

21<sup>st</sup> Kawasaki International Eco-Business Forum  
17<sup>th</sup> Kawasaki Eco- Tech Fair

# RACE TO NET ZERO

Role of Sustainability in Reducing  
Climate Change



JOSEPHINE TAN  
PENANG GREEN COUNCIL



Penang  
Green  
Council



# The Team



- Established in 2011 by Penang State Government
- A social profit, government-linked company
- Nurtures, facilitates and co-ordinate environmental causes in Penang





# VISION

PGC as a central hub in shaping a  
green and sustainable future of  
Penang

# MISSION

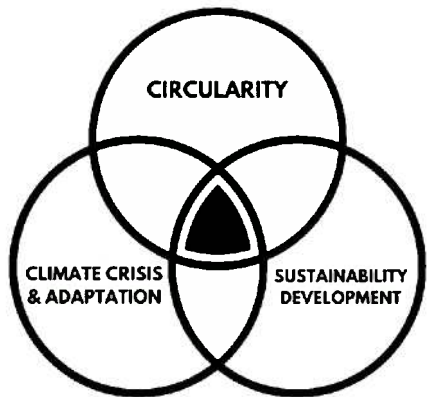
To enable, empower and  
advocate stakeholders to  
practice sustainable  
development that protects the  
environment and quality of life



# OBJECTIVES

- To serve as hub (point of references) for ingenuity and novel ideas in Penang tackling issues that are a concern to the environment
- To focus on research, policy & academic work (development, climate change, resilience, sustainability)
- To develop tools, ideas & opportunities in harnessing green technology & engagement of people on environment awareness

# THEME



## Environmental Education & Outreach

- Virtual Classroom for Environmental Education
- Zero Waste Network
- Learning & Leadership Empowerment
- Awards & Incentives

## Communication & Marketing

- Penang Green Citizen
- Penang Green Hub
- Penang Green Carnival
- Penang Green Idol
- Penang International Green Exhibition & Conference

## Think Tank & Project Development

- Penang Green Agenda
- Penang Green Industry Programme
- Renewable Energy & Energy Efficiency
- SEA Circular Project
- Circular Cities Project
- Trash Free Penang
- Films & Flexible Packaging FS
- Carbon Inventory Framework
- Climate Modelling & GHG Training

## Public Survey

- Human Behaviour Towards WSAS & 3R Practices
- Public Perception Towards Climate Change
- No Free Plastic Bags Everyday
- No Single Use Plastics Items at Food Eateries

## Guiding Policies

- Penang2030
- UN Sustainable Development Goals
- Penang Green Agenda
- Circular Economy Roadmap



# Presentation Outline

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**01**  
Penang's Key  
Initiatives  
National &  
State Targets

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**02**  
Waste  
Reduction

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**03**  
Renewable  
Energy &  
Energy  
Efficiency

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**04**  
Water Issues

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**05**  
Penang  
Green  
Industry

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# PENANG AT A GLANCE

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1,048 km<sup>2</sup>

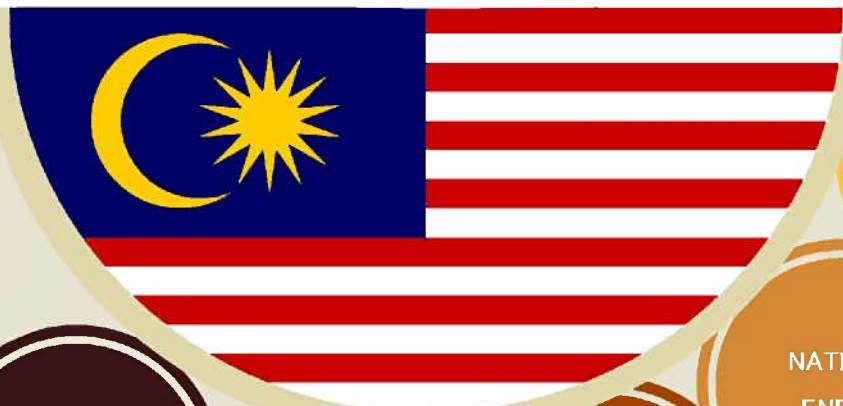


1.8 million (2023)



284 litres /day / capita (2023)





NATIONAL ENERGY TRANSITION PLAN 2023

NATIONAL ENERGY POLICY

Carbon neutrality by 2050

40% RE by 2035;  
70% RE by 2050

45% GHG Intensity Reduction by 2030

25% & 16% annual average water & electricity intensity reduction in industry since 2019

Green Manufacturing Hub by 2030

Construction of LRT

PENANG GREEN INDUSTRY PROGRAMME

PENANG GREEN AGENDA 2030

11% reduction in Industry waste in 2022

More than 4x increase in RE capacity since 2019

PENANG TRANSPORT MASTER PLAN

Highest recycling rate in Malaysia – 53%

PENANG2030 VISION



12TH M' SIA 5-YEAR PLAN

LOW CARBON MOBILITY BLUEPRINT

RE ROADMAP 2021

40% Recycling Rate by 2025

80% EV share of fleet by 2050

# Waste Reduction



2009

No Free Plastic Bag Day  
Every Monday

2011

Everyday is No Free  
Plastic Bag Day

2012

Ban on polystyrene food  
containers  
(Educational phase  
started from 2009)

2016

Waste Segregation at  
Source Policy

2018

- 'No Single Use Plastic' campaign
- Launching of Penang 2030

2019

- 'No Plastic Straw' campaign
- 'No Plastic Bag Day Every Monday'

2020

- No Plastic Bag Day Every Monday - Wednesday

2021

- No Plastic Bag Day Every Monday - Wednesday and RM1 charge on Thursday - Sunday



# Waste Reduction

## Project Highlights:



### Sea Circular Project

Initiative of the United Nations Environment Programme (UNEP) & the Coordinating Body on the Seas of East Asia (COBSEA), supported by the Government of Sweden via the Swedish International Development Cooperation Agency (SIDA).

