Development
PAYT	Pay-As-You-Throw
PBN	Pihak Berkuasa Negeri (State Government Authority)
PBT	Pihak Berkuasa Tempatan (Local Government Authority)
PETRA	Kementerian Peralihan Tenaga dan Transformasi Air (Ministry of Energy Transition and Water Transformation)
PPP	Private Public Partnership
PRO	Producers Responsibility Organisation
R&D	Research and Development
SAS	Separation-at-Source
SDG	Sustainable Development Goals
SME	Small Medium Enterprise
SME Corp.	SME Corporation Malaysia
STEM	Science, Technology, Engineering and Mathematics
UBC	Used Beverage Containers
WEP	Waste Eco Park
WtE	Waste to Energy

EXECUTIVE SUMMARY

The agenda to accelerate the transition to a circular economy for sustainable solid waste management in the country is one of the goals outlined in the Twelfth Malaysia Plan. Accordingly, the Circular Economy Blueprint for Solid Waste in Malaysia has been developed as a catalyst for this transformation initiative towards a circular economy.

This Blueprint has been developed through careful planning and inclusivity, incorporating input from a wide range of stakeholders, including federal government agencies, state authorities, local councils, industry players, associations, non-governmental organisations and academia. This collaborative approach aims to ensure the effective implementation of a circular economy model to support a sustainable future for the country. The aspiration of this transformation is not only to establish more sustainable solid waste management, but also to support the country in addressing the challenges of climate change and achieving net-zero carbon emissions as early as 2050.

The Circular Economy Blueprint for Solid Waste in Malaysia is anchored on a strategic framework comprising five pillars, 20 initiatives, 61 action plans, and a structured implementation timeline — all designed to deliver on the outlined vision.

The Circular Economy Strategies — which include refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle and recover — forms the foundation for implementing circular economy initiatives. These measures ensure that resources are used efficiently and waste generation is minimised.

This Blueprint serves as a call to action, aiming to catalyse the broad adoption of circular economy practices. Its success depends on the commitment and active participation of all stakeholders — in particular, government agencies, industry players, service providers, the recycling sector, non-governmental organisations, and research institutions — working together under a unified vision and establishing a new paradigm for resource and solid waste management.

PART 1

INTRODUCTION

1.1 About the Circular Economy Blueprint for Solid Waste
1.2 Definition of Circular Economy
1.3 Circular Economy Scenarios in Global and Local Contexts
1.4 Solid Waste Management in Malaysia
1.5 Factors for Change

1.1

ABOUT THE CIRCULAR ECONOMY BLUEPRINT FOR SOLID WASTE

The Circular Economy Blueprint for Solid Waste in Malaysia is a visionary roadmap aimed at addressing issues and challenges in solid waste management through a circular economy approach.

THE IMPORTANCE OF THE CIRCULAR ECONOMY BLUEPRINT FOR SOLID WASTE

Malaysia has committed to achieving a net-zero carbon emission target as early as 2050. To support this effort, Malaysia emphasises a green growth agenda by shifting from a conventional linear economy to a circular economy. The move towards a circular economy in solid waste management reflects a national commitment to minimizing waste generation, advancing strategic environmental objectives and tackling the challenges of climate change.

Given the scenario of increasing waste generation, expanding urbanisation and evolving consumer behaviours and lifestyles, it is essential to develop transformative approaches in solid waste management. Accordingly, this Blueprint serves as a catalyst for change to address the challenges emerging from these conditions. Malaysia remains committed to minimising waste generation, optimising resource efficiency and prioritising sustainable practices for environmental preservation, public health and overall well-being.

Through this significant transformational initiative, the Blueprint serves as a guide for transitioning to a circular economy model that not only addresses solid waste challenges but also contributes to economic growth, ecological resilience and national prosperity. Embracing a circular economy for solid waste signals Malaysia's readiness for a cleaner and more sustainable future.



Establishing a comprehensive strategic framework as a guide for stakeholders

Exploring and identifying the roles and responsibilities of stakeholders

Identifying initiatives and action plans to accelerate the transition to a circular economy

Figure 1.1.1 Objectives of the Circular Economy Blueprint for Solid Waste

1.2

DEFINITION OF CIRCULAR ECONOMY

WHAT IS CIRCULAR ECONOMY?

From Linear Model to Circular Model

The conventional approach is described as a linear model — namely, *take–make–use–dispose* — which leads to the depletion of natural resources and increased waste generation. The direct disposal of most waste not only reduces the lifespan of landfills but also leads to increased environmental pollution.

In response to growing environmental and climate challenges, the circular economy is **an economic system designed to minimise waste and utilise resources as efficiently as possible**. The 3R concept has since evolved into a more holistic approach, incorporating additional strategies such as refuse, rethink, repair, refurbish, remanufacture, repurpose and recover.

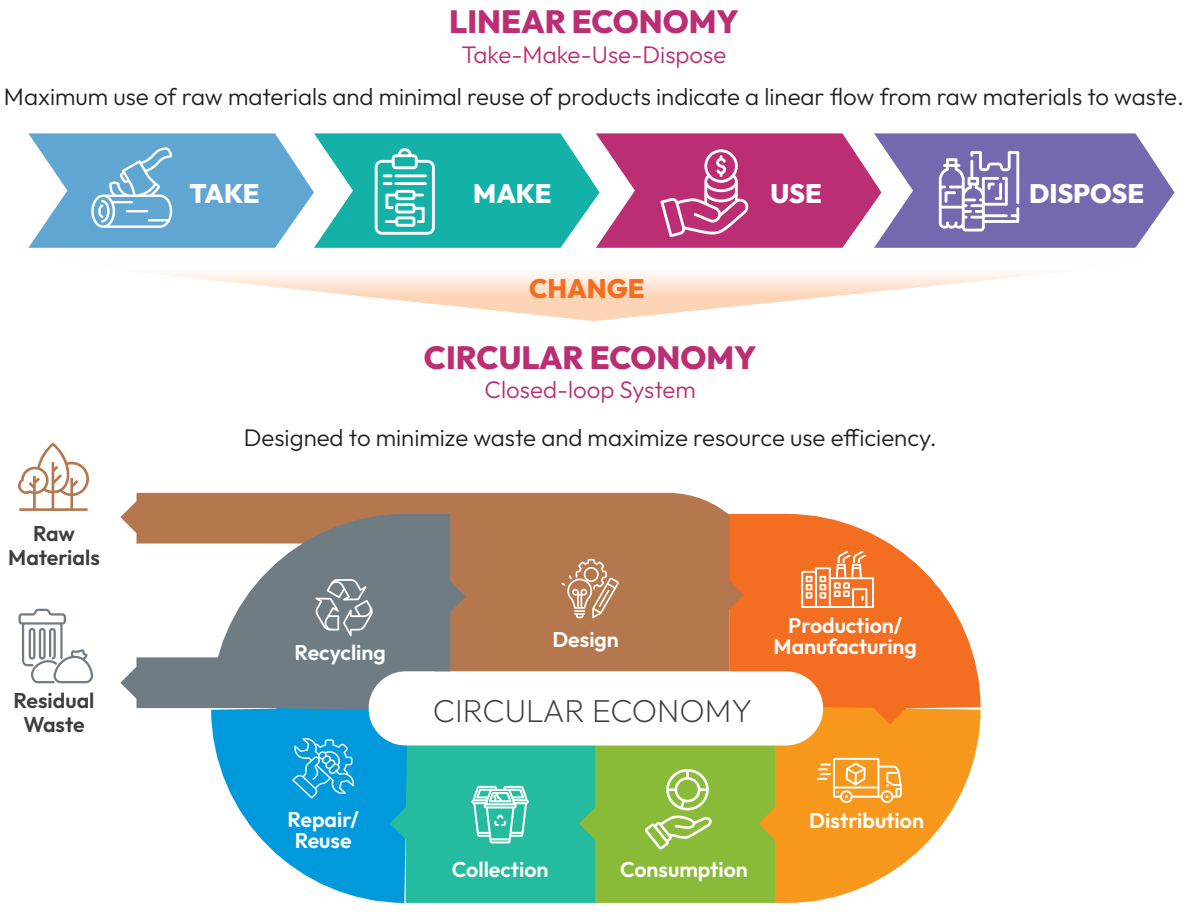


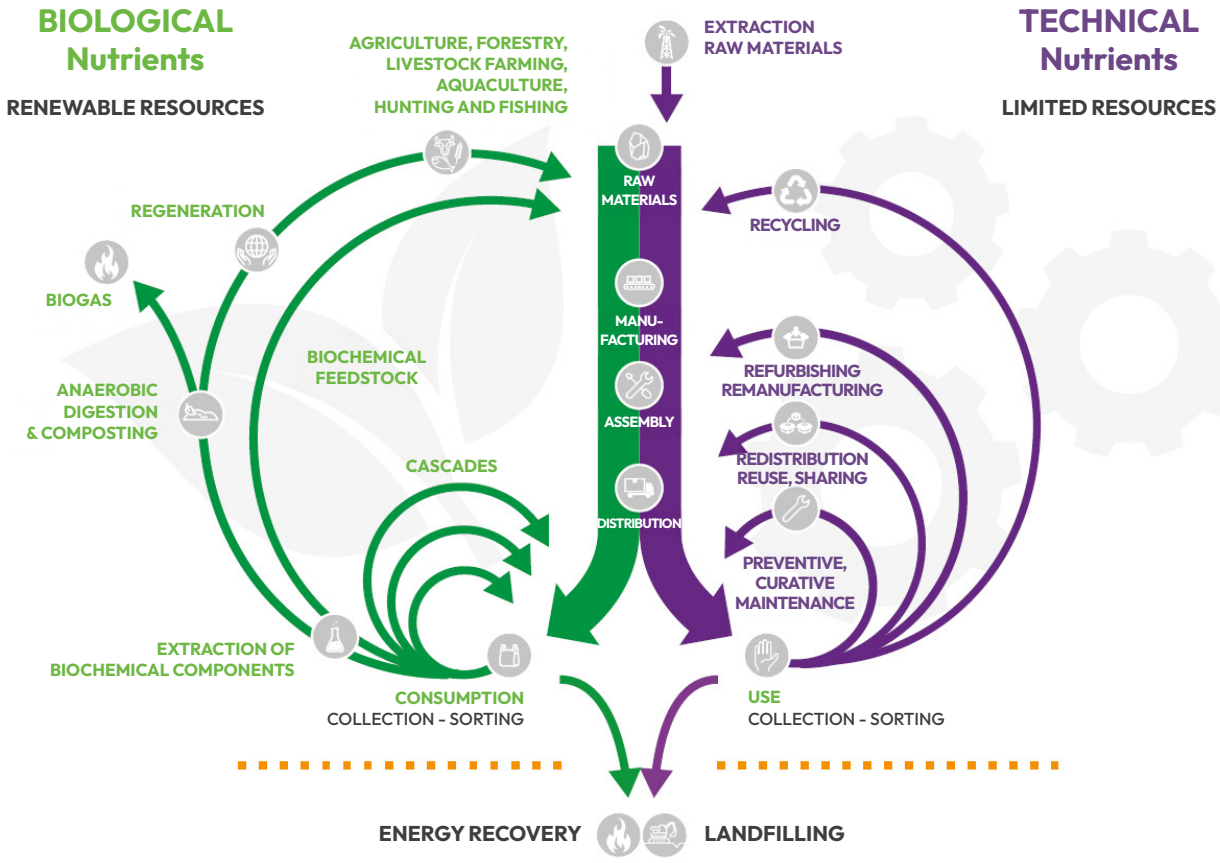
Figure 1.2.1 Linear and Circular Economy Concept

Circular Economy Definition

The circular economy is an approach that extends the life cycle of materials and products through reuse, recycling, upcycling, and repurposing — all before they become waste. This helps prevent environmental pollution, conserve natural resources, boost economic value and reduce greenhouse gas emissions.

MATERIAL RECYCLING IN THE BIOLOGICAL AND TECHNICAL CYCLES

The enhancement of material recycling involves two fundamental cycles: the biological cycle and the technical cycle.



Source: Circular cconomy. A circular cconomy:
thc routc to a bcttcr way of lifc, April 2023; https://cconomic-circulairc. public.lu/cn/circular-cconomy.html

Figure 1.2.2 Material recycling – Butterfly Diagram

Biological Cycle



In the biological cycle, materials are produced to be safely returned to the biosphere. These materials are biodegradable organic components that naturally decompose, serving as nutrients through the biological decomposition process by microorganisms. Examples include food waste, yard waste, agricultural waste and other biodegradable materials.

Technical Cycle



The technical cycle involves synthetic materials designed to be reused, remanufactured or recycled in order to maintain their value and function. Examples include metals, plastics, glass and other synthetic materials that can be recycled to produce new products, depending on factors such as composition and the availability of recycling technologies.

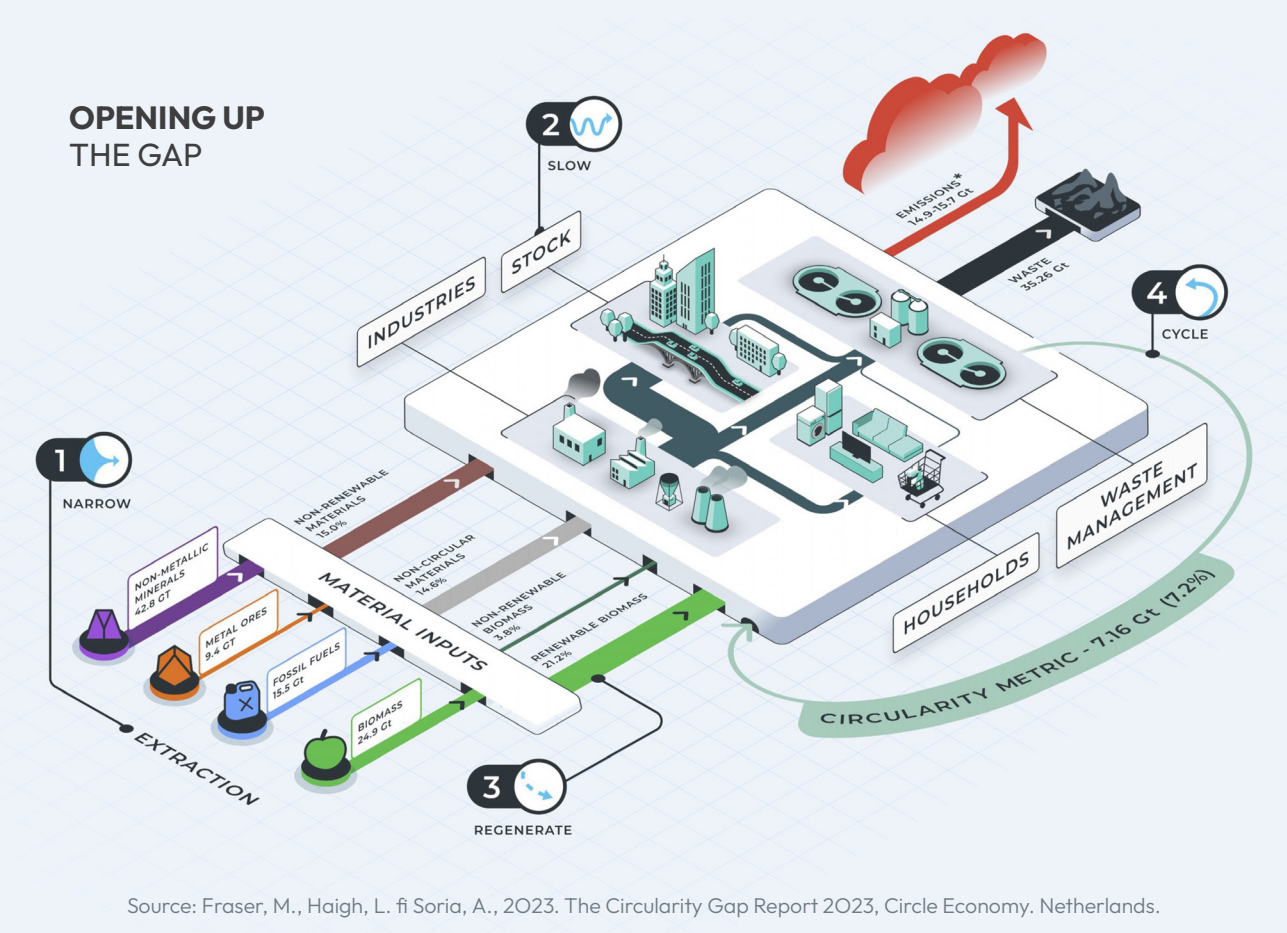
1.3

CIRCULAR ECONOMY SCENARIOS IN GLOBAL AND LOCAL CONTEXTS

GLOBAL EFFORTS TOWARDS MORE SUSTAINABLE RESOURCE USE

Global activities related to the extraction and use of natural resources from 2018 to 2023 have been higher than the total for the entire 20th century. Meanwhile, the global recycling rate has declined from 9.1 percent in 2018 to 8.6 percent in 2020, and further to 7.2 percent in 2023. This trend reflects the challenging scenario the world is facing, particularly concerning the availability and sustainability of natural resources.

The growing use of resources is largely driven by infrastructure development, housing, and the production of durable goods — all of which reduce the availability of recyclable materials for use within the new economy. For products with a short lifespan, recycling efforts must be supported by complementary strategies such as reuse, remanufacturing and lifecycle extension to maximise resource efficiency and minimise waste generation. Accordingly, global initiatives are increasingly focusing on more sustainable material usage, drawing on the concept of **"Opening Up the Gap"**, which outlines strategies such as:



Source: Fraser, M., Haigh, L. fi Soria, A., 2023. The Circularity Gap Report 2023, Circle Economy. Netherlands.

Figure 1.3.1 Concept of Opening Up the Gap

The concept of "Opening Up the Gap" in the circular economy context can be broken down into the following strategies:

01

Narrow: Reducing Extraction
The initial stage of material extraction involves the process of obtaining raw materials for various industries. For example: reducing the use of fossil fuels in manufacturing.

02

Slow: Extending the Lifespan
Industrial processes and resource use in the economy are optimized to maximize the product's usage period. For example: Designing products to be durable and repairable.

