



# Recycle Center is the solution for waste management

**Objective:** To reduce municipal solid waste in urban areas.

UN-SDGs address:



**Team:** Sprinkle  
**Member:** Suy Chakriya & Reasey Serei Neath



**0.74 kg/day**



**489.5 millions  
kg/day**

**661.5 millions**

**489,510 tons/day**



**About 5.9  
million tons  
per day**

**7.9 billions**

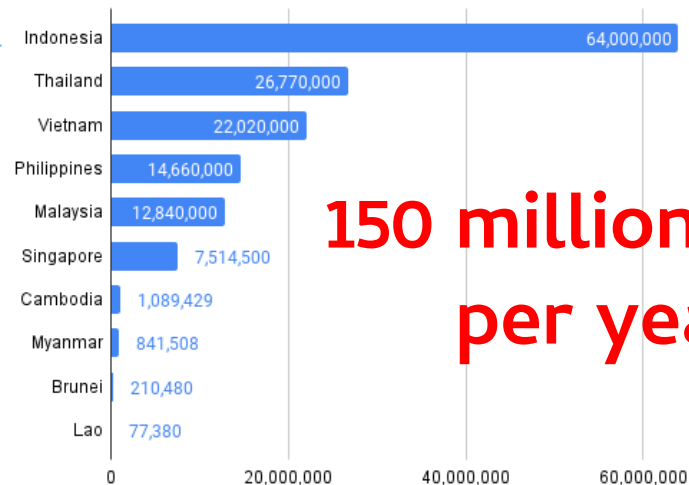
Source: UN environment waste management report (2016)

Source: ourworldindata.org

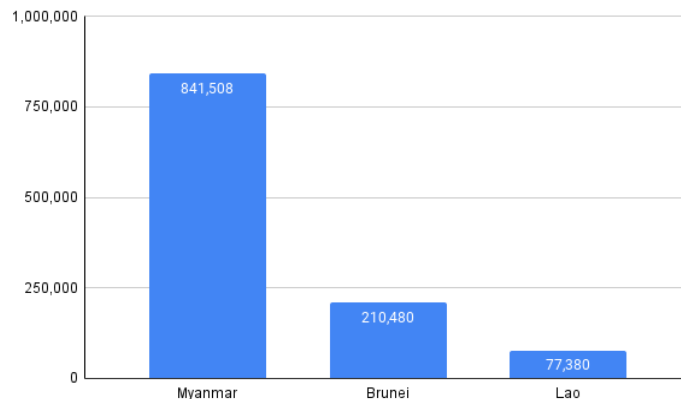


# The rapid growth of amount of MSW generated in ASEAN

Annually MSW generate in ASEAN countries in 2016

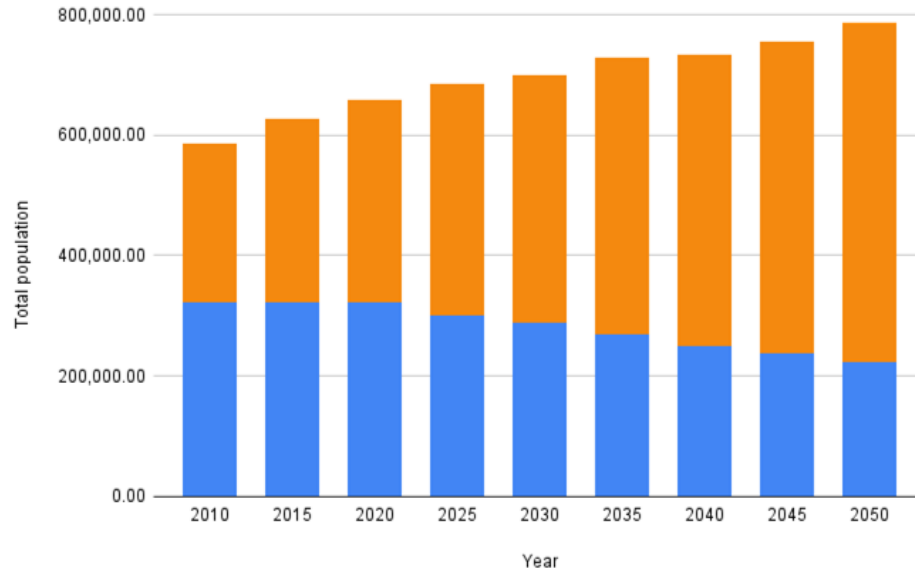


150 million tons  
per year



# The rapidly growth of ASEAN urbanization, which half of Total population

ASEAN population vs %Urban population (2010-2050)