03

Regenerate: Sustaining
Reducing hazardous materials in product manufacturing and replacing them with environmentally friendly alternatives. For example: Producing BPA-free products.

04

Cycle: Reuse
The Recycling Rate Metric measures the extent to which the economy is transitioning towards circular practices and identifies the gap between the current state and the targeted circular economy model. For example: Metrics that analyze parameters such as material flows, resource use and recycling rates to assess the lifecycle of a product, process or entire system.

Source: Thc Circularity Gap Report 2023

Despite the global increase in material use, implementation of circular economy strategies is accelerating in alignment with the aspirations of the Paris Agreement and the SDGs.These aim to promote sustainable consumption and production.

Countries such as the Netherlands, Finland, Germany, Japan, China and South Korea have adopted national-level circular economy strategies. At the regional level, frameworks such as the Circular Economy Framework for ASEAN Communities and the European Union Circular Economy Action Plan have been established. International organisations including the OECD and the World Bank also support circular economy efforts by developing policies, conducting research and building capacity.

Malaysia's Circular Economy Efforts: Navigating Global Shifts

Malaysia is committed to transitioning towards a circular economy, as outlined in the **Twelfth Malaysia Plan** and the **National Cleanliness Policy (DKN)** 2020–2030. The country's commitment to sustainable resource use is further reinforced by its participation in SDG initiatives and the Paris Agreement.

This Blueprint represents the next phase in advancing Malaysia's commitment to **maximising resource efficiency** and **minimising waste generation**, thereby reducing environmental impact. It supports the national goal of achieving **net-zero carbon emissions as early as 2050**.

Important International Initiatives Related to the Circular Economy

UNITED NATIONS · OECD · THE WORLD BANK · SUSTAINABLE DEVELOPMENT GOALS · ELLEN MACARTHUR FOUNDATION · ASEAN

Circular Economy Framework for ASEAN Communities

European Union Circular Economy Action Plan

Circular Economy in the 12th Malaysia Plan

RANCANGAN MALAYSIA KEDUA BELAS

CHAPTER 8:
Advancing Green Growth for Sustainability and Resilience

STRATEGY A2

Accelerating the Transition to a Circular Economy

1.4

SOLID WASTE MANAGEMENT IN MALAYSIA

THE GENERATION OF SOLID WASTE CONTINUES TO INCREASE IN LINE WITH THE GROWING POPULATION SIZE

In 2012, Malaysia generated 12.63 million tonnes of waste, with 0.76 kilograms per capita per day from households and 0.41 kilograms per capita per day from CII excluding scheduled waste and chemical waste.

In 2022, the waste generated increased to 13.06 million tonnes per year, in line with population and economic growth, which recorded a CAGR of 1.01 percent.

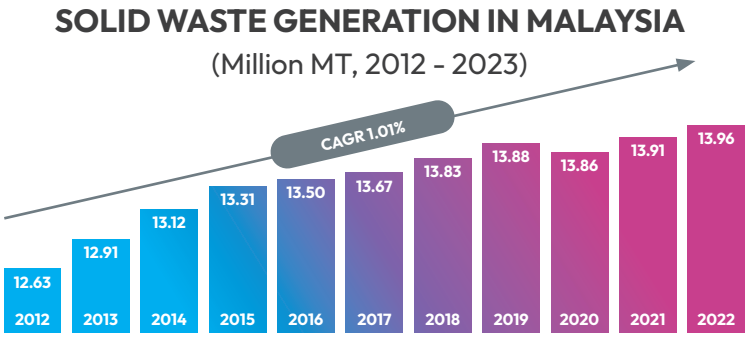


Figure 1.4.1 Solid Waste Generation in Malaysia

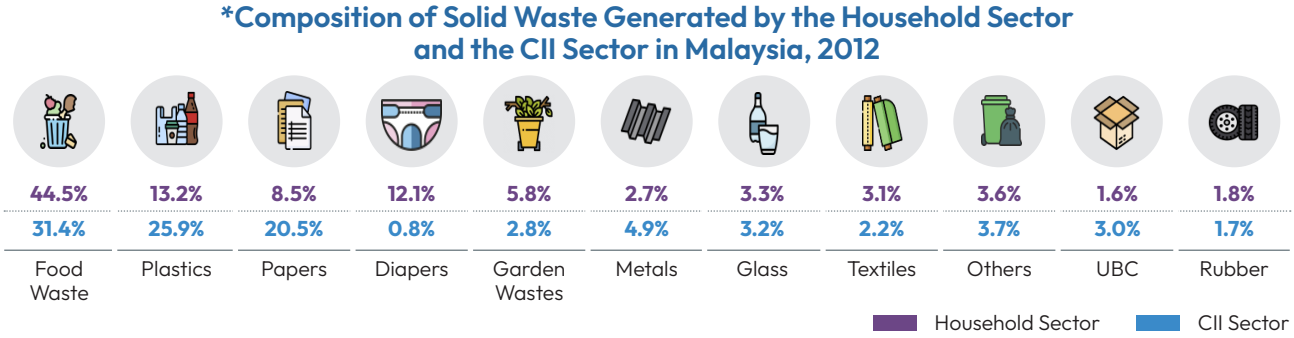


Figure 1.4.2 Composition of Solid Waste in Malaysia

A significant portion of the waste generated has been recycled and treated. The recycling rate has shown a consistent upward trend from 2013 onwards. In 2023, Malaysia achieved a recycling rate of **35.38 percent**, with plastics contributing **30.85 percent**, metals **30.11 percent** and papers **28.87 percent** of the total recycled materials.

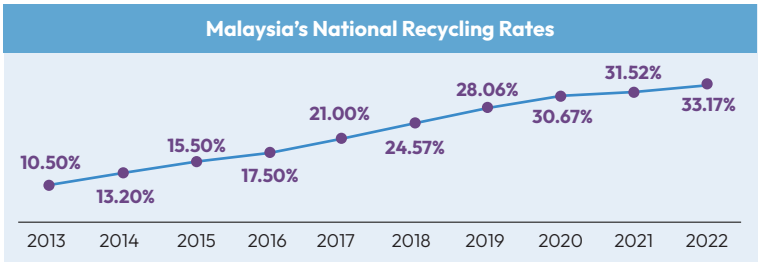


Figure 1.4.3 Recycling Rates

$$\text{National Recycling Rate}_{\text{Year X}}, \% = \left[\frac{\text{Total Waste Received by Recyclers (MT)}_{\text{Year X-1}}}{\text{Population}_{\text{Year X-1}} \times 1.17\text{kg/ Capita/ day} \times 365\text{ day}} \right] \times 100\%$$

$$1000$$

Source: *National Solid Waste Management Department (JPSPN): Survey on Solid Waste Composition, Charasteristics and Existing Practise of Solid Waste Recycling in Malaysia 2012 (2013)

Figure 1.4.4 Recycling Rate Formula

1.5

CATALYSTS FOR CHANGE

A PARADIGM SHIFT NEEDS TO BE IMPLEMENTED PROMPTLY IN MALAYSIA'S SOLID WASTE SECTOR TO DRIVE THE DEVELOPMENT OF A CIRCULAR ECONOMY.

Key Gaps

The management of solid waste in Malaysia faces various challenges due to the increasing volume of waste, including low public awareness, non-uniform waste management practices and a nascent recycling market. Addressing these key gaps is crucial through alignment with Malaysia's vision for a circular economy for solid waste.



Low public awareness of effective waste management practices



Lack of standardised waste collection standards and procedures



Insufficient physical infrastructure for separation, recovery and recycling



Lack of markets for recycled materials and products



Inconsistent regulation and enforcement of solid waste management laws



High financial burden related to infrastructure and solid waste recycling processing



Lack of best practices for industry responsibility in implementing effective circular economy initiatives

Catalysts for Change

Catalysts for Change

Management of material and solid waste flows needs to be improved to enable more upcycling and recycling activities, which will promote the recovery of materials.

The public needs to be educated about clear **definitions of waste** and the **proper processes** for **disposal and recycling**. Access to nearby recycling facilities should be improved to encourage waste separation at source and promote recycling practices.

Policies and legislation related to the circular economy need to be established to ensure better implementation and collaboration between the public and private sectors.

The **management of solid waste data** and **material flows needs to be digitized** to gather **transparent and traceable information**. Data analysis will facilitate decision-making processes and improvements in circular economy policies and action plans.

Waste separation, collection and recovery need to be **improved to enhance waste quality**, ensuring that materials remain in the circular loop and ultimately achieving the goal of zero waste to landfills in the long term.

Incentives are needed to attract more investments, including **DDI and FDI** to stimulate the growth of the circular economy industry and diverse businesses along the value chain.

PART 2

SOLID WASTE AND THE CIRCULAR ECONOMY: A STRATEGIC FRAMEWORK

2.1 Vision Statement
2.2 Strategic Pillars and Initiatives

2.1
VISION STATEMENT

VISION

By 2050, Malaysia will have transformed its solid waste management system into a circular economy that maximises resource efficiency and minimises waste generation, while promoting economic growth, social well-being and environmental sustainability.

This vision will be achieved through a collaborative effort among the government, private sector, academia and other stakeholders. It will be guided by the Circular Economy Strategies namely refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle and recover.



2.2

STRATEGIC PILLARS AND INITIATIVES



The Strategic Framework is supported by five strategic pillars and 20 circular economy initiatives. The framework covers Governance and Legislation, Guidelines and Procedures, Digitalisation and Technology, Infrastructure and Facilities and Market Creation.

STRATEGIC FRAMEWORK

Strategic Pillar		Circular Economy Initiatives (CEI)
Strategic Pillar 1: Governance and Legislation	**CEI 1**	Transform legislation related to solid waste management
	CEI 2	Implement EPR scheme for solid waste
	CEI 3	Establish the NCEA to drive circular economy initiatives across industry
	CEI 4	Encourage developers to provide facilities that support circular economy implementation
	CEI 5	Strengthen the licensing system for the solid waste management ecosystem
Strategic Pillar 2: Guidelines and Procedures	**CEI 6**	Introduce packaging legislation
	CEI 7	Develop product design guidelines
	CEI 8	Introduce Zero-Waste-to-Landfill certification
	CEI 9	Integrate circular economy principles into planning, design and construction of infrastructure and public facilities
	CEI 10	Market creation for local recycled materials
Strategic Pillar 3: Digitalisation and Technology	**CEI 11**	Strengthen solid waste management data systems
	CEI 12	Develop a digital e-commerce platform for solid waste

Strategic Pillar		Circular Economy Initiatives (CEI)
Strategic Pillar 4: Infrastructure and Facilities	**CEI 13**	Develop WEP to promote industrial symbiosis
	CEI 14	Enhance the development MRF and IWMF
	CEI 15	Upgrade existing landfills into sanitary landfills with integrated MRF
Strategic Pillar 5: Market Creation	**CEI 16**	Introduce economic instruments to encourage private sector participation
	CEI 17	Implement PAYT scheme for the CII and construction sectors
	CEI 18	Promote investment in R&D, fostering collaboration between local and international industry
	CEI 19	Develop human capital for the circular economy in both public and private sectors
	CEI 20	Strengthen the industry-led CEPA programm



PART 3

UNDERSTANDING THE SOLID WASTE MANAGEMENT ECOSYSTEM

3.1 Existing Ecosystem
3.2 Ecosystem Vision for Malaysia

3.1

EXISTING ECOSYSTEM

ASSESSING THE CURRENT WASTE MANAGEMENT ECOSYSTEM IN MALAYSIA TO IDENTIFY OPPORTUNITIES FOR A CIRCULAR ECONOMY TRANSITION

The diagram below illustrates the current ecosystem for solid waste management in Malaysia, highlighting the conventional waste flows and collection systems currently in place.

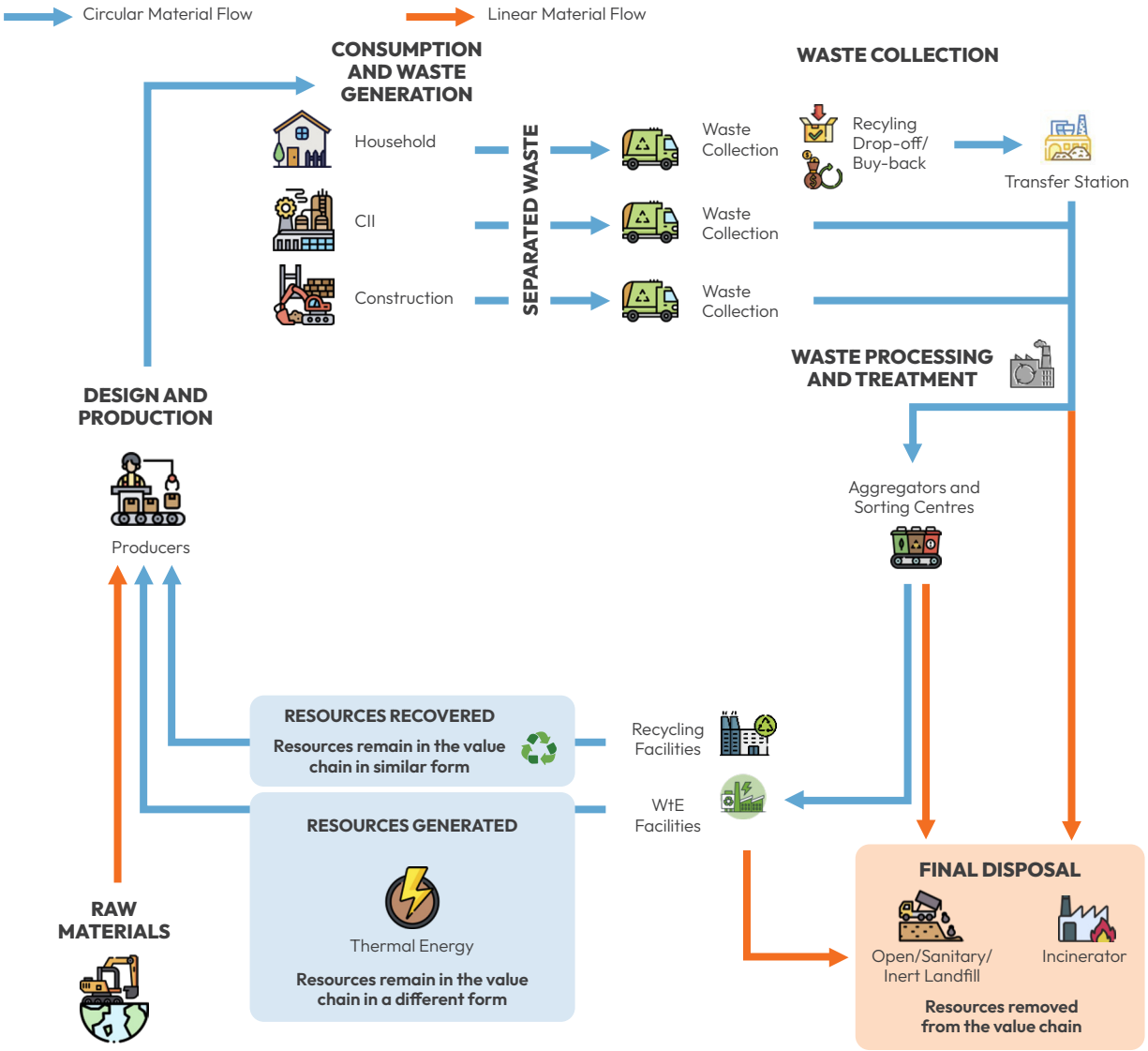


Figure 3.1.1 Linear Model of Solid Waste Management

The study covers three waste generation sources: household, CII and construction. Solid waste is collected and either sent to landfills or sorted for recycling and treatment. A significant portion is landfilled, resulting in the loss of potential economic value within the value chain. In terms of closing material loops, Malaysia's recycling sector primarily recovers plastics, metals and papers. WtE facilities are also being utilised to convert non-recyclable wastes into energy and divert wastes from landfill.

3.2

ECOSYSTEM VISION FOR MALAYSIA

TRANSFORM THE SOLID WASTE MANAGEMENT FROM A LINEAR ECONOMY TO A CIRCULAR ECONOMY THAT WILL CLOSE THE LOOP OF MATERIALS FLOW.

The diagram below illustrates the circular economy ecosystem for solid waste with key components and waste flows.