692↑

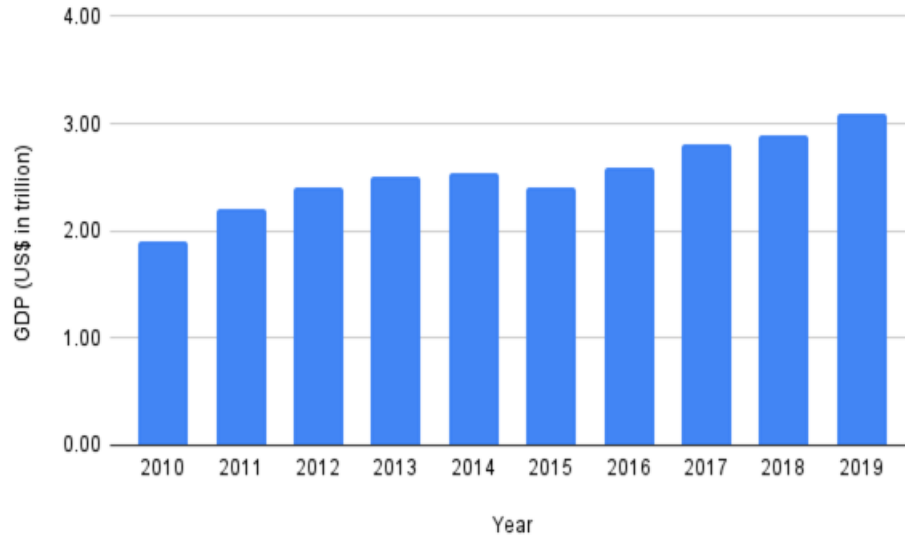
million people of the  
population of ASEAN is  
projected by 2025

70%

of ASEAN population  
is expected to live in  
urban area in 2050

# The rapid economic growth and Gross domestic product (GDP) of the ASEAN countries

ASEAN GDP (US\$ trillion) and GDP per capita (US\$), 2010-2019



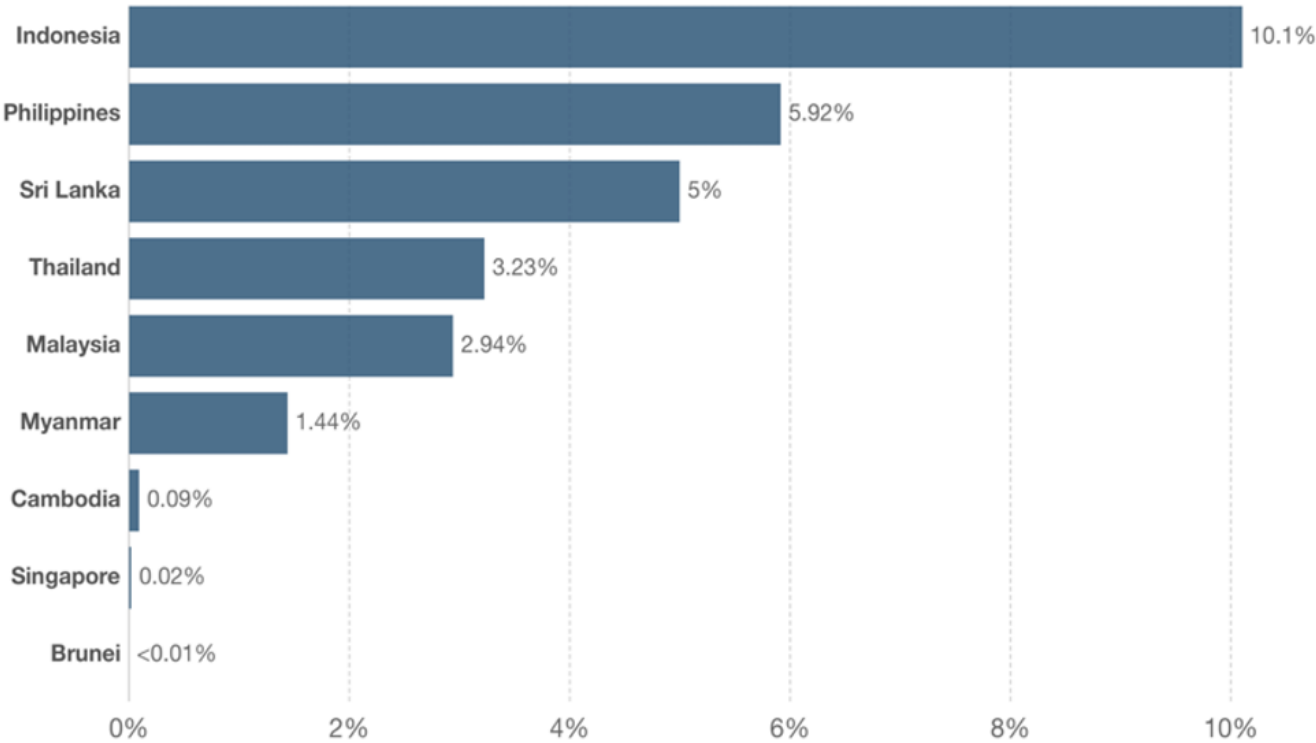
2x

Times increase of the ASEAN's GDP  
per capita from 2010 to 2019

Source: The World Bank., GDP per capita (2019)

**Analysis:** We can conclude that during these 2 decade ASEAN GDP grows in positive direction and expect to increase

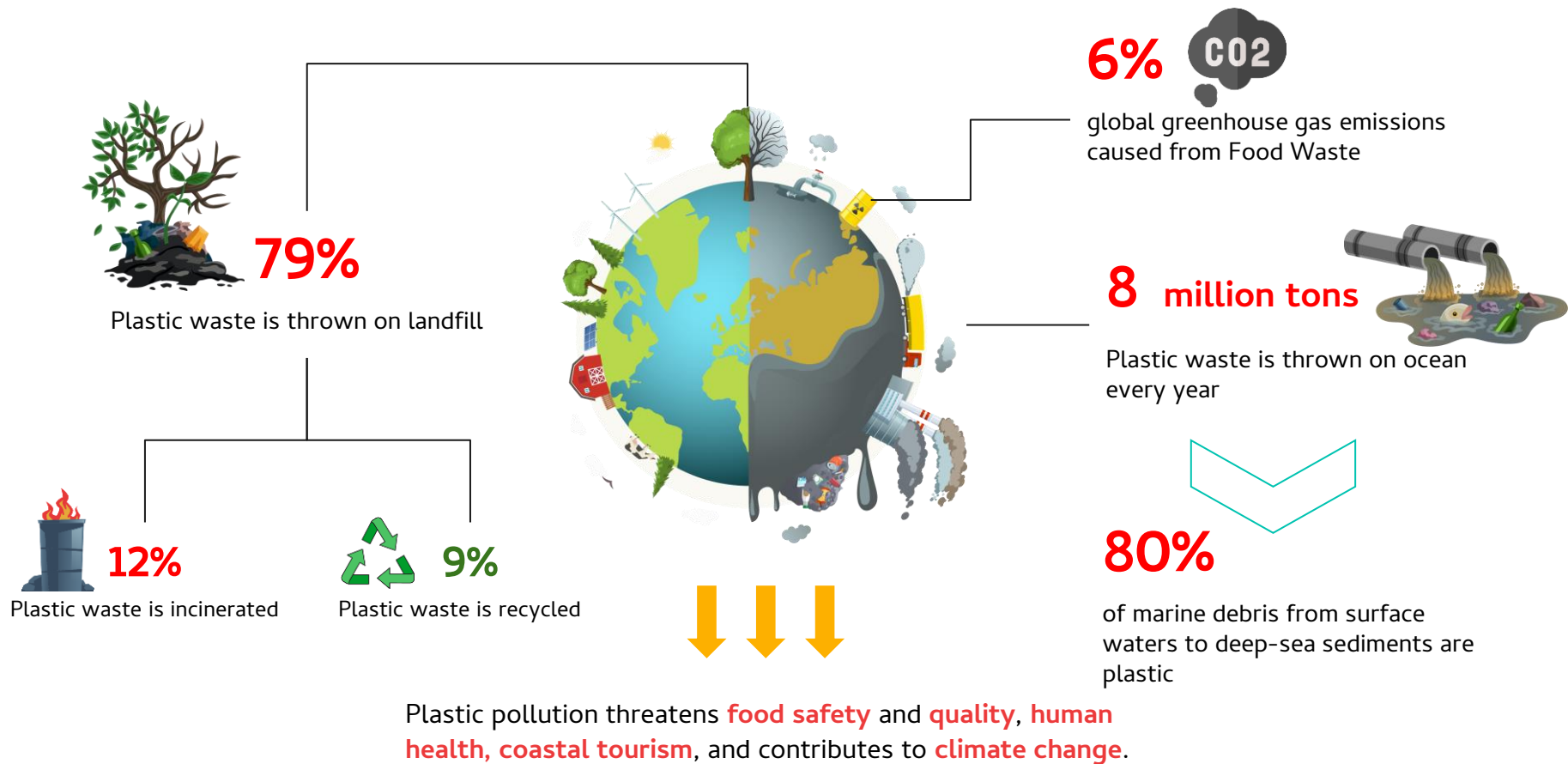
# Mismanmanaged Plastic Waste Countries in ASEAN in 2015