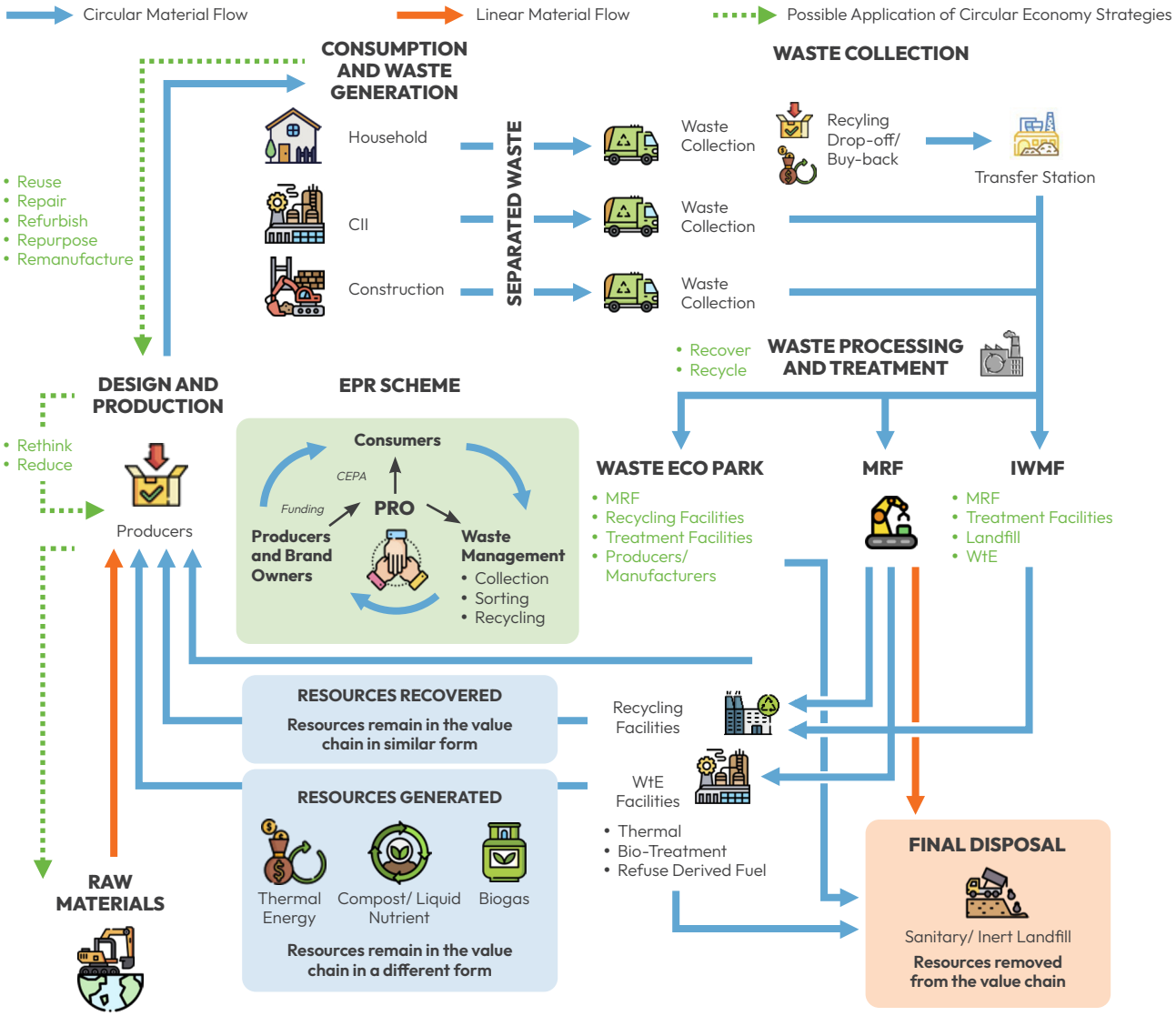


Figure 3.2.1 Circular Economy for Solid Waste Management

This Blueprint envisions a circular economy for solid waste that implements Circular Economy Strategies—refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, and recover—across the entire ecosystem. The enhancement of SAS, the implementation of PAYT for CII and construction sectors, establishing an ecosystem of EPR as well as increased and diversified waste treatment facilities will put the principles into practice. In addition, the circular economy will be further enabled through digitalisation, packaging and labelling regulations, training programmes and other supporting initiatives.



PART 4

CIRCULAR ECONOMY INITIATIVES AND IMPLEMENTERS' ROLES

4.1 Initiatives and Key Implementers

4.1

INITIATIVES AND KEY IMPLEMENTERS

The table below outlines the key implementers by role for each proposed initiative. Detailed roles and responsibilities are documented in the respective CEI.

Strategic Pillar	Initiative Code	Brief Initiative	Implementers	
			Lead	Support
Governance and Legislation	**CEI 01**	Transform legislation related to solid waste management	KPKT	PBN, PBT
	CEI 02	Implement EPR scheme for solid waste	KPKT	KE, MITI, KPDN, NRES, PBN, PBT, Industry Associations
	CEI 03	Establish the NCEA to drive circular economy initiatives across industry	Industry Associations	KE, MITI, KPKT, NRES, KPK, KPKM, Academia
	CEI 04	Encourage developers to provide facilities to support the implementation or the circular economy	Developers	KPKT, PBN, PBT
	CEI 05	Strengthen the licensing system for the solid waste management ecosystem	KPKT	KDN, MPC, PBN, PBT
Guidelines and Procedures	**CEI 06**	Introduce packaging law	KPDN, NRES, MITI, KKM	Industry Associations
	CEI 07	Develop product design guidelines	MITI	Industry Associations
	CEI 08	Introduce Zero-Waste-to-Landfill certificates	KPKT	JSM, Industry Associations
	CEI 09	Integrate circular economy principles into planning, design and construction of infrastructure and public facilities	KPKT, PBN, PBT	KKR
	CEI 10	Create market for local recycled materials	MITI	MIDA, KPKT
Digitalisation and Technology	**CEI 11**	Strengthen solid waste management data systems	KPKT, PBN, PBT	JDN
	CEI 12	Create digital e-commerce platform for solid waste	Industry Associations	KPKT, MITI, KD, KPDN

Strategic Pillar	Initiative Code	Brief Initiative	Implementers	
			Lead	Support
Infrastructure and Facilities	**CEI 13**	Develop WEP to promote industrial symbiosis	PBN, Industry Associations	KPKT, KPK, KPKM, MITI, NRES, PETRA, JKDM, PBT
	CEI 14	Enhance the development of MRF and IWMF	KPKT, Industry Associations, Waste Management Facility Developer	PBN, PBT
	CEI 15	Upgrade existing landfills into sanitary landfills with integrated MRF	KPKT	PBN, Industry Associations
Market Creation	**CEI 16**	Introduce economic instruments to encourage private sector involvement in circular economy activities	MITI	MOF, MOSTI, NRES, KUSKOP, MIDA, SME Corp.
	CEI 17	Implement PAYT scheme for the CII and Construction sectors	KPKT, PBN, PBT	MITI, KKR
	CEI 18	Encourage investment in R&D programmes and facilities through collaboration between local and international industry players	Industry Associations	KPKT, MOF, MOSTI, KPT, MGTC
	CEI 19	Empower human capital development programmes related to the circular economy for the public and private sectors	KPKT	KESUMA, KPT, MPC, HRD Corp., MTVET, Academia
	CEI 20	Empowering the industry-driven CEPA Program	Industry Associations	KPKT, NRES, KPN, KK, PBT

Table 4.1.1 Circular Economy Initiatives for Solid Waste in Malaysia



STRATEGIC PILLAR 1

CEI 01 GOVERNANCE AND LEGISLATION

TRANSFORMATION RELATED TO LEGISLATION FOR SOLID WASTE MANAGEMENT

Description

Timeline

Long | (2025-2035)

This legal transformation initiative for solid waste management involves two main aspects, namely:

i. Review the implementation and enforcement constraints of solid waste management laws which include Act 672, Act 171, Local Authorities Ordinance 1996 (Chapter 20) and Solid Waste and Public Cleansing Management Enactment 2022 (No. 3 of 2022); and
ii. Draft a Circular Economy Act that can be adopted by all states for a comprehensive implementation across the country.

Roles and Responsibilities of Implementers

Lead KPKT

Lead the review, amendment and development of relevant acts in relation to the initiatives under this Blueprint.

Supporting Agencies PBN, PBT

Provide input for the review, amendment and development of the relevant acts in relation to the initiatives under this Blueprint and draft respective legislation.

Rationale

i. There are different laws applied throughout the states in Malaysia with respect to solid waste management, outlined as below:
   - Act 672 – Only applicable to Perlis, Kedah, Pahang, Negeri Sembilan, Malacca, Johor and the Federal Territories of Kuala Lumpur and Putrajaya;
   - Act 171 – Other states in Peninsular Malaysia not under Act 672;
   - Solid Waste and Public Cleansing Management Enactment 2022 (No. 3 of 2022) for Sabah only; and
   - Local Authorities Ordinance 1996 (Chapter 20) for Sarawak only.
ii. There is a lack of uniformity and standardisation in mandating and regulating various circular economy initiatives targeting producers and consumers due to enforcement agencies operating under different laws.
iii. Improving existing laws or establishing a circular economy law will help streamline implementation, governance structures and policy monitoring mechanisms at the national level.
iv. There is no specific legislation related to the circular economy for solid waste management.

Action Plan

i. Outline the gaps and advantages present in the current laws to support governance and monitoring of the implementation of the circular economy.
ii. Outline the amendments required to the existing laws and the development or the new Circular Economy Act.
iii. Organise stakeholder engagements to include Local Governments and Local Authorities.
iv. Enhance the enforcement of regulations including SAS.

STRATEGIC PILLAR 1

CEI 02 GOVERNANCE AND LEGISLATION

IMPLEMENT EPR SCHEME FOR SOLID WASTE

Description

Timeline

Long | (2025-2035)

Establish a mandatory EPR scheme as an environmental policy approach that emphasises producers' accountability for sustainable waste management throughout a product's life cycle. This initiative will be launched in phases. Obliged companies under the EPR scheme are mandated to implement material recovery and recycling and encouraged to appoint PRO to collectively tackle post-consumer waste recovery and recycling.

Roles and Responsibilities of Implementers

Lead KPKT

Monitor the progress and facilitate the implementation of action plans, as well as maintaining data related to the execution of EPR.

Supporting Agencies KE, MITI, KPDN, NRES, PBN, PBT, Industry Associations

Support the implementation of EPR through promotion and communication, as well as regular engagement, including encouraging industry cooperation for collection, recycling, recovery and waste treatment.

Rationale

i. EPR is the cornerstone of sustainable waste management and circular economy. It aims to place the responsibility on producers to take back post-consumer products and to treat, recycle and responsibly dispose of these products either through direct actions or financial contributions.
ii. The implementation of EPR is expected to reduce the waste management costs borne by the government by sharing the costs of solid waste management with producers.
iii. This EPR scheme also encourages producers to reduce waste generation in product manufacturing through innovative design, promoting the creation of reusable and easily recyclable products, thereby minimising environmental impact.

Action Plan

i. Initiate a comprehensive engagement strategy involving government agencies, private sectors, industry associations and NGOs.
ii. Develop specific law related to EPR to enable its nationwide implementation.
iii. Develop and integrate the EPR database system to encourage the reporting of product output and waste generation data.
iv. Identify and select EPR model, waste categories, industry sectors and obliged companies to be mandatorily involved in the EPR scheme.
v. Establish an EPR regulatory body that will act as the entity responsible for enforcement, monitoring the progress of implementation and ensuring compliance with EPR law.

STRATEGIC PILLAR 1

CEI 03 GOVERNANCE AND LEGISLATION

ESTABLISH THE NCEA TO DRIVE CIRCULAR ECONOMY INITIATIVES ACROSS INDUSTRY

Description

To establish the NCEA as a platform for industry players to coordinate, plan, and drive circular economy initiatives in Malaysia. The NCEA will work closely with the NCEC at the national level. This association aims to help develop the country's recycling industry.

Timeline

Short | (2025-2026)

Roles and Responsibilities of Implementers

Lead Industry Associations

Facilitate regular dialogue sessions between member associations and coordinate the implementation of initiatives.

Supporting Agencies KE, MITI, KPKT, NRES, KPK, KPKM, Academia

Consider the NCEA's proposals to include in the development of circular economy policies and law.

Rationale

i. Currently, there is no specific association related to the circular economy that involves all players from various commodities and industry value chains.
ii. This association acts as a catalyst for market development, research and innovation, human capital development, CEPA programmes and strategic collaboration with various stakeholders both domestically and internationally.

Action Plan

i. Appointment of suitable representatives from industry associations to form the NCEA Committee Members.
ii. Outline the organisation structure and objective for the establishment of NCEA.
iii. Align the association mission with the national circular economy programmes and initiatives.
iv. Plan and organise dialogue sessions, activities and programmes to further stimulate the development of the recycling industry and waste-based industries.

Illustration

Japan CEA – Industry-led Circular Economy Association (CEA)
With fee-based membership by application, which gives the members access to information that promotes circular businesses.

Circular Economy Association

CEA ACTIVITIES:

- To research and provide information on circular economies and business
- To organise lectures and workshops on circular economies and business
- To cooperate with relevant governmental or private organisations regarding circular economy and business
- To promote communication among the members of CEA, etc.

STRATEGIC PILLAR 1

CEI 04 GOVERNANCE AND LEGISLATION

ENCOURAGE DEVELOPERS TO PROVIDE FACILITIES THAT SUPPORT CIRCULAR ECONOMY IMPLEMENTATION

Description

Timeline

Long | (2025-2035)

The development of urban areas is heavily reliant on planning undertaken by developers, as the provision of appropriate facilities enhances community well-being. Developers are encouraged to construct recycling facilities to improve SAS and promote recycling among residents. The establishment of such facilities is also expected to increase property values within the area. This initiative aligns with national objectives related to the SDGs and ESG targets.

Roles and Responsibilities of Implementers

Lead Developers

Provision of sufficient recycling facilities and activities in residential and commercial development areas and report on waste management progress to relevant authorities.

Supporting Agencies KPKT, PBN, PBT

Include the availability of recycling and disposal facilities as a key criterion in the approval of development orders for buildings and housings.

Rationale

i. The lack of accessibility to suitable recycling facilities has deterred the households from proper separation of waste and recycling.
ii. Development of collection and recycle facilities will motivate households and other waste generators to contribute towards the circular economy, by separating their waste at source and enabling the subsequent recyclable waste collection and recycling.
iii. Through developer-driven waste management and recycling efforts, the developers can work towards low carbon city goals, Zero-Waste-to-Landfill certifications and ESG targets.

Action Plan

i. Identify suitable locations for the circular economy facilities such as recycling hubs, food waste bin etc.
ii. Promote circular economy initiatives within the developed area.

Illustration

United Kingdom – Property Developers responsible for the provision of containers for recyclables, household & food waste

The size of the containers varies depending on the type of development units. Charges also differ based on the type of bins used for refuse, food waste, and dry recycling. Prices range from £11.25 to £112.15 for individual properties, and from £41.00 to £290.50 for communal properties. Developers are required to adhere to the guidelines outlined in the council's Planning Guidance Note.



STRATEGIC PILLAR 1

CEI 05 GOVERNANCE AND LEGISLATION

STRENGTHEN THE LICENSING SYSTEM FOR THE SOLID WASTE MANAGEMENT ECOSYSTEM

Description

Timeline

Long | (2025-2035)

Enhance regulations and requirements in solid waste management licensing application and approval procedures. The license application should also be viewed as part of the data collection process for solid waste management facilities.

Roles and Responsibilities of Implementers

Lead KPKT

Streamline and standardise the current licensing application and approval process for solid waste and recycling-related activities.

Supporting Agencies KDN, MPC, PBN, PBT

Provide support and alignment of policy planning and the license approval process.

Rationale

i. Currently, only waste collectors, operators of landfills, transfer stations, long-haulage and WtE incinerators are required to have operational licenses. Recyclers and aggregators are not included in the licensing requirement. This initiative aims to ensure that all players in the solid waste management chain are registered and hold valid licenses.

ii. There is a need to register all parties involved in the solid waste management chain to facilitate regulation and training.

Action Plan

i. Engagement and consultation with industry players including solid waste collectors, aggregators and recyclers
ii. Development of a unified licensing framework or guideline that is suitable for the different categories of licensed entities.
iii. Promotion of the digitised application and approval process to onboard waste collectors, aggregators and recyclers.

STRATEGIC PILLAR 2

CEI 06 GUIDELINES AND PROCEDURES

INTRODUCE PACKAGING LEGISLATION

Description

Timeline

Medium | (2025-2030)

Develop a packaging legislation to ensure that the materials and recyclable value of products are transparently communicated. Recycling labels on product packaging will indicate the types of materials used in manufacturing the products, the recyclability of the packaging, the recycling steps and the designated collection points for post-consumer products.

Roles and Responsibilities of Implementers

Lead KPDN, MITI, NRES, KKM

Facilitate the legislative process for the proposed packaging law and provide technical advisory and direction on the scope and requirements to establish national standards for material handling.

Supporting Agencies Industry Associations

Support the development of legislation and the promotion of standards related to packaging and product labelling requirements.

Rationale

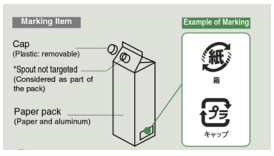
i. The lack of consumer guidance on how to recycle and dispose of products and packaging at the end of a product's life cycle hampers effective waste disposal and the SAS process.
ii. A recycling guide label would provide clear instructions on how to separate, handle and dispose of consumed products and their packaging.
iii. Mandatory labelling requirements with recycling instructions would increase consumer awareness, encouraging better SAS and improving recycling rates.

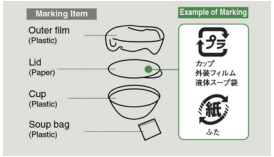
Action Plan

i. Formulate and implement packaging laws that mandate labelling requirements for all applicable products.
ii. Evaluate the suitability of certification systems for products that comply with labelling requirements.
iii. Establish enforcement and monitoring mechanisms to ensure compliance with packaging legislation across relevant industries.

Illustration

Japan – Containers & Packaging Recycling Law
Under Japan's Resource Effective Use Promotion Law, several items must include identification mark labelling, such as on plastic and paper container wrapping, steel cans, PET bottles and aluminium cans.







STRATEGIC PILLAR 2

CEI 07 GUIDELINES AND PROCEDURES

DEVELOP PRODUCT DESIGN GUIDELINES

Description

Develop guidelines for manufactures' reference in relation to product and packaging design specifications. It aims to promote the use of renewable, recoverable and recyclable materials.

Timeline

Medium | (2025-2030)

Roles and Responsibilities of Implementers

Lead MITI

Develop and promote design guidelines in phases according to industry sectors and provide guidance to manufacturers in designing and producing environmentally sustainable products.

Supporting Agencies Industry Associations

Encourage the adoption of the product design guidelines.

Rationale

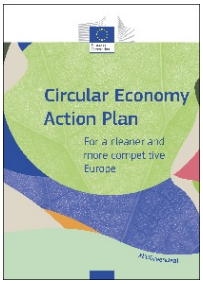
i. Product design and specifications play a critical role in determining recyclability. Products that are not environmentally friendly or are non-recyclable by design significantly increase the volume of waste sent to landfills.
ii. The guidelines will incorporate best practice recommendations for both product design and material selection, ensuring that end products are recyclable.

Action Plan

i. Develop product design guidelines outlining best practices for sustainable packaging and product design, covering materials, manufacturing processes and disposal or treatment methods.
ii. Conduct stakeholder engagement sessions or public consultations to gather input from manufacturers and consumers, including occupational safety and health considerations within product manufacturing.

Illustration

European Commission - Circular Economy Action Plan (CEAP)
The European Union adopted the Single-Use Plastics Directive, which sets mandatory targets for reducing the consumption of specific single-use plastic items and promotes sustainable alternatives. Under the directive, plastic packaging must contain a minimum of 30% recycled content by 2030.



STRATEGIC PILLAR 2

CEI 08 GUIDELINES AND PROCEDURES

INTRODUCE ZERO-WASTE-TO-LANDFILL CERTIFICATIONS

Description

Timeline

Medium | (2025-2030)

Introduce a certification that recognises manufacturers' efforts to produce products based on resource efficiency and waste minimisation principles, aimed at diverting waste from landfills. The certification may also be used as producers' eligibility for circular economy incentives.

Roles and Responsibilities of Implementers

Lead KPKT

Develop the Zero-Waste-to-Landfill assessment and certification mechanism for producers.

Supporting Agencies JSM, Industry Associations

Promote the Zero-Waste-to-Landfill certification among industry players.

Rationale

i. Most of waste generated is currently disposed of in landfills across Malaysia, contributing to environmental issues such as odour, air, and water pollution.
ii. This certification promotes sustainable and environmentally friendly manufacturing practices, enabling manufacturers to improve resource efficiency and reduce waste generation.
iii. Certified manufacturers will serve as industry benchmarks, demonstrating leadership in waste reduction and the adoption of circular economy principles.
iv. The certification will also enhance consumer confidence in certified companies, as it complies with waste reduction standards.

Action Plan

i. Establish clear criteria and a certification process for Zero-Waste-to-Landfill status.
ii. Develop an auditing mechanism in collaboration with relevant government agencies.
iii. Implement promotional programmes to encourage companies to pursue the Zero-Waste-to-Landfill certification.

Illustration

Procter & Gamble - Voluntary Zero- Waste-to-Landfill Programme and Certification
Procter & Gamble obtained the Zero-Waste-to-Landfill certificate by collaborating with value chain partners to implement innovative solutions. This resulted in the diversion of at least 90% of manufacturing waste from landfill across its operations.

STRATEGIC PILLAR 2

CEI 09 GUIDELINES AND PROCEDURES

INTEGRATE CIRCULAR ECONOMY PRINCIPLES INTO PLANNING, DESIGN AND CONSTRUCTION OF INFRASTRUCTURE AND PUBLIC FACILITIES

Description

Timeline

Medium | (2025-2030)

Introduce circular economy requirements at the planning approval stage for all development projects involving buildings, infrastructure, and public facilities. Planning permission (Kebenaran Merancang) will be granted to those demonstrating compliance with circular economy principles.

Roles and Responsibilities of Implementers

Lead KPKT, PBN, PBT

Introduce circular economy requirements in planning permission process for all development types.

Supporting Agencies KKR

Develop and enforce regulations related to waste reduction and the use of sustainable building materials.

Rationale

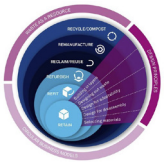
i. There is a need to develop circular economy guidelines for PBT and related stakeholders as reference including construction waste management operators to address waste generation.
ii. These guidelines will enable diversion of construction waste from inert landfills, limiting disposal to non-recyclable waste only.
iii. Incorporating circular economy principles in the design of buildings will reduce waste generation, environmental impacts, and reliance on raw materials, while improving resource efficiency.

Action Plan

i. Conduct stakeholder engagement sessions to develop guidelines aimed at meeting landfill diversion goals.
ii. Institutionalise circular economy elements as reference criteria for local authority (PBT) approvals.
iii. Undertake R&D and market studies to establish local standards for reuse and marketability of construction waste aggregates.
iv. Establish procurement criteria, including specifications for aggregate reuse in non-structural works and light structural works.

Illustration

United Kingdom - London Waste and Recycling Board – Circular Economy Design Guide for Built Environment
The guide offers architects and designers practical recommendations on designing buildings for circularity. This includes the use of recycled materials and principles for disassembly and reuse.



STRATEGIC PILLAR 2

CEI 10 GUIDELINES AND PROCEDURES

MARKET CREATION FOR LOCAL RECYCLED MATERIALS

Description

Timeline

Medium | (2025-2030)

Improved waste management requires clear guidelines and procedures covering collection, treatment, and resource recovery. Strengthening and updating domestic guidelines will support the market creation for high-quality local recyclables by ensuring consistent standards and reliability for both industries and consumers. These guidelines motivate businesses to incorporate more recycled content into their products, fostering a circular economy.

Roles and Responsibilities of Implementers

Lead MITI

Plan the development of a market for local recyclable materials.

Supporting Agencies MIDA, KPKT

Promote the use of local recyclables in manufacturing processes and encourage foreign investment.

Rationale

i. Most industries currently rely on imported waste as raw materials due to the limited availability and low quality of local recyclables. Local waste is often contaminated, making it unsuitable for recycling.
ii. The development of high-quality local recyclables is essential to bridging the gap between supply and demand. This effort will help reduce reliance on imported waste materials and contribute to sustainable domestic recycling capacity.

Action Plan

i. Explore suitable incentives, grants, and support in drafting a standard or guideline to develop the local recyclable materials market and supply chain.
ii. Promote GGP policies that encourage government agencies to prioritise products made from recycled materials.
iii. Facilitate the involvement GGP financing R&D projects focused on technologies for recycling materials and developing circular economy-based enterprises.

STRATEGIC PILLAR 3

CEI 11 DIGITALISATION AND TECHNOLOGY

STRENGTHEN SOLID WASTE MANAGEMENT DATA SYSTEMS

Description

Implement digital transformation across the solid waste management value chain will enable data collection, integration, coordination, and analysis. The data collection and analysis process must be fully digitised across the entire waste ecosystem, including waste sources, logistics, segregation, treatment, processing and landfills.

Timeline

Medium | (2025-2030)

Roles and Responsibilities of Implementers

Lead KPKT, PBN, PBT

Coordinate and develop a comprehensive digitalisation system for solid waste management.

Supporting Agencies JDN

Provide technical support for developing digital platforms and applications, including the adoption of sensors.

Rationale

i. Integrating data collection systems across government agencies, including PBN and PBT, offers a valuable opportunity to enhance coordination and support more effective planning for waste management.
ii. A holistic digital system will allow easier access to information on material and waste flows, helping improve waste management.
iii. Integration of data systems across the waste management ecosystem—including collection, segregation, treatment, recycling and aspects related to EPR and PAYT—is necessary.
iv. Digitised data collection enables access to reliable and transparent information, supporting accurate and comprehensive decision-making.

Action Plan

i. Assess the current state of data collection and analytics in solid waste management and to identify gaps and potential areas for improvement.
ii. Identify the data requirements for improving transparency and effectiveness in solid waste management. This includes data on waste generation, collection, transport, treatment, disposal and recycling—both imported and exported.
iii. Determine and develop digital system and platform that can integrate with existing systems to collect and analyse data efficiently.

Illustration

***RecyKal* – Smart Waste Management System**

RecyKal is a recycle-enabling technology that connects waste generators with collectors, processors and recyclers, aiming to improve collection and recycling rates by bridging the informal and formal waste sectors. RecyKal is currently operational in India, offering unique products and services for each stakeholder in the waste process.

STRATEGIC PILLAR 3

CEI 12 DIGITALISATION AND TECHNOLOGY

DEVELOP A DIGITAL E-COMMERCE PLATFORM FOR SOLID WASTE

Description

Create a digital e-commerce platform that enables waste generators, waste off-takers, and service providers to interact, coordinate, exchange and transact. The platform will also provide indicative pricing ranges for different waste types and maintain an archive of historical prices.

Timeline

Long | (2025-2035)

Roles and Responsibilities of Implementers

Lead Industry Associations

Develop a waste exchange platform to facilitate the trading of waste and recycled materials.

Supporting Agencies KPKT, MITI, KD, KPDN

Promote the platform within the local market to encourage adoption.

Rationale

i. The type and volume of recyclable waste currently collected by buy-back centres and MRFs are often random and subject to consumer supply. This leads to instances where collected recyclable waste cannot be matched with off-takers.
ii. The price of processed recyclable materials is not regulated, resulting in a highly volatile market with no consistent reference points for pricing.
iii. The proposed e-commerce platform could function as a demand-supply matching tool, enabling transparent and efficient trading of recyclables.

Action Plan

i. Map key industry stakeholders across the solid waste management value chain, including waste generators, off-takers and service providers.
ii. Develop a user-friendly e-commerce platform equipped with a secure payment system to facilitate the transaction of recyclable materials.

Illustration

Australia – Platform Digital Recycle Smart
A platform that connects waste generators with waste collectors and recycling service providers. It successfully managed waste streams generated in Sunridge City by mixing relevant materials to reduce costs and create a more efficient waste collection system.

STRATEGIC PILLAR 4

CEI 13 INFRASTUCTURE AND FACILITIES

DEVELOP WEP TO PROMOTE INDUSTRIAL SYMBIOSIS

Description

Timeline

Long | (2025-2035)

This initiative aims to spur the growth of the recycling industry and waste-based industries. A WEP is envisioned as an integrated zone that gathers recycling industry players to undertake activities such as: recovery of recyclable waste, treatment of residual materials and transformation of solid waste into new products. The WEP initiative is both **industry-led and state-driven** and supports the development of the circular economy ecosystem.

Roles and Responsibilities of Implementers

Lead — PBN, Industry Associations

Collaborate on the development of the WEP.

Supporting Agencies — KPKT, KPK, KPKM, MITI, NRES, PETRA, JKDM, PBT

Facilitate and support the development of the WEP within the circular economy ecosystem.

Rationale

i. The implementation of an integrated strategy has been effective in fostering synergy among industries and businesses, enhancing value across the value chain.
ii. WEP development encourages investments in infrastructure and facilities for holistic solid waste management, led by developers, managers and WEP operators.

Action Plan

i. Conduct a feasibility study to determine suitable locations for the development of WEP, waste resources availability, potential industry players for investment and operations within the WEP area and the appropriate business model.
ii. Provide developers with advisory support on investment, incentives, legal and technical matters throughout the planning and development of WEPs.

Illustration

Japan – Hiroshima Chuo Eco Park
This facility manages waste treatment for Higashi Hiroshima, Takehara and Osakikamijima. It functions as a central hub for waste reception, which is then processed into recyclable materials and industrial feedstock.



STRATEGIC PILLAR 4

CEI 14 INFRASTRUCTURE AND FACILITIES

ENHANCE THE DEVELOPMENT OF MRF AND IWMF

Description

Encourage the development of more MRF and IWMF through PPP. These facilities should be equipped with digital technology to enable effective data collection and analysis.

Timeline

Long | (2025-2035)

Roles and Responsibilities of Implementers

Lead Industry Associations, and Waste Management Facility Developers.

Plan and develop IWMF and MRF across the nation.

Supporting Agencies KPKT, MITI, KD, KPDN

Provide support in the nationwide development and operation of the IWMF and MRF.

Rationale

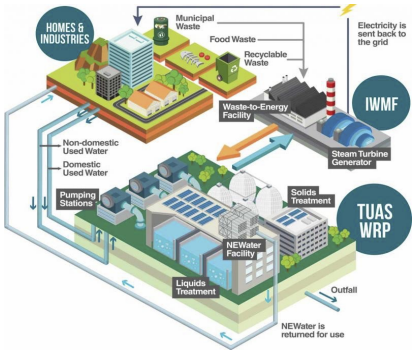
i. Currently, waste management in Malaysia relies heavily on landfilling, with only a small amount of waste being recycled or reused. The lack of proper waste sorting practices is one of the key challenges that prevent Malaysia from achieving a more sustainable waste management system.
ii. Increased investment in waste management infrastructure, including the IWMF and MRF will effectively enhance the process of sorting, recycling and treatment of waste.

Action Plan

i. Strategic collaboration with local or international industry experts in conducting feasibility studies and developing facilities.
ii. Conducting feasibility study that includes identifying locations, minimum processing capacity, facility design, suitable waste management technologies, PPP business models and return on investment.

Illustration

Singapore - Tuas Nexus IWMF and MRF
The facility will be able to process about 5,800 tonnes of waste per day and will incorporate waste- to-energy technologies to produce electricity. MRF will be constructed to process recyclable materials collected from households and commercial premises. The MRF will be able to process about 90,000 tonnes of recyclable materials per year.



STRATEGIC PILLAR 4

CEI 15 INFRASTRUCTURE AND FACILITIES

UPGRADE EXISTING LANDFILLS INTO SANITARY LANDFILLS WITH INTEGRATED MRF

Description

Timeline

Long | (2025-2035)

This initiative aims to improve existing landfills by upgrading them to sanitary landfills and providing MRF at these sites. This initiative will maximize the recovery of recyclable materials, thereby reducing the amount of waste that ends up in landfills.

Roles and Responsibilities of Implementers

Lead KPKT

Regulate, coordinate and ensure compliance with the established regulations and standards in upgrading landfills and constructing MRF.

Supporting Agencies PBN, Industry Associations

Collaborate with relevant government agencies and stakeholders to upgrade landfills and construct MRF.

Rationale

i. Waste disposal in landfills is a conventional method that needs attention in the transition to a circular economy. Most of these landfills are still open dumpsites, which can contribute to health issues and environmental pollution.
ii. Basically, landfills contribute to GHG emissions in Malaysia. This initiative supports the government's efforts towards achieving Malaysia's net-zero carbon emissions target as early as 2050.

Action Plan

i. Conducting a feasibility study to determine the current condition of landfills, estimating the upgrading costs, assess the willingness of operators to build MRF facilities and explore investment options and incentives.
ii. Upgrading landfills, developing MRF and continuously monitoring project implementation to ensure the targets set by the relevant government agencies are achievable.

Illustration

Netherlands - Transition to Sanitary Landfills, Redevelopment and Rehabilitation of Landfill
The landfill operation after 1980 are required to meet stringent regulations and reconstruct to sanitary landfill. In 1993, construction requirements for landfill were introduced in a Landfill and Soil Protection decree to isolate, control and monitor the landfill to prevent contamination and mitigate human or ecological risks.

STRATEGIC PILLAR 5

CEI 16 MARKET CREATION

INTRODUCE ECONOMIC INSTRUMENTS TO ENCOURAGE PRIVATE SECTOR PARTICIPATION

Description

Timeline

Medium | (2025-2030)

Introduce economic instruments in the form of tax incentives, subsidies, or grants to startups, SMEs, waste separators, aggregators and local manufacturers to enhance compliance with ESG standards and circular economy practices. Eligible business activities for tax incentives include designing environmentally friendly products, producing green products, using waste/recycled materials as input in production and investing in technology/machinery to promote and implement business strategies based on the circular economy.

Roles and Responsibilities of Implementers

Lead MITI

Promote fiscal incentives to encourage circular business models and practices among industries in Malaysia.

Supporting Agencies MOF, MOSTI, NRES, KUSKOP, MIDA, SME Corp.

Provide incentives such as subsidies, grants and tax incentives to help industries innovate and adapt to a circular economy, including the evaluation of businesses' eligibility and provide consultation to industry players who are keen to transition their business towards circular economy.

Rationale

i. The transition towards circular economy would typically involve high investment costs or increase operating costs for the business owners.
ii. Financial related incentives have been proven effective to reduce the financial burden of the business owners and subsequently encourage the private sector to be involved more actively in waste recycling activities, including green procurement.
iii. The circular economy activities of startup companies and SMEs can enhance their eligibility to receive government-set incentives. Examples include adopting circular practices in product design and manufacturing, engaging more actively in waste recycling activities, producing products from recycled materials and implementing green procurement.

Action Plan

i. Identify and explore tax incentive schemes, subsidies, or grants that can be offered to startups and SMEs.
ii. Outline the criteria for qualifying startups and SMEs to receive tax incentives, subsidies, or grants, while setting KPIs for performance monitoring.
iii. Promote tax incentive schemes, subsidies, or grants to startups and SMEs to encourage more production of products based on recycled materials through compliance with GGP.
iv. Encourage strategic collaboration between startups, SMEs, GLICs and GLCs in knowledge sharing and technology for businesses based on recycled materials.

Illustration

Netherland - Subsidy programme for Circular Chain Projects
Grant scheme for entrepreneurs that collaborates within their value chains to design circular solutions specifically solutions that save raw materials and reduce CO_2 emissions.

STRATEGIC PILLAR 5

CEI 17 MARKET CREATION

IMPLEMENT PAYT SCHEME FOR THE CII AND CONSTRUCTION SECTORS

Description

Timeline

Long | (2025-2035)

The PAYT scheme charges based on the amount of waste disposed of by the CII and construction sectors. The PAYT initiative aims to encourage the reduction of waste sent to landfill.

Roles and Responsibilities of Implementers

Lead KPKT, PBN, PBT

Regulate and implement PAYT scheme.

Supporting Agencies MITI, KKR

Promote PAYT scheme to the relevant industries under their respective purview.

Rationale

i. There is a need to reduce waste generation at landfills through initiatives that reuse and recycle materials as secondary resources. Additionally, this initiative aims to open new markets for CII and construction waste, while enhancing the supply of local recycled materials for use in related industries.
ii. The implementation of PAYT will encourage the CII and construction sectors to adopt SAS, thereby contributing to achieving recycling rate targets.

Action Plan

i. Implement a feasibility study for the PAYT scheme across Malaysia, which includes the availability of involved parties, infrastructure and facilities, implementation mechanisms, enforcement, reporting and traceability.
ii. Engagement sessions with the industry to ensure that the PAYT mechanism is feasible for implementation.
iii. Enforce PAYT based on the results of the feasibility study of the PAYT scheme across Malaysia.

Illustration

Spain – Pay-As-You-Throw
In 2003, Torrelles de Llobregat became the first municipality in Spain to implement PAYT in the form of a pay-per-bag scheme. Targeting commercial waste generators, the PAYT system maintains an annual fee of $39.59, and introduces special standardised bags for domestic waste, recyclable plastics and packaging materials made of metal. The collected waste will be sent to a separation and recovery facility. Meanwhile, large commercial organic waste generators will be charged an annual fee for organic waste bins depending on the size and frequency of collection.