1.4-3.54 million

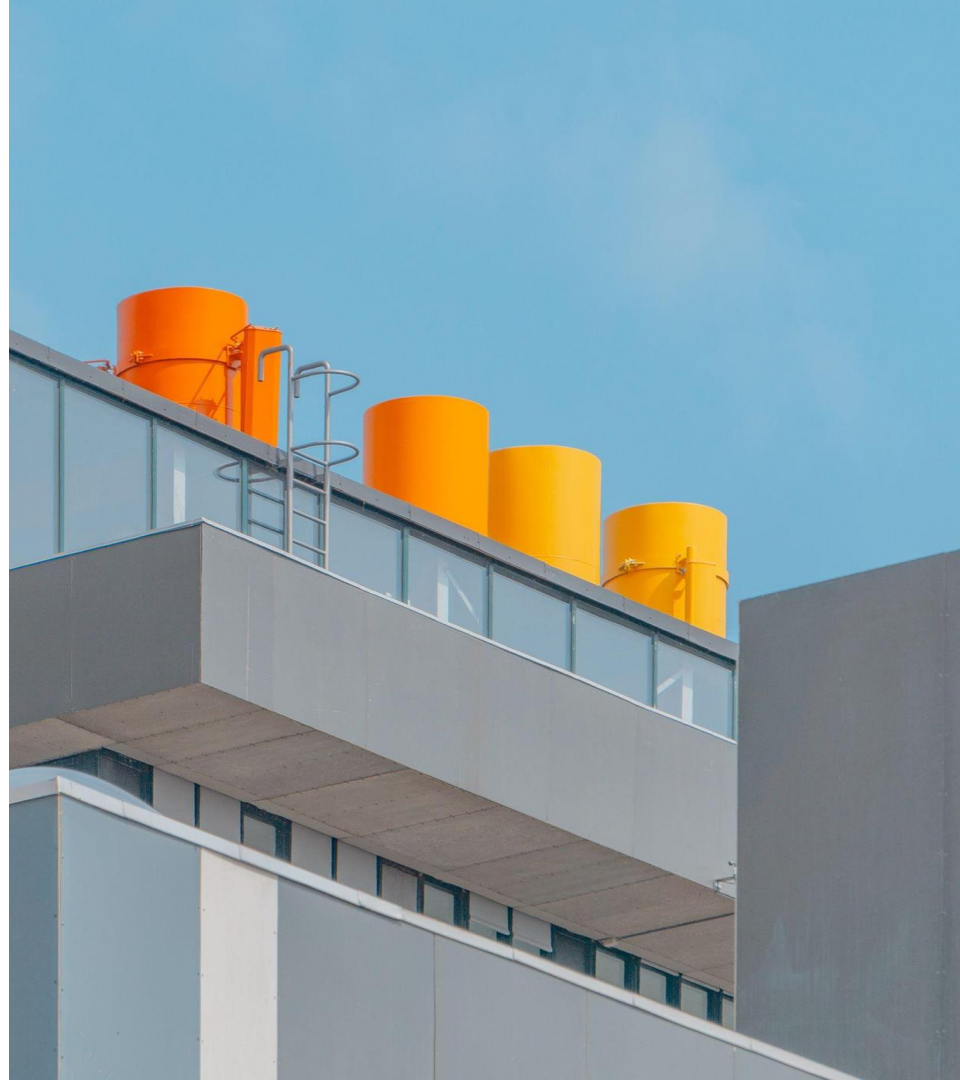
Metric tonnes of waste  
ASEAN accounted for out  
of 8-12 million MT globally  
per year.

Source: Jombeck et al. (2015)





**What is  
E.cynergy?**



# Overview Process

Household/Public  
place Collecting



Smart Bin  
Earn profit

Centre transform  
Waste to Resource



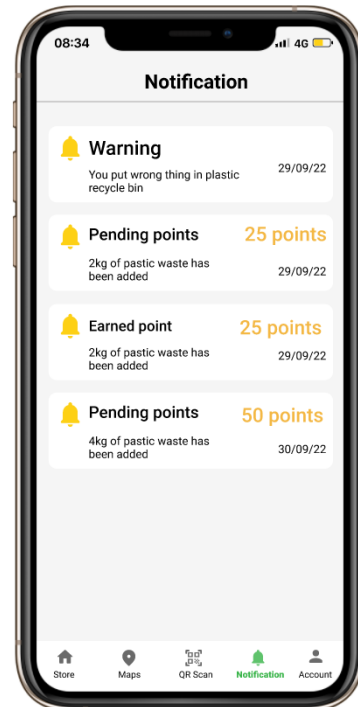
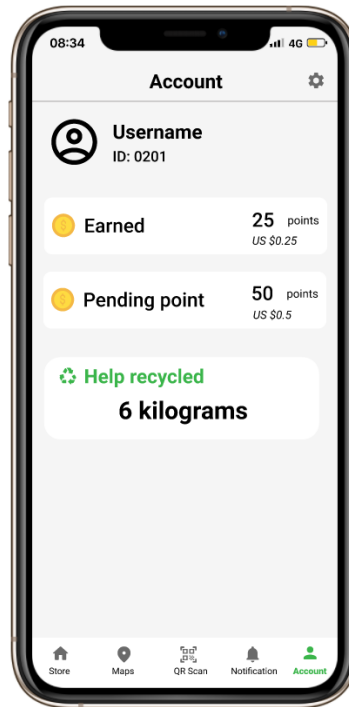
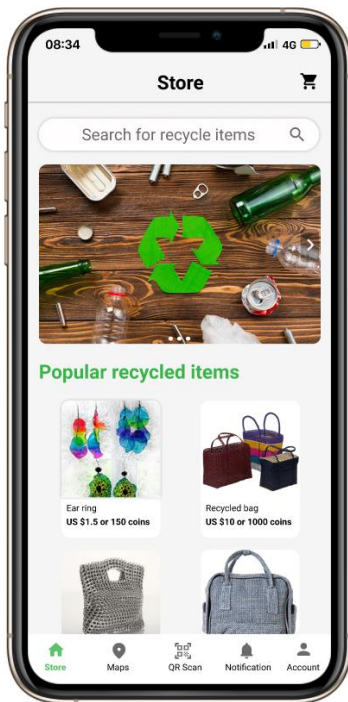
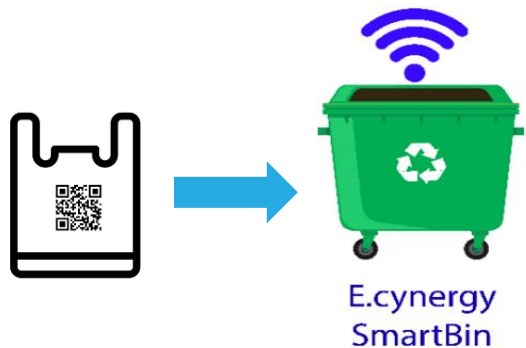
Recycle  
centre(E.cynergy)