STRATEGIC PILLAR 5

CEI 18 MARKET CREATION

PROMOTE INVESTMENT IN R&D, FOSTERING COLLABORATION BETWEEN LOCAL AND INTERNATIONAL INDUSTRY

Description

Timeline

Long | (2025-2035)

Encourage investment and collaboration between industry players from both local and international markets in the field of R&D. This includes establishing research facilities involving higher education institutions and research institutions. The R&D efforts should focus on enhancing the circular economy ecosystem in aspects such as the development of new materials, product and packaging design, processes and systems, services, technology adaptation, material recovery facilities, and recycling.

Roles and Responsibilities of Implementers

Lead Industry Associations

Implement R&D related to the goals and requirements of the circular economy for each industrial sector.

Supporting Agencies KPKT, MOF, MOSTI, KPT, MGTC

Provide support in the form of advisory services, offering research grants, and identifying potential research collaborations.

Rationale

i. The production of recyclable materials and the development of solid waste management facilities using advanced and up-to-date technology involve high costs. Therefore, the development of R&D to create local technology that is suitable for the characteristics of solid waste in Malaysia is critical.
ii. Investment in R&D development can foster collaboration between local and international players, facilitating the transfer of knowledge, expertise and technology, as well as significant human capital development to accelerate innovation and commercialization of research outcomes.

Action Plan

i. Identify the need for R&D in the areas of product designs, technologies, and facilities based on the solid waste management value chain, and then conducts relevant research and development studies.
ii. Encourage investment by GLIC and GLCs in local industries, including start-up companies, in the relevant R&D sectors.
iii. Empower innovation/incubation hubs to stimulate the development of product designs, technologies, and facilities that are adaptable and accessible to businesses at all levels in Malaysia.
iv. Provide economic incentives, such as R&D grants, to pioneer circular economy technologies.

Illustration

South Korea – R&D investment to support the development of the circular economy

eco-friendly technologies to support the circular economy approach by recovering resources from waste. For example, waste sorting using visible light and hyperspectral technology aims to convert discarded plastics into raw materials and fuel. This project, which runs from 2022 to 2025, costs USD 35.8 million, with a subsidy of USD 25 million from the South Korean Government.

STRATEGIC PILLAR 5

CEI 19 MARKET CREATION

DEVELOP HUMAN CAPITAL FOR THE CIRCULAR ECONOMY IN BOTH PUBLIC AND PRIVATE SECTORS

Description

Timeline

Long | (2025-2035)

Design and introduce training modules and syllabus related to the circular economy for the public and private sectors to enhance awareness, knowledge, expertise and adoption.

Roles and Responsibilities of Implementers

Lead — **Industry Associations**

Provide technical advisory services on the circular economy concept for solid waste and facilitate the development of training modules and curriculum.

Supporting Agencies — **KESUMA, KPT, MPC, HRD Corp., MTVET, Academia**

Assist in identifying training needs from the public and private sectors, developing modules and syllabus and establishing criteria for accreditation of expertise.

Rationale

i. The circular economy is a concept that has yet to be fully explored and is evolving alongside global sustainable development goals. Therefore, both the public and private sectors should keep up with the developments of the circular economy through continuous training programmes to enhance awareness, knowledge, upskilling and adoption.
ii. Training and mentoring programmes that are suitable for all sectors regarding up-to-date information on the latest technological advancements, best practices and approaches or methodologies related to the circular economy.

Action Plan

i. Develop training modules and syllabus for the circular economy through strategic collaboration with educational institutions and stakeholders from both domestic and international sectors.
ii. Conduct benchmarking visits to international institutions that have successfully developed and implemented circular economy initiatives in their respective countries (success stories).
iii. Establish the accreditation criteria for subject matter experts in the field of circular economy.

Illustration

South Korea - National Green Growth Strategy
The South Korean government has invested in upskilling and reskilling programmes for workers in the circular economy concept through the development of the Green Industry Academy. This academy offers various courses on sustainability topics, such as eco-design, green logistics and waste reduction.



STRATEGIC PILLAR 5

CEI 20 MARKET CREATION

STRENGTHEN THE INDUSTRY-LED CEPA PROGRAMME

Description

Timeline

Long | (2025-2035)

Empower existing industry-driven CEPA programme to engage various target groups through multiple mediums and channels. These CEPA programme include knowledge on EPR, PAYT initiatives, eco-labeling, SAS, recycled materials and the benefits of recycling.

Roles and Responsibilities of Implementers

Lead Industry Associations

Implement CEPA programme that involve all levels of consumers across the entire value chain of the circular economy.

Supporting Agencies KPKT, NRES, KPN, KK, PBT

Promote the CEPA programme and disseminate information to the public.

Rationale

i. Malaysia generated 38,256 tonnes of solid waste per day in 2022, compared to 33,130 tonnes per day in 2012, and this amount is projected to increase to 42,146 tonnes per day by 2025. This increase in waste generation is due to population growth, rapid urbanisation and industrialisation, rising economic standards and lifestyle changes.
ii. Public awareness of waste reduction practices and SAS are still at a low level. As a result, it is challenging to garner support and community involvement in implementing sustainable practices.
iii. The CEPA programme aims to raise awareness about environmental and waste management, including knowledge and practices, by providing educational and training activities that support community action and encourage changes in behaviour and mindset.

Action Plan

i. Develop a CEPA plan that includes a comprehensive communication strategy through various channels such as public service campaigns, social media, traditional media and public events.
ii. Involve social media influencers in promoting circular economy initiatives.
iii. Regularly monitor the effectiveness of the implemented communication strategies, conduct an analysis of the effectiveness of CEPA and identify gaps that need improvement.

Illustration

Delterra - A global NGO, recognises the significance of addressing behaviour as a means of driving change throughout circular economy.
Delterra has successfully increased community engagement in recycling efforts from less than 5 percent to over 50 percent among the people of Indonesia and Argentina.



PART 5

BUILDING THE FOUNDATION OF THE CIRCULAR ECONOMY

5.1 Extended Producer Responsibility
5.2 Waste Eco Park
5.3 Pay-As-You-Throw
5.4 Communication, Education, and Public Awareness
5.5 Incentivising the Private Sector
5.6 Legislation

5.1

EXTENDED PRODUCER RESPONSIBILITY

EPR is defined as a policy approach in which a producer's responsibility, physical and/or financial for a product is extended from production to the post-consumer stage of a product's life cycle. Producers have an option to handle their obligations either individually or collectively through the PRO. EPR can be implemented for various types of products and waste streams.

The success of EPR can be achieved through comprehensive implementation from the upstream to the downstream stages in the product manufacturing and post-consumer product management. The upstream stage involves initiatives that encourage eco-friendly product design and informative labeling. Additionally, the establishment of standards is also important to produce resource-efficient products that generate less waste during production and after use. Downstream measures are intended to build a robust waste management system that include efficient and cost-effective collection, sorting, recovery and recycling of waste.

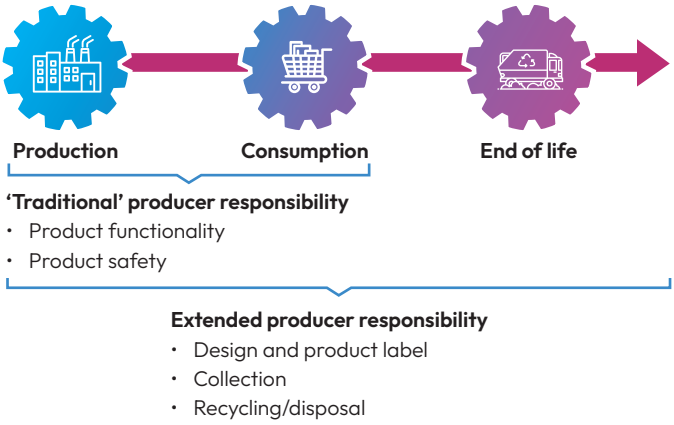


Figure 5.1.1 General Product Life-Cycle

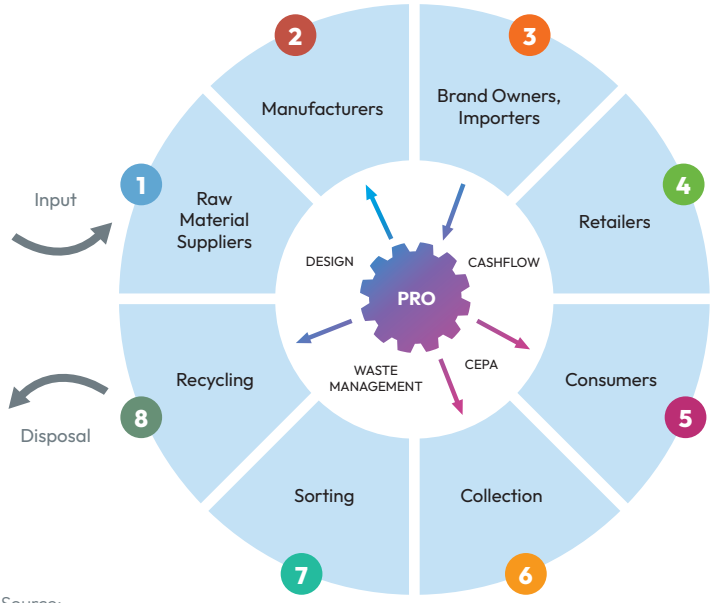
Who are Producers?

Producers are any parties who manufactures or imports a product that falls under the EPR legislation and markets the product in the Malaysian market. Examples include brand owner, filler, importer and online marketplace operators.

The Supply Chain in an EPR Scheme

Currently, the cost of solid waste management for household is fully borne by the Federal Government/PBN/PBT. The product/ goods producers and other stakeholders along the value chain are only responsible in ensuring that the products meet certain health and safety standards. Through the implementation of the EPR scheme, the responsibility for managing solid waste is extended to the producers. The supply chain in the EPR scheme involves several stakeholders:

a) Producers/Owners;
b) Brand Owners/Product Importers;
c) PRO;
d) Distributors; and
e) Companies related to waste management/ (collection, treatment, recycling and disposal)



Source:
1. Pouikli, K. Concretising the role of extended producer responsibility in European Union waste law and policy through the lens of the circular economy. ERA Forum 20, 491–508 (2020)
2. WWF Germany, cyclos GmbH (2019, August) Legal Framework Study of Extended Producer Responsibility

Figure 5.1.2 Value Chain for Packaging Goods

Challenges in implementing EPR

Determining the type of products and the obligation of the producer requires consultation with various stakeholders, consideration and target setting.

Establishing and harmonising the EPR legislation that can be implemented nationwide. Effective enforcement and continuous monitoring are crucial in ensuring that the producers fulfill their obligations.

Establishing reasonable EPR fee rates and structures by considering economic aspects, environmental impact and waste management costs to avoid burdening producers and subsequently, consumers.

Developing adequate collection point, sorting, recycling facilities and database system requires a substantial upfront investment from producers.

Producer Responsibility Organization (PRO)

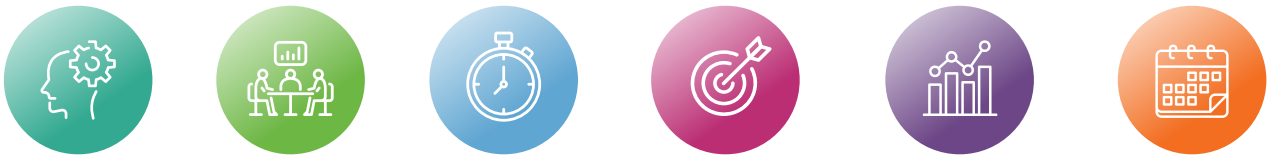
A PRO is an entity appointed by producers or through legislation to fulfil obligations under the EPR scheme. The PRO is responsible for ensuring that the end-of-life management of post-consumer products is handled properly, starting with collection, treatment, recycling and disposal of products in an environmentally friendly manner. The PRO is a crucial entity in the EPR scheme and must meet several criteria before the EPR scheme is finalised. The comparison of PRO criteria is as follows:

Key Traits	Description	Pros	Cons
Industry-Led PRO **VS** **Government-Led PRO**	**Industry-led PRO** Private companies registered under the EPR regulating body (Government) to be the PRO.	Industries are more motivated to avoid free rider issue to keep level playing field.	• Absorption of cost for CEPA initiatives. • Limited control over free rider issues.
	Government-led PRO Government plays the role as PRO for waste collection, transportation and disposal.	The Government is directly responsible for monitoring the implementation of EPR.	Members has lesser oversight on the usage of the contributed EPR fee as it is subject to the consensus agreement of the PRO Board of Directors.
Non-Profit PRO **VS** **Competing for-Profit PRO**	**Non-Profit PRO** Single PRO control the entire supply of collection services, sorting, separation, recycling, disposal and charge for EPR fee.	Higher level of transparency	A monopoly environment will discourage operational efficiency.
	Competing for-Profit PRO Several PRO competing with each other to expand their members size through the EPR fee charges.	Obliged companies could potentially enjoy more competitive EPR fee and better services level.	• Costing pressure due to high competition. • Less transparent due to no disclosure obligation.
PRO for All Materials **VS** **PRO for Specific Materials**	**PRO for All Materials** PRO is responsible in collecting all types of post-consumption products.	Potentially enjoy the economy of scale which result in lower operation cost.	•Less transparent due to no disclosure obligation.
	PRO for Specific Materials PRO only focuses on a single category of post-consumption products.	In-depth and detailed monitoring and control can be exercised.	Coverage areas is dependent on minimum waste volume available.

Table 5.1.1 Comparisons of PRO Criteria

Setting EPR Target

Recovery and recycling targets are key elements that need to be considered in the EPR scheme. These targets are crucial when the objectives are to increase reuse, recycling rates and to reduce the amount of waste disposed. Setting EPR targets should be done in consultation with the affected parties such as government, PRO and obliged companies to ensure they are realistic and can be achieved.



Source: EPR A Guidance Manual for Government, OECD, 2001

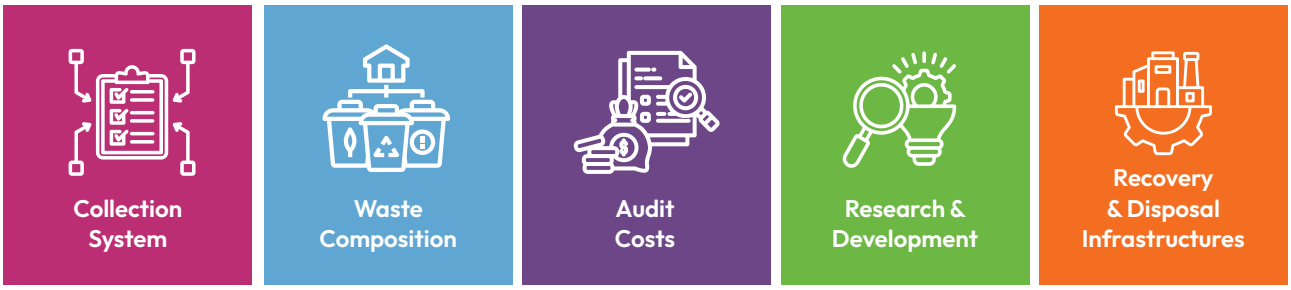
Figure 5.1.3 Aspects of Setting EPR Targets

Effective EPR Scheme

1. EPR must be mandatory to create a measurable impact and to ensure that the system is adequately funded for a long term.
2. The roles and responsibilities of stakeholders with legal responsibilities are clearly identified.
3. Having clear targets that are realistic and achievable.
4. Effective monitoring and supervision to ensure compliance with EPR scheme.
5. Incentivise producers to design more resource efficient products with lower environmental impacts.
6. Integrating informal sectors in EPR system.
7. Encouraging healthy competition in the waste management sector.

Setting the EPR Fees

The EPR fees could vary depending on the weight of the packaging/product and the materials used in manufacturing. Total fees charged to the obliged producers may also vary based on factors such as the type and amount of waste, recycling targets and local operational costs for waste management. Other factors include are as follow:



Determining the Obliged Companies

Obliged companies are the ultimate players who introduce a product into the local market, will have to undergo a national registry process and fulfill the various obligation, including the contribution of EPR fees to a PRO. The obliged companies can be determined using the simplified supply chain below:

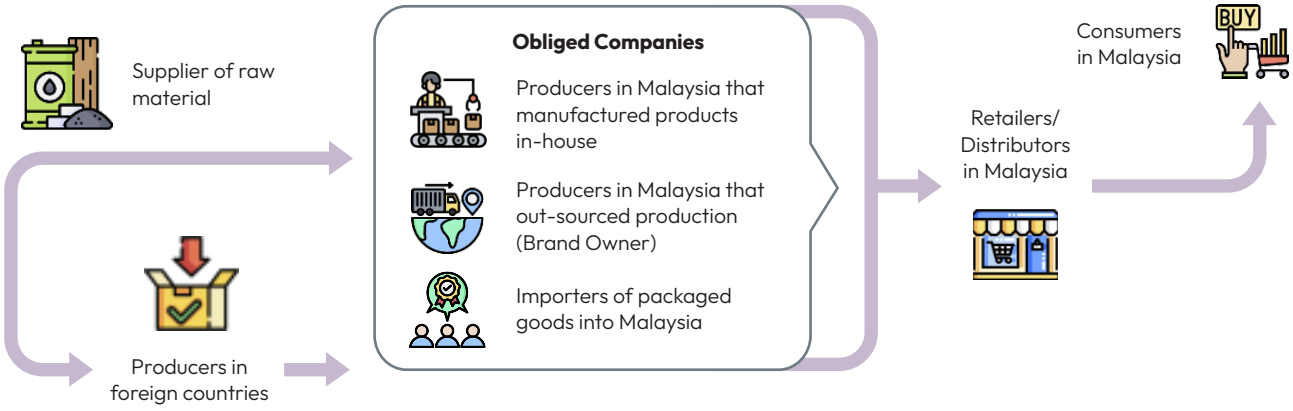


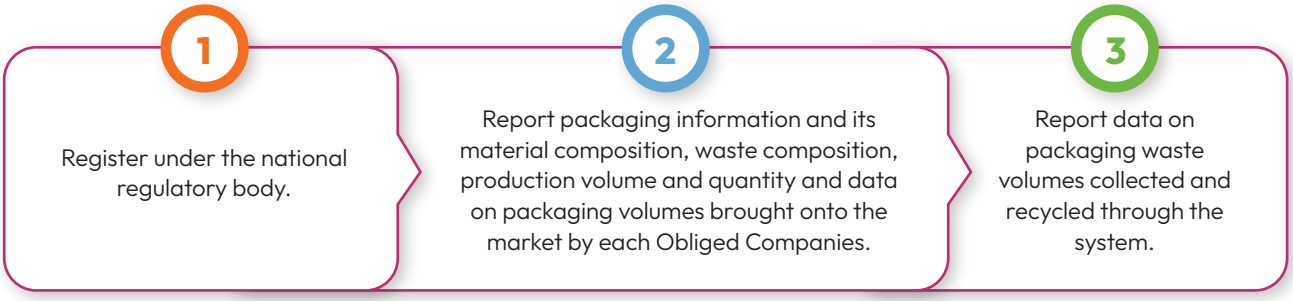
Figure 5.1.4 Determination of the Obliged Companies

Registration of the Obliged Companies

All companies that introduced packaged goods to Malaysia market are to be registered into a national database to facilitate the roll-out of EPR scheme.