E-commerce  
Industrial

Community



# How does E.cynergy collect waste from Households/Public places?



# E-commerce Website

**Recycle Market**



Search for recycle items



Login



Cart 0

Explore with amazing Recycled Products



Accessories



Clothes



Home decoration

**Buying Options:**

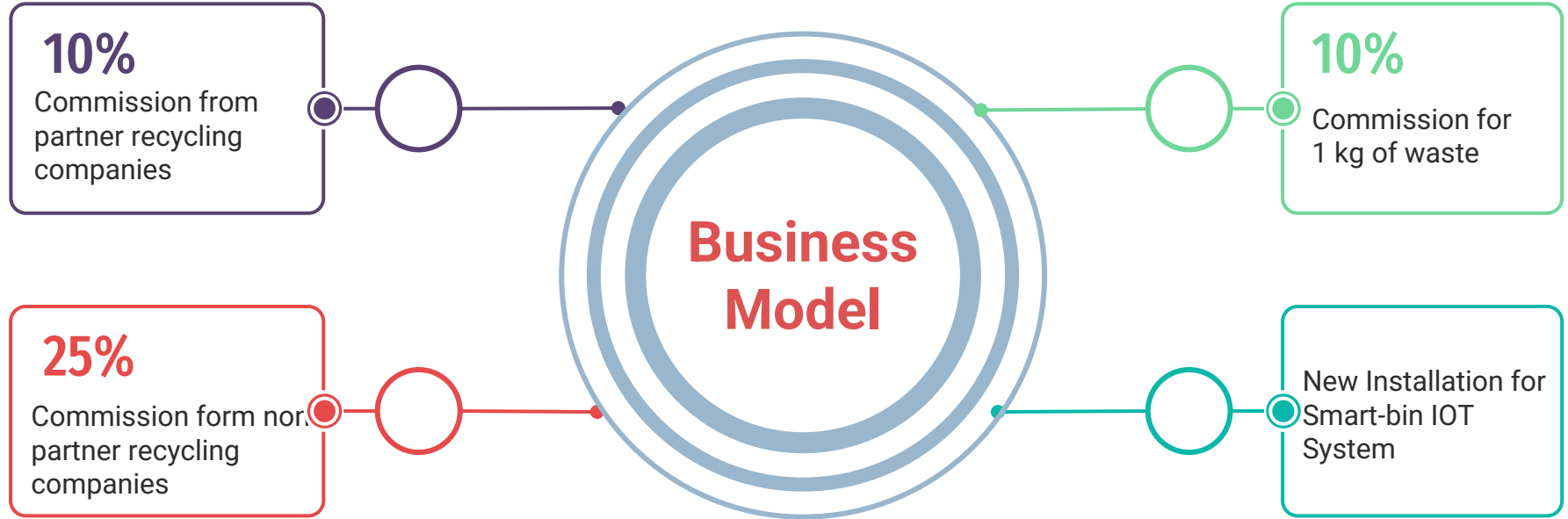
Use points

Use e-money

**Popular recycled items**



# Business Strategy





**How people get  
benefit from  
E.cynergy?**

# E.cynergy impact



**Users**



**Waste Management  
companies**



**Recycling Center**



# Cooperation



Government



NGOs



SAP Analytics



ASEAN



# Why we believe it works?



## NSW recycling success story

**4.86 billion**

**= 73%** containers

has been collection

**86%** of NSW

adults support  
Return and Earn

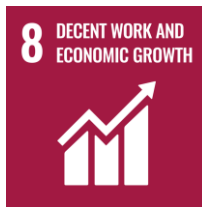
**59%** of NSW

adults have used  
the scheme.