Obligation of Obliged Companies

Obliged Companies will be bounded under the relevant legislations and need to meet the obligations set by the EPR regulatory body as follows:



Successful Factor of EPR

- Establish a shared responsibility between the government and producers in waste management;
- Establish an appropriate and implementable EPR legislation nationwide;
- Establish a comprehensive digital database and monitoring system; and
- Establish an adequate recovery and recycling facilities.

The EPR scheme should be collaborative in nature, sharing waste management responsibilities between the government and producers to reduce the environmental footprint of products and enhance sustainability.

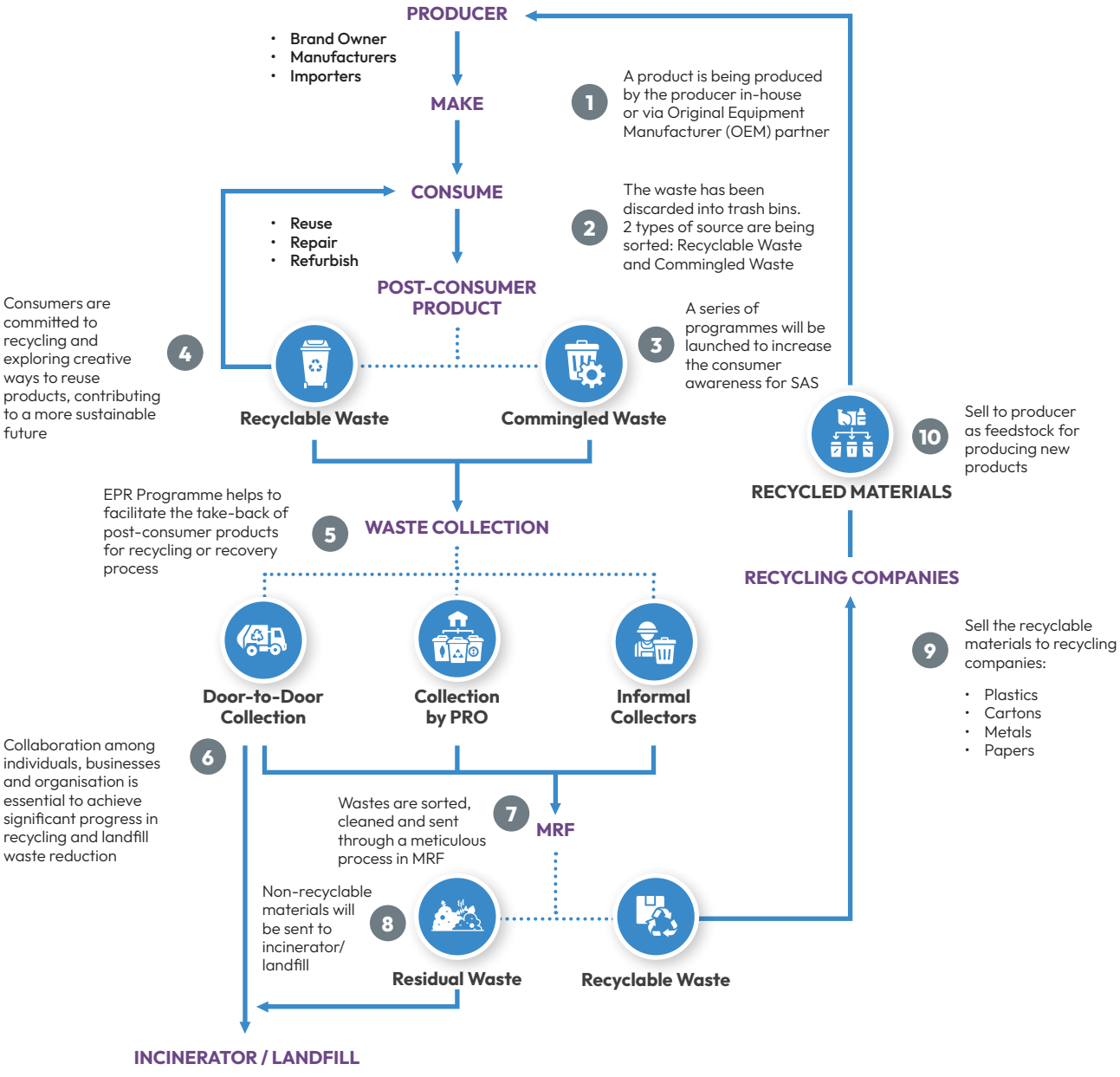


Figure 5.1.5 EPR Ecosystem

5.2

WASTE ECO PARK

WEP IS AN INTEGRATED PLANNED INDUSTRIAL AREA WHERE IT BRINGS TOGETHER INDUSTRY PLAYERS TO BOOST RECYCLING ACTIVITIES AND SUSTAINABLE SOLID WASTE MANAGEMENT PRACTICE.

WEP encourages recycling activities, waste recovery, processing and solid waste treatment that has specific infrastructures and facilities to complete the symbiosis of the circular economy chain. The development of WEP enables industries to reuse the residual waste from one industry as raw material input for another industry. WEP also encourages investment to provide complete facilities and infrastructure towards holistic waste management within the WEP area by developers, administrators and WEP operators

WEP Planning and Development Principles

1. **REDUCTION OF WASTE GENERATION BY DIVERTING WASTE FROM LANDFILL**
   All types of waste brought into the WEP or generated from manufacturing activities at the WEP will be treated and recycled within the WEP area, with the principle that no waste will be sent out to the landfill.

2. **PRIORITY TO PROCESS LOCAL SOLID WASTE**
   Industry players developing WEP facilities must use local solid waste as a material source and no solid waste should be imported from abroad. However, exceptions will be made if the quantity of the local solid waste is insufficient to support WEP operations subject to current policies and regulations.

3. **OPERATION OF VARIOUS RECYCLING INDUSTRY PLAYERS WITHIN THE WEP AREA**
   Industry players operating within the WEP area must process at least three types of recyclable solid waste.

4. **IMPLEMENTING MATERIAL RECOVERY ACTIVITIES AND RECYCLING WASTE TO PRODUCE NEW PRODUCTS**
   Industry players within the WEP facilities must use recyclable solid waste as raw material to produce new products that can be sold domestically and internationally. An example of technology that can be used is MRF to ensure quality sources and meet the recycling criteria. In this case, at least 30 percent of the processed residual waste from MRF should be used as feedstock for new production.

5. **REGULATORY COMPLIANCE**
   The development of WEP facilities must be well planned and implemented while complying with current legislation in force to ensure that the activities carried out do not have a negative impact on the environment. The selection of WEP locations must comply with the requirements of the relevant authorities, obtain approval from the state government and align with the planning framework by PLANMalaysia.

6. **GREEN DEVELOPMENT CONCEPT**
   WEP developers are encouraged to implement industrial development based on the concept of green or sustainable development following the criteria outlined in the Waste Eco Park Development Guidelines by the Ministry of Housing and Local Government.

7. **DEVELOPER RESPONSIBLE IN BEARING THE COST OF WEP DEVELOPMENT AND OPERATION**
   The development of WEP is an initiative implemented by the private companies. The costs of developing and operating the WEP must be fully borne by the private companies including land acquisition, utilities, infrastructure etc. Any costs involved in complying with the requirements and approvals of the relevant authorities must also be borne by the WEP developer.

The objective of the WEP is to bring together industry players within a circular economy ecosystem in an integrated planned industrial area.

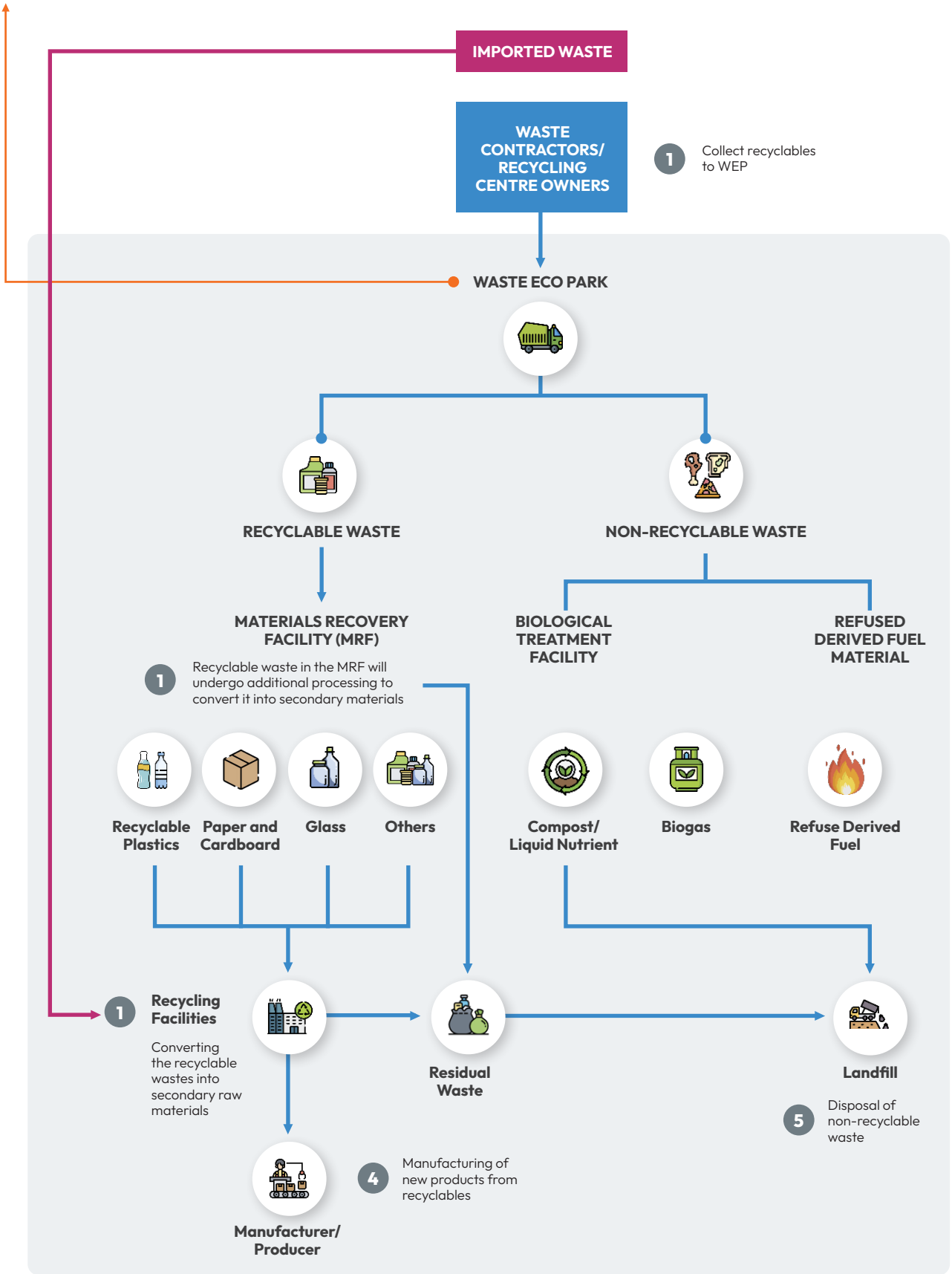


Figure 5.2.1 WEP Development Concept

5.3

PAY-AS-YOU-THROW

PAYT is a mechanism to charge the waste generator for the amount of waste they produce, thus motivating consumers to reduce solid waste. CEPA are integral to PAYT success by raising public awareness to promote waste separation.

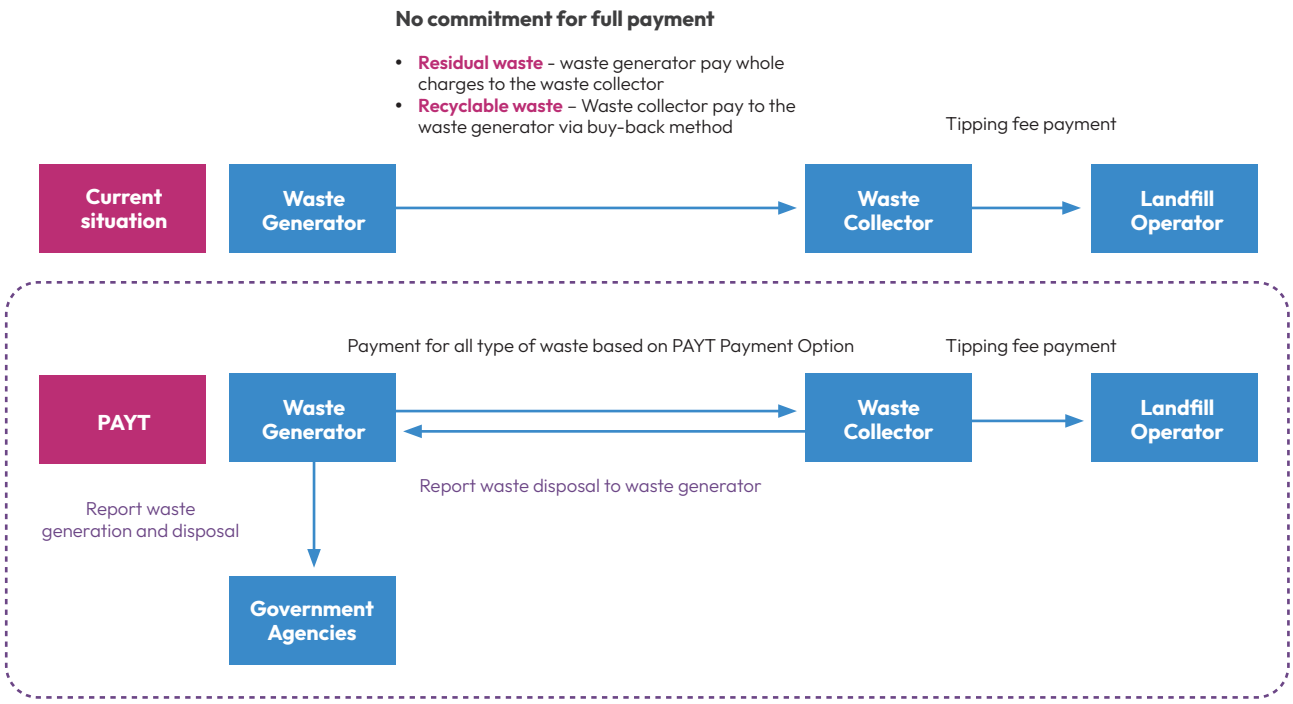


Figure 5.3.1 Current Situation and Proposal of PAYT Implementation Plan

Targeted Waste Categories

PAYT targets all solid waste including recyclable waste, generated by the CII and construction sector, promoting responsible waste management.

Waste Generators:



Commercial/Industry/Institution (CII)



Construction

PAYT IMPLEMENTATION MECHANISM

	DIGITAL SENSOR	STICKER	DESIGNATED TRASH BAG (DTB)	WHEEL BIN / ROLL-ON-ROLL-OFF (RORO)
Description	Using digital sensor to determine charges based on weight	Using sticker placed on garbage bags to determine charges based on quantity	Require special plastic bags that can be used to determine waste content	Using bins with different capacities to determine standard charges based on size
Price Mechanism	Based on disposal weight	Based on pre-charged quantity	Based on pre-charged quantity	Fixed subscription fee based on the size of the wheel bin
Control Method	Sensor linked to individual account. Billing based on disposal rate	Waste collectors collect garbage bags with sticker only	Waste collectors collect specific designated plastic bags	Waste collectors collect waste in the bin
Pros	• Facilitates data reporting • Charges are paid based on the weight/ waste quantity • Efficient monitoring with minimal enforcement	• Facilitates data reporting • Low distribution and storage costs • Waste can be disposed using suitable method. For example: tie/ bag/box/bin • No billing system required	• Facilitates data reporting • The use of standard and easily identifiable plastic bags facilitates waste collection • No billing system required	• Facilitates data reporting • Encourage waste generators to reduce waste at a lower rate according to the size of the bin
Cons	• Requires investment in digital sensor technology • High CAPEX cost for sensor installation	• Potential for sticker counterfeiting	• Burden on waste generators to purchase special plastic bags • Single-use-plastic bags contributes to waste • Confusion over the use of different plastic bags	• Waste generators need to pay full price for the rental/ subscription of the bin even for partial use • Potential for bin leaks and improper waste disposal into wheeled bins
Implementation Method	Implemented by the waste collection company/ local authorities	Implemented by the waste collection company/ local authorities through sales at convenience stores / supermarkets / petrol stations	Implemented by the waste collection company/ local authorities through sales at convenience stores / supermarkets / petrol stations	Provided by the waste collection company or local authorities

Table 5.3.1 Payment Method Options

5.4

COMMUNICATION, EDUCATION AND PUBLIC AWARENESS

CEPA is a program aimed at enhancing awareness, knowledge and skills at various levels of target groups to support changes, action and behaviors in fostering circular economy initiatives culture. Success hinges on holistic efforts and collaborations among all stakeholders, in particular industry players.