# ASEAN E.cynergy recycle centre

Address UN-SDG

Aligned with



**Section A.1-ASCC**

Engaged Stakeholders in ASEAN processes

**Section A.2-ASCC**

Empowered People and Strengthened Institutions

**Section B.2-AEC**  
Consumer Protection

**Section C.2-AEC**

ICT is recognised as a key driver in ASEAN's economic and social transformation

**Section C.1-ASCC**

Conservation and Sustainable Management of Biodiversity and Natural Resources

**Section C.2-ASCC**

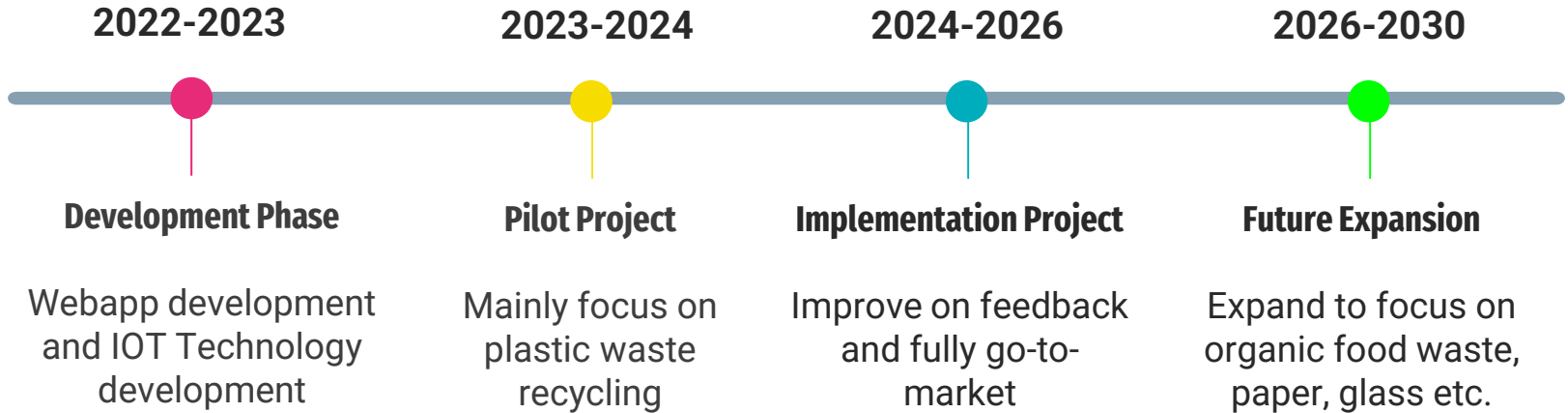
Environmentally Sustainable Cities

**Section B.8-AEC**  
Sustainable Economic Development

**Section C.3-AEC**

E-Commerce, these potential contributions support regional economic integration in ASEAN

# Timeline



# E.cynergy

*Transform Waste to Hidden Treasure*





# Goal 11: SUSTAINABLE CITIES AND COMMUNITIES



## Target 11.3

By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries



## Target 11.6

By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management



## Goal 8: DECENT WORK AND ECONOMIC GROWTH



### Target 8.2

Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors



### Target 8.3

Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services



# Reference



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UN Waste management in asean countries (2016)

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ASEAN+6 Population Forecast: Global Share, Aging and Dependency Ratio

[https://www.miti.gov.my/miti/resources/fileupload/ASEAN\\_Population%20Forecast.pdf](https://www.miti.gov.my/miti/resources/fileupload/ASEAN_Population%20Forecast.pdf)

UN Department of Economic and Social Affairs, World Urbanization prospects 2018

<https://population.un.org/wup/Download/>

Energy interconnection in ASEAN for sustainable and resilient societies

[https://www.unescap.org/sites/default/d8files/knowledge-products/Final\\_publication\\_PEI\\_ASEAN\\_WEB%20%282%29.pdf](https://www.unescap.org/sites/default/d8files/knowledge-products/Final_publication_PEI_ASEAN_WEB%20%282%29.pdf)

[https://ourworldindata.org/food-waste-emissions?fbclid=IwAR1H7r7y\\_2dV\\_ciTsI0GVbI\\_Pw4YfLLau91mlh4PLpv4c\\_7AoiFLbQFyAjo](https://ourworldindata.org/food-waste-emissions?fbclid=IwAR1H7r7y_2dV_ciTsI0GVbI_Pw4YfLLau91mlh4PLpv4c_7AoiFLbQFyAjo)

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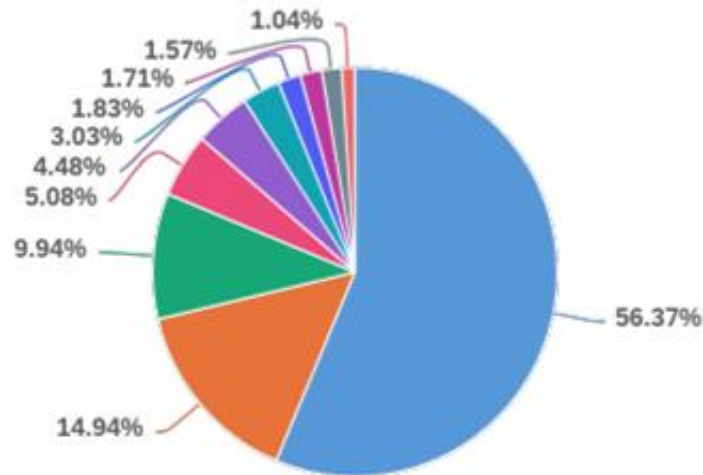


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# MSW composition in ASEAN countries in 2016



56.37%

Food//Organic waste of % MSW  
Composition of ASEAN in 2016

14.94%

Plastic waste of % MSW  
Composition of ASEAN in 2016

9.94%

Paper of % MSW Composition of  
ASEAN in 2016



### Waste management awareness

- Workshop to promote waste management
- Implementation small project to community
- Spreading awareness of waste issue
- Educate and outreach to community



### Recycle Waste to resource

- Distribute smart-bin to community
- Collect necessary waste for recycling
- Research on new method to transfer non-recycle waste to resource



### Investment

- Government should find investor for this project.
- Government encourage investors to invest in this project.