1 Crafting Clear and Consistent Messages

- Effective communication should include clear statements of actions and instructions, as well as an emphasis on the benefits obtained by the target group in line with social norms.
- Consistent message repetition across all channels are crucial and messages should be audience-centered, considering demographics and preferences for personalised, compelling messaging.
- Brand owners should transpire the messages of proper waste disposal and recycling process through packaging and labelling of the products.

2 Communication Strategy and Media

- Comprehensive communication strategies through diverse channels, including social and conventional media as well as public events to be disseminated to the general public.
- Collaborations, educational resources, feedback mechanisms and consistent evaluation are essential components for effectively promoting the circular economy initiatives.

3 Collaborating with Influencers to Drive Behavioral Change

- Utilise community influencers, including local leaders, celebrities, and experts, to broaden the reach of the message.
- Collaborative engagement with government agencies, community organisations and peer groups strengthens behavior change campaigns. Influencers from diverse backgrounds are important to ensure the messages are clearly received at various levels of the targeted groups.

5.5

INCENTIVISING THE PRIVATE SECTOR

THE PROVISION OF INCENTIVES AS A CATALYST TO ENCOURAGE THE ADOPTION OF THE CIRCULAR ECONOMY BUSINESS MODELS

Government and Private Sector Vital Role in Circular Economy Advancement

The role of private sector is important in enhancing resource efficiency through circular economy business models, sustainable design, influencing consumer behavior and driving circular practices in solid waste management. The government supports the private sector's role in promoting circular practices through various forms of incentives.

Challenges Faced by Private Sector

The private sector faces challenges such as high initial investment, limited circular economy awareness and technical expertise, resistance to change, limited incentives facilities and technology that requires high capital.

Government Support for Private Sector

The Government recognises the need for the private sector to implement circular economy initiatives in alignment with the National Investment Aspirations, which also focus on ESG principles. The financial incentives provided by the government that can be utilised by the private sector are as follows:

Incentive Programmes

Tax Incentive	**Pioneer Status (PS)** is granted to national strategic projects with large capital and technology investment. The projects will be given incentives in the form of exemption from Corporate Income Tax at 100 percent of statutory income for 5+5 years.
Tax Incentive	**Green Investment Tax Allowance (GITA) and Green Income Tax Exemption (GITE)** are provided for green technology projects, including those related to renewable energy, energy efficiency, green buildings, green data centres and integrated waste management, allowing an offset of up to 70 percent of statutory income in the assessment year.
Grants	**Strategic Research Fund (SRF)** is designed to fund for the improvement of processes in reducing waste generation that brings a significant impact on society and the economy.

Other Incentives

Tax Incentives
Investment Tax Allowance (MIDA)
Investment Allowance (MOF)
Green Income Tax Exemption (MGTC)
Grants
Malaysia Digital Catalyst Grant (MDEC)
Soft-Loans
Green Technology Financing Scheme (MGTC)
Training Programme
Malaysia Digital Climate Action Pledge (MDEC)

5.6

LEGISLATION

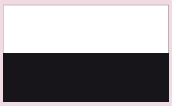
AMENDMENTS OF EXISTING LEGISLATION AND INTRODUCTION OF CIRCULAR ECONOMY ACT WOULD BE CRUCIAL TO ENSURE HOLISTIC IMPLEMENTATION OF CIRCULAR ECONOMY INITIATIVES

Existing legislation that needs to be harmonised

***States Adopted Act 672**


Perlis


Kedah


Pahang


W.P. Kuala Lumpur


W.P. Putrajaya


Negeri Sembilan


Johor


Melaka

***State Adopted Act 171**


Pulau Pinang


Selangor


Kelantan


Terengganu


Perak


W.P. Labuan

Solid Waste and Public Cleansing Management Enactment 2022


Sabah

Local Authorities Ordinance 1996 [Chapter 20]


Sarawak

*Note: States that adopted Act 672 until December 2023

	AREAS	REQUIRED ACTION
1.	**DATA REPORTING** Reporting requirements on amount of packaging introduced into the market and submission of recycling plan.	1. Engagement with all states and relevant stakeholders.
2.	**LABELLING SYSTEM** Mandatory labelling system to indicate recyclability and recycling points for products and packaging.	2. Introduce Circular Economy Act that covers production, import, distribution, retail, consumption, post-consumer products management and waste disposal.
3.	**PAYT SCHEME** Allow imposition of charges on a variable rate based on the amount of waste disposed	
4.	**EPR SCHEME** Establish and regulate a mandatory EPR scheme	

Table 5.6.1 Example of Areas Requiring Legal Coordination



PART 6

CIRCULAR ECONOMY BUSINESS MODELS

6.1 Circular Economy Practices In Business
6.2 Adoption Of Circular Economy Business Models

6.1

CIRCULAR ECONOMY PRACTICES IN BUSINESS

ENHANCING THE EFFICIENCIES IN THE CURRENT INDUSTRY VALUE CHAIN THROUGH THE CIRCULAR ECONOMY STRATEGIES AND CIRCULAR ECONOMY BUSINESS MODEL

Circular Economy Strategies

The current linear value chain focuses on business profits and short lifespan of product design which are not optimal.

The Circular Economy Strategies are principles that focus on focus on reducing waste generation and the impact of pollution on the environment.

These strategies enable businesses to redesign their operations by emphasising resource efficiency, product durability and responsible end-of-life product management.

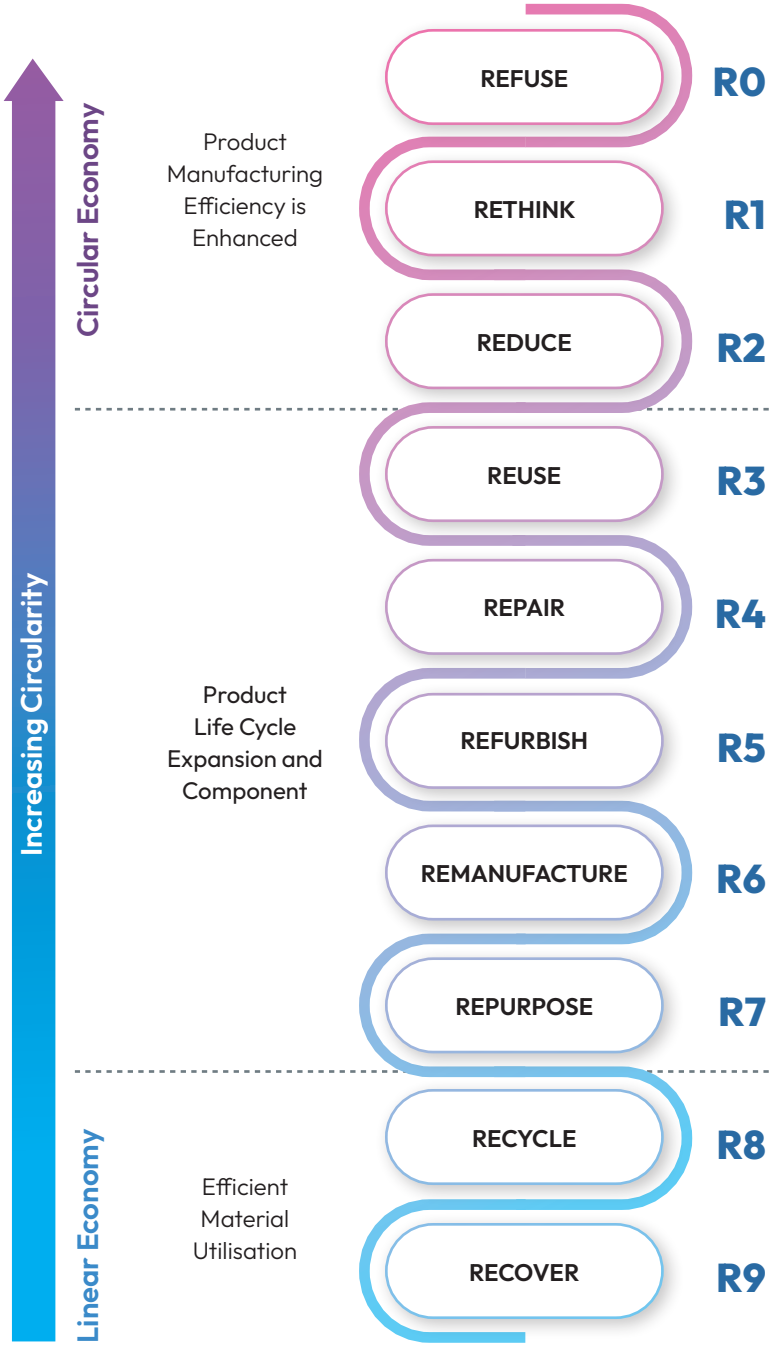


Figure 6.1.1 Circular Economy Strategies

Circular Economy Business Model

There are five key business models capable of transforming the linear to a circular economy value chain. These business models utilise the Circular Economy Strategy in running its operations. The diagram below illustrates the various circular economy business models that can be applied by the private sectors in business.

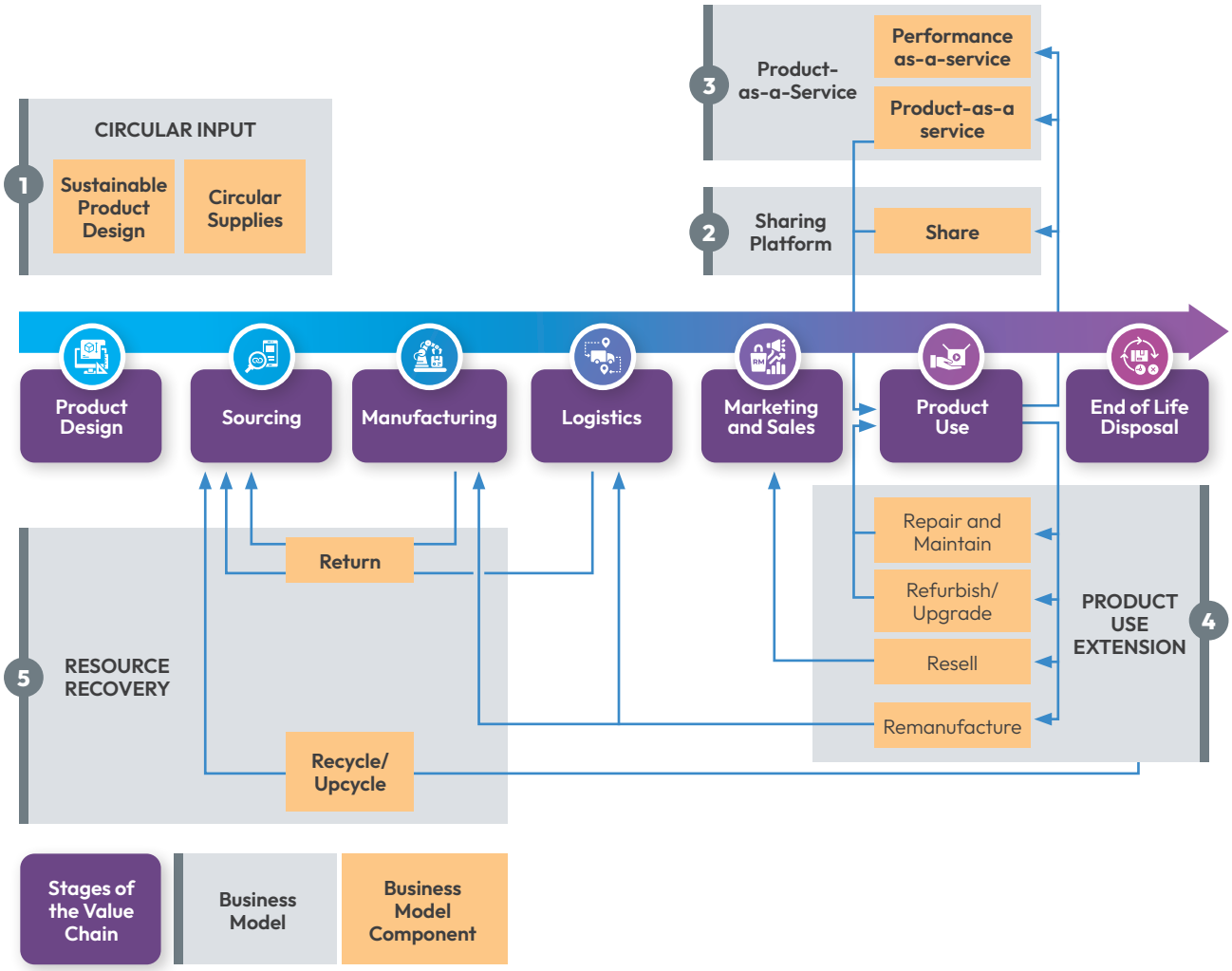


Figure 6.1.2 Circular Economy Business Models

6.2

ADOPTION OF CIRCULAR ECONOMY BUSINESS MODELS

The circular economy business models below outlines business methods that can be adopted by the private sector to operate businesses in order to maximise resource efficiency.

1. CIRCULAR INPUT

Sustainable Product Design: Designing durable products that can utilize one or more Circular Economy Strategies. The main categories for this model include the use of recycled materials as raw materials, renewable bio-based materials and renewable resources and energy.

Examples: Manufacturing furniture or products that are easy to maintain, renewable, or recyclable.

Circular Supply: This model integrates recyclable materials into the manufacturing process, such as renewable and bio-based materials, to ensure the use of environmentally friendly chemicals and energy. This approach can be applied across various industries, including automotive, manufacturing, textiles, construction, packaging, and food. Thus, this model opens up opportunities for industrial symbiosis, such as in WEP.

CHALLENGES AND BENEFITS

- Fees for access to feedstock.
- Lack of regulations and standards for secondary raw materials.
- Increase productivity by using waste efficiently.
- Reduce complexity and enhance product design flexibility to facilitate repair and maintenance.

2. SHARING PLATFORM

Sharing: Digital sharing platforms that maximise and extend resource use through leasing, renting, sharing and collaborative consumption. Four implementation methods of this model that can be applied are:

- **External:**
  Offering surplus resources to external sharing platforms.
- **Internal:**
  Offering surplus resources to internal sharing platform.
- **Intermediary Agent:**
  Acting as an intermediary to connect surplus resources suppliers with users who need them.
- **User-based:**
  Using sharing platform services based on needs without ownership.
- **Example:**
  Sharing platforms services for car, house, equipment and services.

CHALLENGES AND BENEFITS

- Simultaneous demand and supply.
- Change consumer perceptions of product ownership.
- Increase sales profit through maximum asset utilisation.
- Charge transaction/ processing fees for users who do not own physical products but facilitate demand and supply on the sharing platform.

3. PRODUCT-AS-A-SERVICE

Product-as-a-Service: Customers are given the option to use a product through a subscription fee.

Examples: Rental services in vehicle businesses, technology, clothing and machinery

Performance-as-a-Service: Offering specific performance or outcomes as a service. Example :

- **Agricultural Sector:**
  Guaranteeing crop yields for a certain area in the agricultural sector.
- **Cloud Server Services:**
  Charges based on speed, capacity, and operating duration.

CHALLENGES AND BENEFITS

- A service-based model requires a substantial initial investment capital.
- Encourage the efficient maximum use of products and the provision of high-quality service.

4. PRODUCT USE EXTENSION

Repair and Maintain: Extending the lifespan of a product before it reaches the end of its useful life.

Example: Home electronic appliances such as washing machines and refrigerators.

Refurbish/Upgrade: Enhancing the performance and efficiency of a product by replacing existing components with new ones.
Example: Refurbishing old furniture; upgrading components/software in computers/smartphones.

Reselling: Selling used products that have surpassed their original usage period or season to the second-hand market.
Example: Selling products on platforms like lelong.com.my.

Remanufacturing: Remanufacturing used products and performing industrial refurbishment or upgrades to restore them to their original functionality. The sellers recover the product and will processes it until returns to its original factory condition.

Example: Returning a smartphone to the original manufacturer to be remanufactured into a new product.

CHALLENGES AND BENEFITS

- The availability of internal capabilities within the remanufacturing industry, including the provision of labor costs required to support this model.
- The value of products and materials can be fully utilised throughout the product's lifecycle at optimal potential, while also enhancing resource efficiency by reducing premature material disposal, thereby saving resources and energy.

5. RESOURCE RECOVERY

Return: Reclaiming post-consumer products that have been discarded as new feedstock.

Recycle: Recovering post-consumer products to be recycled into secondary raw materials for product manufacturing.

Upcycle: The process of modifying or reusing materials in a creative and innovative way to produce new products that are of higher value or quality than the original product.

CHALLENGES AND BENEFITS

- Lack of information on materials used in products.
- Increase the potential for new collaborations among various industry players and innovative approaches in the use of circular feedstock.



PART 7

FUTURE SCENARIO

7.1 Projecting Future Trend: Waste Generation And Diversion
7.2 Potential Market Creation And Job Opportunities

7.1

PROJECTING FUTURE TREND: WASTE GENERATION AND DIVERSION

ENHANCING MATERIAL RECYCLABILITY BY DIVERTING SOLID WASTE FROM LANDFILLS

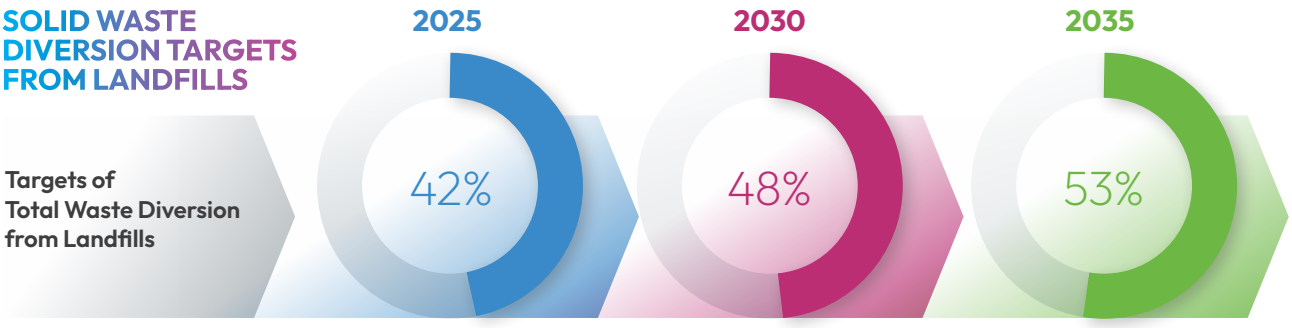
Estimating future solid waste generation

The increase in waste generation is influenced by population growth, rapid urbanisation and industrialisation, economic advancement and changes in people's lifestyles. The projected waste generation is based on population forecasts up to 2035, assuming that the daily waste generation per capita is 1.17 kg*.