### Adopt new technologies

- Implement new technology
- Teach related people to adopt to new technology such as smart-bin

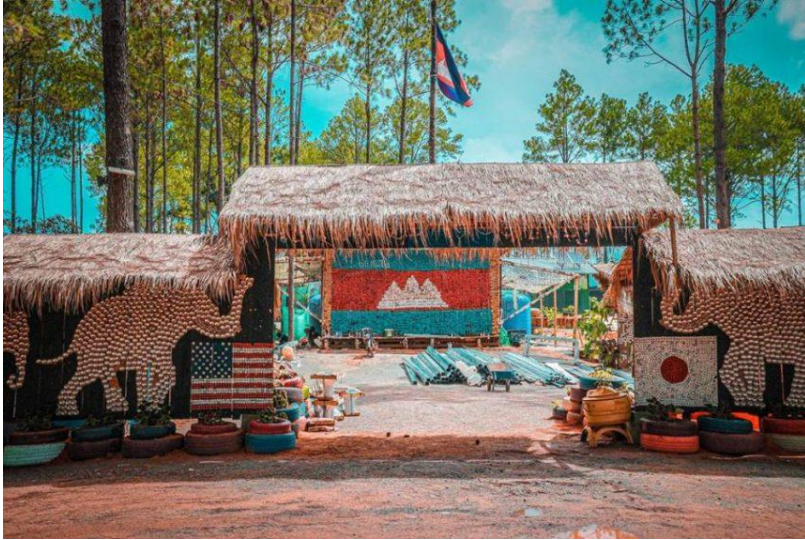


### Collaboration

- Recycle centre should collaborate with Government, NGO or related organizations
- Recycle centre should collaborate with each other in ASEAN, so that the final product can be traded throughout ASEAN.

## Implementation Strategies

# Case Study



## Coconut School at Kirirom

Student need to bring plastics recyclable as fee for studying



កែច្នៃសំរាមប្លាស្ទិកទៅជាឥដ្ឋអេកូ  
Convert plastic waste to Eco-bricks



## Eco-bricks Start-up

Company buys plastic waste to convert to Eco-bricks

# Transforming plastic to Accessories by 3D printing

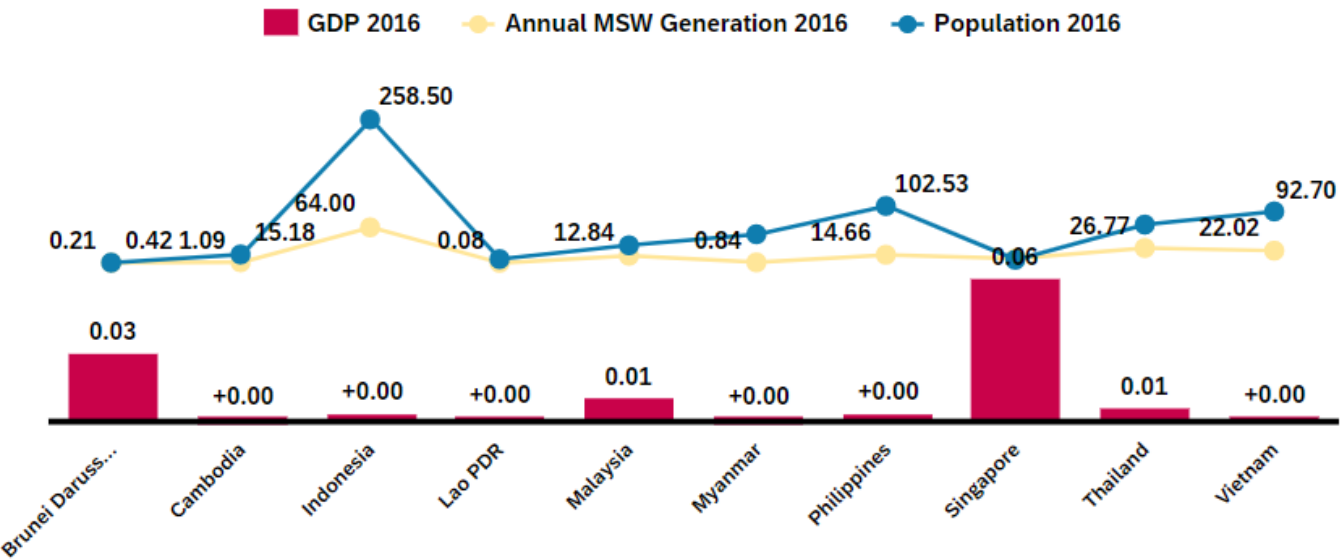


Source: RepRapable Recyclebot(2018)



# Comparison between GDP, Annual MSW Generation and Population in 2016

in Million | 

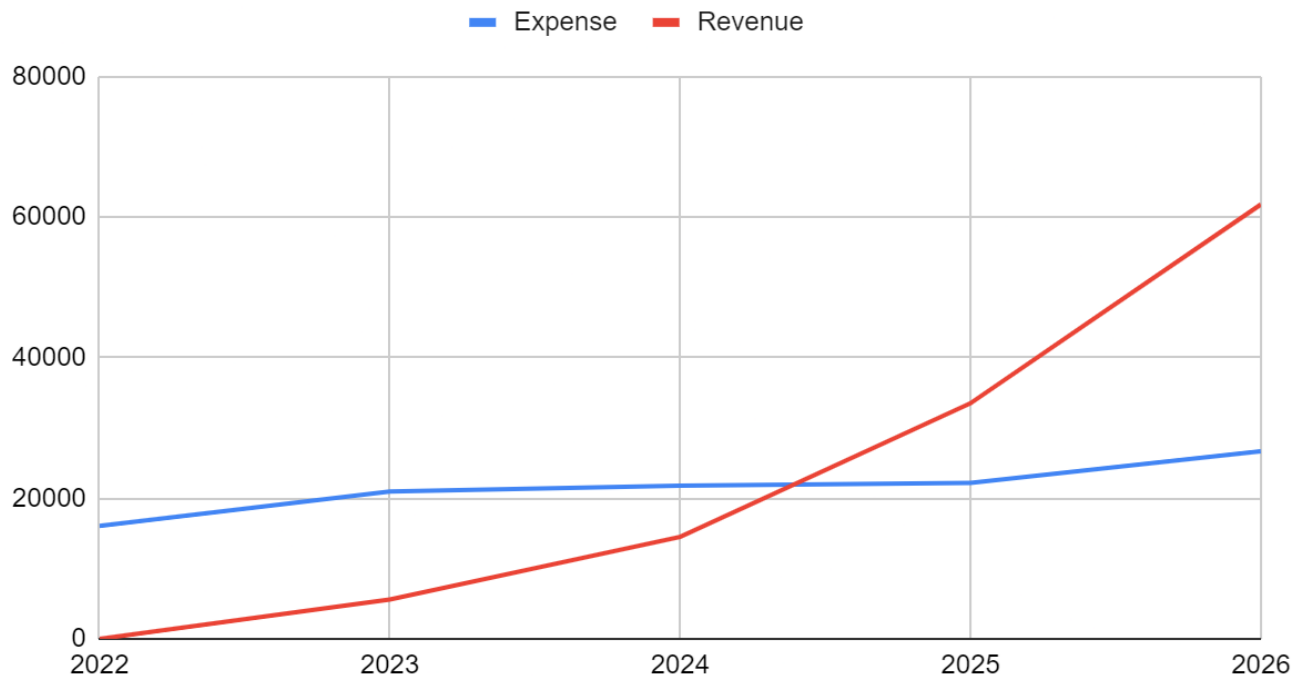


Source: UN environment waste management report(2016)

**Analysis:** If the a country has high population and GDP, that country also produce more MSW. Therefore, MSW Generation is according to the total population and GDP in each country.

# Financial Projections in 5 years

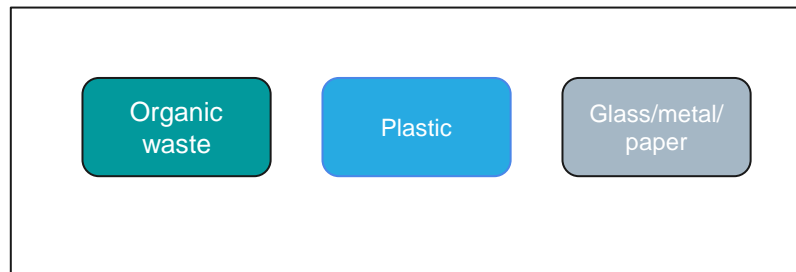
## Expense and Revenue



E.cynergy					
	2022	2023	2024	2025	2026
Expense					
Office Supply	200	200	250	250	300
Mobile application development	500	600	700	800	1000
Website development	500	600	700	800	1000
Smart-bin Development	1000	1500	2000	2200	2500
Fix cost					
Rent	3000	3000	3000	3000	3000
Salary	9600	13200	13200	13200	16800
Utility Expense	900	900	950	950	1000
Appstore	100	100	100	100	100
Play Store	25	0	0		0
Variable Cost					
Marketing	0	600	600	600	700
Tax	250	270	270	270	300
TOTAL	16075	20970	21770	22170	26700

E.cynergy					
	2022	2023	2024	2025	2026
Revenue stream					
Commission with partnership		10%	10%	10%	10%
Commission without partnership		25%	25%	25%	25%
Maintenance		2400	2400	2400	2400
Waste management companies		2	5	10	20
Users from partner companies	0	500	1500	5000	7000
Users from non-partner companies	0	300	1000	4500	6800
Maintenance Cost of each waste management companies	0	4800	12000	24000	48000
TOTAL	0	5600	14500	33500	61800
Year Profit/Loss	-16075	-15370	-7270	11330	35100

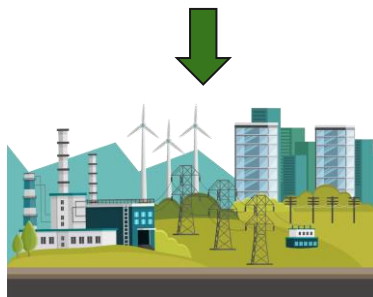




Household



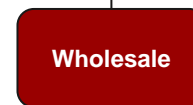
Industries



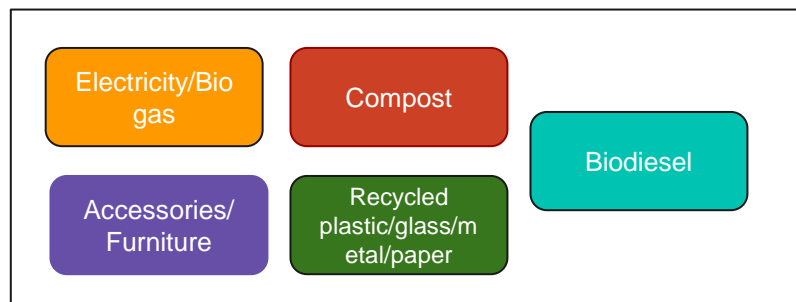
Recycle Centre



Retail



Wholesale



Community