Projecting future waste diversion scenario

To enhance material recyclability and reduce landfill usage, solid waste can be redirected to other Government-approved facilities such as MRF, WEP, recycling centers, and WtE facilities to extract residual value from the waste. The estimated waste diversion targets from landfills are set at 42 percent by 2025, 48 percent by 2030, and 53 percent by 2035. This estimate takes into account the planning of solid waste management treatment facilities that have been built, under construction, will be built and the recycling rate.

However, these target projections do not account for waste lost to the environment, composted waste or waste repurposed as animal feed. Additionally, the treatment capacity of waste facilities such as WtE can only treat about 85 percent of the solid waste received, with the remaining 15 percent disposed at sanitary landfills as bottom fly ash.



*Source: National Solid Waste Management Department: Survey on Solid Waste Composition, Characteristics and Existing Practice of Solid Waste Recycling in Malaysia 2012 (2013)

7.2

POTENTIAL MARKET CREATION AND JOB OPPORTUNITIES

THE IMPLEMENTATION OF THIS BLUEPRINT IS EXPECTED TO CONTRIBUTE TO THE MARKET CREATION AND JOB OPPORTUNITIES THAT WILL BOOST THE ECONOMY IN VARIOUS SECTORS.

Projected Market Creation

The potential for market creation hinges on increased recycling of waste through the landfill diversion efforts by recovering more recyclable waste to be reused as secondary raw materials in the production process. The recoverable materials are such as papers, plastics, textiles, metals, glass, UBC and rubbers.

The potential for direct market creation is achieved by separating recyclable waste and selling the separated waste to the manufacturers or producers to recycle, reuse or repurpose these materials. Meanwhile, the potential indirect market creation is achieved by recycling the waste to produce new secondary materials. The economic value derived from these recycling efforts is estimated to be at RM7.36 billion by 2050.

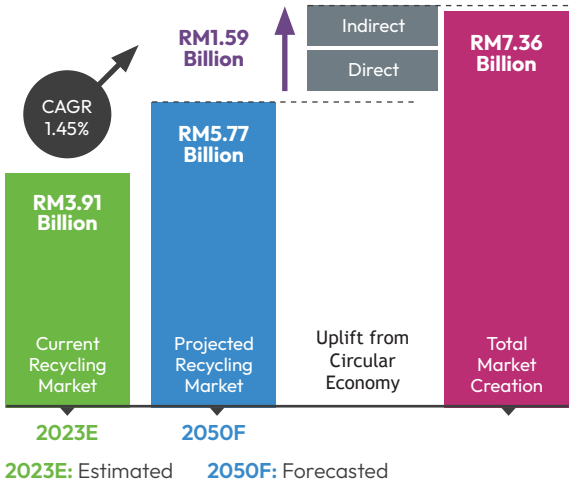


Figure 7.2.1 Overall Projected Market Creation

Type of Waste	Buying Price		Selling Price	
	Typical Price Observed (RM/Tonne)	Average Price (RM/Tonne)	Typical Price Observed (RM/Tonne)	Average Price (RM/Tonne)
Paper	RM200–300	RM233	RM300–750	RM439
Plastic	RM350–450	RM400	RM600–1000	RM800
Glass	RM50–80	RM65	RM150–200	RM180
UBC	RM300–400	RM350	RM500–800	RM650
Textile	RM40–60	RM50	RM70–90	RM85
Tires	RM1500–2000	RM1875	RM3000–4000	RM3750
Scrap Metal	RM350–500	RM425	RM600–700	RM650
Aluminium	RM2000–2500	RM2200	RM3500–4200	RM3850

Note: Price ranges as of July to October 2023

Important Notice:
The cost and revenue assumptions provided herein have been formulated using a restricted scope of research data and insights obtained from industry stakeholders. It is strongly advised to undertake a comprehensive technical and financial feasibility evaluation prior to making any investment decisions regarding the establishment and operation of the aforementioned facilities.

Source: Industry interview with KDEB (2023); Interview with Industry Players (2023); Melaka Recycling Centre

Table 7.2.1 Buying and Selling Price of Recyclable Waste

THIS BLUEPRINT IS EXPECTED TO CONTRIBUTE TO BROADER ECONOMIC GROWTH THROUGH MARKET CREATION, DRIVING NATIONAL ECONOMIC DEVELOPMENT AND GENERATING JOB OPPORTUNITIES ACROSS VARIOUS RELATED SECTORS.

Job Creation and Support

The fundamental elements driving the success of this circular economy transformation are a professional workforce and skilled support staff.

In 2021, the estimated number of workers in the manufacturing industry stood at 2.3 million. Meanwhile, in the waste management services sector, the formal workforce comprised only a small number totaling 24,986 individuals.

However, with the implementation of the circular economy involving the entire supply chain of materials and services, the workforce is expected to expand across both sectors. This includes activities such as product design, repair and maintenance, waste collection, recycling, waste treatment, material recovery and renewable energy sectors. Workforce capacity development under STEM (Science, Technology, Engineering, and Mathematics) streams will also be strengthened. Additionally, skills that directly support green and sustainability fields can be enhanced and broadened across all sectors, including marketing specialists and legal advisors who facilitate the implementation of the circular economy.

EXAMPLE OF JOBS IN VARIOUS SECTOR

Sustainability Product Design



Sustainability Practice



Product Designer

Waste Management



Technician



Logistic



Training

Technology, Innovation And Digitalisation



Software Engineer



Research & Development Analyst



Lab Assistant

PART 8

CIRCULAR ECONOMY INDICATORS

8.1 Primary Indicators
8.2 Secondary Indicators

8.1

PRIMARY INDICATORS

The implementation of the circular economy for solid waste will be measured based on KPIs to ensure the proposed initiatives meet with the vision outlined in this Blueprint. The primary areas and indicators for determining the achievement of these circular economy initiatives are as follows:

INDICATOR	UNIT	TARGET	Baseline (2022) / Target (2035)
WASTE MANAGEMENT			
1 **Waste generation per capita** = Total waste generated / Total population	KG		1.17 / 0.93
2 **National Recycling Rate** = Total waste recycled / Total waste generated	%		33.17 / 42.46
3 **Amount of waste processed by recyclers**	million MT/year		4.6 / 6.9
4 **Amount of waste diverted from landfill**	million MT/year		4.6 / 9.04

Note:
The baseline for waste generation per capita is using the latest available national figure from the 2012 Waste Composition Study.

Source:
Survey on Solid Waste Composition, Characteristics and Existing Practice of Solid Waste Recycling in Malaysia (2012); Malaysia Fourth Biennial Update Report (BUR4) to the UNFCCC; Jabatan Perangkaan Malaysia; MURNInets.

8.2

SECONDARY INDICATORS

Secondary metrics can be developed by industry stakeholders to measure performance and achievements of the circular economy initiatives in the medium to long term, including the following:

RESOURCE EFFICIENCY

- **Resource Productivity:** Measure the ratio of economic output to resource inputs. It indicates how efficiently resources are used.
- **Material Intensity:** Calculate the amount of material used per unit of production.

PRODUCT LIFE EXTENSION

- **Product Lifespan:** Track the average lifespan of products within a company's portfolio.
- **Repairability:** Measure how easily a product can be repaired or refurbished.
- **Remanufacturing Rate:** Calculate the percentage of products that are remanufactured rather than discarded.

CIRCULAR DESIGN AND INNOVATION

- **Circular Design Adoption:** Assess the integration of circular design principles into product development processes.
- **Number of Circular Product Launched:** Number of the new products designed with circularity in mind.
- **Material Innovation:** Track the use of innovative, sustainable materials in product manufacturing.

ECONOMIC AND BUSINESS

- **Circular Revenue:** Measure the percentage of revenue, generated form circular products or services
- **Cost Reduction:** Assess the cost savings achieved through circular practices, such as reductions in raw material procurement.
- **Market Share:** Monitor the growth of market share attributed by circular products.

SOCIAL IMPACT

- **Community Engagement:** Evaluate community involvement in circular economy initiatives.
- **Assess to Sustainable Products:** Evaluate the availability and affordability of sustainable products for consumers.

ENVIRONMENTAL IMPACT

- **Water and Energy Saving:** Measure the conservation of water and energy resources in product manufacturing.
- **Biodiversity Impact:** Evaluate the positive or negative impact on biodiversity through circular practices.

SUPPLY CHAIN TRANSPARENCY

- **Supply Chain Transparency:** Measure the degree of transparency in the supply chain, including the traceability of materials.
- **Ethical Sourcing:** Assess the adherence to ethical sourcing practices.

CONSUMER BEHAVIOUR

- **Consumer Participation:** Track consumer engagement in recycling and circular economy initiatives.
- **Awareness and Education:** Measure consumer awareness of circular economy principles and practices.

REGULATORY COMPLIANCE

- **Compliance with Circular Economy Regulations:** The level of adherence to relevant acts, regulations, and standards of the circular economy.



PART 9

IMPLEMENTATION PHASE

9.1 Timeline

9.1
TIMELINE

IMPLEMENTATION OF CIRCULAR ECONOMY BLUEPRINT OF SOLID WASTE

The implementation period for each proposed CEI is divided into short-term, medium-term and long-term phases. A review of KPI achievements and a realignment of strategies will be conducted after two years of implementation, based on the needs and current developments.

Circular Economy Initiative		Short 2025-2026	Medium 2025-2030	Long 2025-2035
CEI 1	Transform legislation related to solid waste management			Long-term
CEI 2	Implement EPR scheme for solid waste			Long-term
CEI 3	Establish the NCEA to drive circular economy initiatives across industry	Short-term		
CEI 4	Encourage developers to provide facilities to support the implementation of the circular economy			Long-term
CEI 5	Strengthen the licensing system for the solid waste management ecosystem			Long-term
CEI 6	Introduce packaging law		Medium-term	
CEI 7	Develop product design guidelines		Medium-term	
CEI 8	Introduce Zero-Waste-to-Landfill certificates		Medium-term	
CEI 9	Integrate circular economy principles into planning, design and construction of infrastructure and public facilities		Medium-term	
CEI 10	Create market for local recyclable materials		Medium-term	
CEI 11	Strengthen solid waste management data systems		Medium-term	
CEI 12	Create digital e-commerce platform for solid waste			Long-term
CEI 13	Develop WEP to promote industrial symbiosis			Long-term
CEI 14	Enhance the development of MRF and IWMF			Long-term
CEI 15	Upgrade existing landfills into sanitary landfills with integrated MRF			Long-term
CEI 16	Introduce economic instruments to encourage private sector involvement in circular economy activities		Medium-term	
CEI 17	Implement PAYT scheme for the CII and Construction sectors			Long-term
CEI 18	Encourage investment in R&D programs and facilities through collaboration between local and international industry players			Long-term
CEI 19	Empower human capital development programs related to the circular economy for the public and private sectors			Long-term
CEI 20	Empowering the industry-driven CEPA Program			Long-term

Short-term Medium-term Long-term

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- Alam Flora Environmental Solutions Sdn. Bhd.
- Ampang Jaya Municipal Council
- Association of Environmental Consultants and
- Companies of Malaysia (AECCOM)
- Attorney General of Malaysia (AGC)
- Bachok District Council Islamic Tourism City
- Baling City Council
- Batu Gajah City Council
- Bentong Municipal Council
- Bera City Council
- Besut City Council
- Biji-biji Initiative
- Bukit Tagar EnviroParks
- Bursa Malaysia
- Cameron Highlands City Council
- Cenviro Sdn. Bhd.
- Centre for Research, Advisory and Technology (CREATE)
- Centre of Environmental Sustainability and Water Security, Universiti Teknologi Malaysia
- Central Bank of Malaysia
- Construction Industry Development Board Malaysia (CIDB)
- Cypark Resources Berhad
- Dabong City Council
- Department of Agriculture Malaysia
- Department of Environment
- Department of National Unity and Integration
- Department of Skills Development
- Department of Standards Malaysia
- Department of Statistics Malaysia (DOSM)
- Dialog Eseco Sdn. Bhd.
- Dungun Municipal Council
- E-Idaman Sdn. Bhd.
- Farmers' Organisation Authority
- Federation of Malaysian Fashion Textile and Apparel
- Federation of Malaysian Manufacturers (FMM)
- Federal Agricultural Marketing Authority (FAMA)
- Fisheries Development Authority of Malaysia
- Futurise
- Government of Johor
- Government of Kedah
- Government of Kelantan
- Government of Melaka
- Government of Negeri Sembilan
- Government of Pahang
- Government of Penang
- Government of Perak
- Government of Perlis
- Government of Sabah
- Government of Sarawak
- Government of Selangor
- Government of Terengganu
- Gua Musang City Council
- Housing and Local Government Training Institute
- Hulu Terengganu City Council
- Human Resources Department
- Human Resources Development (HRD Corp)
- Janz Technologies Sdn. Bhd.
- Jempol Municipal Council
- Kampar City Council
- Kangar Municipal Council
- KDEB Waste Management Sdn. Bhd.
- Kemaman Municipal Council
- Kemubu Agricultural Development Authority
- Kerian City Council
- Kloth Malaysia Sdn. Bhd.
- Kota Bharu Islamic City Municipal Council
- Kota Kinabalu City Hall
- Kuala Kangsar Municipal Council
- Kuala Krai City Council
- Kuala Lumpur City Hall
- Kuala Selangor Municipal Council
- Kuantan City Council
- Kuching North City Hall
- Kulai Municipal Council
- Labuan Corporation
- Lazada Malaysia
- Life Line Clothing Malaysia Sdn. Bhd.
- Lipis City Council
- Machang City Council
- Majlis Pendidikan dan Latihan Teknikal dan Vokasional
- Negara
- Malaysian Agricultural Research and Development
- Institute (MARDI)
- Malaysian Association of Tyre Retreaders and Dealers
- Societies (MATRDS)
- Malaysian Automotive Tyre Manufacturers Industry
- Group (FMM MATMIG)
- Malaysian Design Council
- Malaysian Digital Economy Corporation (MDEC)
- Malaysian Green Technology and Climate Change
- Corporation (MGTC)
- Malaysian Industry-Government Group for High
- Technology (MiGHT)
- Malaysian Investment Development Authority (MIDA)
- Malaysian Iron and Steel Industry Federation (MISIF)
- Malaysian Non Ferrous Metals Association (MNMA)
- Malaysian Palm Oil Board (MPOB)
- Malaysian Petrochemicals Association (MPA)
- Malaysian Productivity Corporation (MPC)
- Malaysian Pulp and Paper Manufacturers' Association (MPPMA)
- Malaysian Recycling Alliance (MAREA)

- Malaysian Rubber Board
- Malaysian Rubber Glove Manufactures Association (MARGMA)
- Malaysian Rubber Products Manufacturers' Association (MRPMA)
- Malaysian Textile and Apparel Centre (MATAC)
- Malaysian Timber Council (MTC)
- Malaysia Competition Commission (MyCC)
- Malaysia Glass Association (MGA)
- Malaysia Paper Association (MaPA)
- Malaysia Plastic Manufacturers Association (MPMA)
- Malaysia Plastic Recyclers Association (MPRA)
- Malaysia Tyre Retreaders Association (TRMAM)
- Manjung Municipal Council
- Maran City Council
- Master Builder Association Malaysia (MBAM)
- Mentari Alam Eko (M) Sdn. Bhd.(MAEKO)
- Melaka Historic City Council
- Ministry of Agriculture and Food Security
- Ministry of Domestic Trade and Cost of Living
- Ministry of Economy
- Ministry of Education Malaysia
- Ministry of Finance Malaysia
- Ministry of Health Malaysia
- Ministry of Higher Education
- Ministry of Human Resources
- Ministry of Investment, Trade and Industry
- Ministry of Natural Resources and Environment
- Ministry of Plantation Industries and Commodities Malaysia
- Ministry of Science, Technology and Innovation
- Ministry of Works
- Muda Agricultural Development Authority
- National Institute of Public Administration
- National Solid Waste Management Department (JPSPN)
- National Technical and Vocational Education and Training
- Nestle Malaysia
- Pasir Mas City Council
- Pasir Putih City Council
- Pekan Municipal Council
- Penang Green Council
- Pengerang Municipal Council
- Perunding Utama Sdn. Bhd.
- PETRONAS
- Petaling Jaya City Council
- PGF Insulation Sdn. Bhd.
- Prime Minister's Department
- Project Acceleration and Coordination Unit (PACU)
- Promise Earth (M) Sdn. Bhd.
- Public Service Department
- Public Works Department (PWD)
- Putrajaya Corporation
- Raub City Council
- RECRON (Malaysia) Sdn. Bhd.
- Rompin City Council
- Royal Malaysian Customs Department
- Sabak Bernam City Council
- Sea Ltd (Malaysia)/Shopee MY
- Seberang Perai City Council
- Securities Commission (SC)
- Selangor Youth Community
- Sepang Municipal Council
- Setiu City Council
- Shah Alam City Council
- Solid Waste and Public Cleansing Corporation (SWCorp)
- Standard and Industrial Research Institute of Malaysia (SÍRIM)
- Subang Jaya City Council
- Tampin City Council
- Tanah Merah City Council
- Tanjong Malim City Council
- Tetra Pak Malaysia Sdn. Bhd.
- The Association of Tyre Importers Kuala Lumpur and Selangor
- The Lost Food Project
- Tioman Development Board
- Trienekens (Sarawak) Sdn. Bhd.
- Tumpat City Council
- TVON Textile Recycling Sdn. Bhd
- Tzu Chi Foundation
- Universiti Kebangsaan Malaysia
- Universiti Putra Malaysia (Faculty of Forestry)
- Waste Management Association of Malaysia (WMAM)
- World Wide Fund for Nature (WWF)
- KPKT-MOEJ Collaboration Project Coordinator

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