PGC and Seberang Perai City Council conducted a pilot project - Waste Segregation at Source: Solving Plastic Pollution in Penang for long-term community behavioural change



### Trash-free Penang

Educate community on the importance of waste segregation at source and effective way of reducing waste and pollution.

PGC collaborate with Riiicycle by using Riiicycle apps which allows the community to earn Riiipoints and redeeming the points for Touch and Go cash vouchers or vouchers from Lotus.

The recycling station is fully operated by the community leader.

# Penang Energy Framework



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## Objectives

- Increase RE & EE uptake in Penang through an effective & implementable framework
- Include necessary regulation/by-laws, incentive & assistance package along with industry/sectoral policy.

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## Background

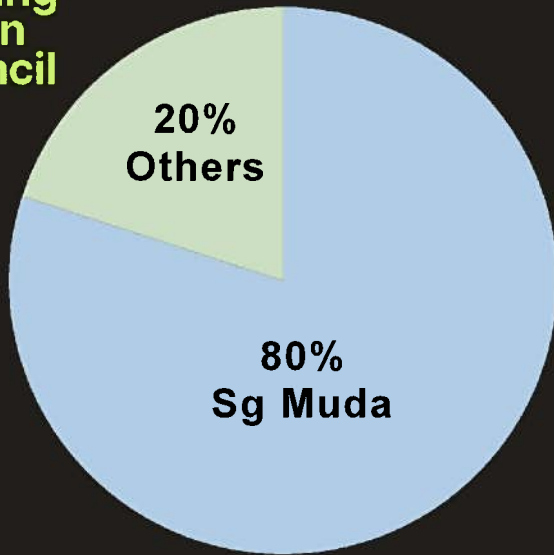
- The Taskforce formed in June 2020 discussed the scope of the work, challenges and opportunities, as well as recommendations to advance RE and EE in Penang.
- The findings of the report are based on Taskforce meetings and direct interviews with 17 government and non-governmental stakeholders including business associations and professional bodies.



## Water Issues



- Penang is considered as “water-stressed” state despite its high consumption of water
  - Penang is also highly reliance on the neighboring state such as Kedah, currently main intake of water from Sungai Muda.
  - In the future, Penang is also looing into working with Perak, in order to supply its raw water.
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PBAPP abstracts more than 80% of the raw water that Penang needs daily from **Sungai Muda, Ulu Muda.**

There is **NO** other water catchment area that can replace Ulu Muda for all 3 states. Ulu Muda is an irreplaceable and indispensable socioeconomic resource.



Sungai Juru



Sungai Prai



Sungai Pinang



Sungai Nipah

According to readings from the Water Quality Index between 2016 and 2022, **SIX (6)** of the Penang state's seven main rivers are classified as **Class III**.



# Challenges

## Pollution



Several main rivers in Penang is highly polluted and unsuitable as water source

## Water Source



Highly dependent on neighboring state as main resources for raw water & lack of alternative water source

## Rapid Urbanization



Rapid increase in population and industrial demand

## High Consumption



Highest consumption per capita nationwide





# Social and Economic Impacts of the Water Crisis



## Health Issues

- Water borne disease due to limited clean water supply
- Malnutrition
- Mortality



## Social Inequality

- Conflict and displacement due to social tension both within communities and countries.
- Heavily impact the vulnerable groups

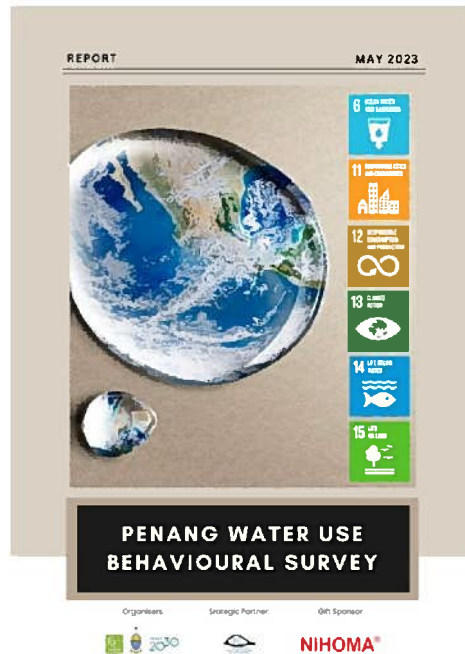


## Economic Impact

- Agricultural activities and food security
- Loss of productivity
- Economic migration

# Public Perception

- PGC conducted a survey to assess public perception and behavior in term of treated water in Penang.
- The report is published in PGC website and an infographic was also provided for easier understanding.
- The finding provide better insight for policy maker in making informed decision for the future.



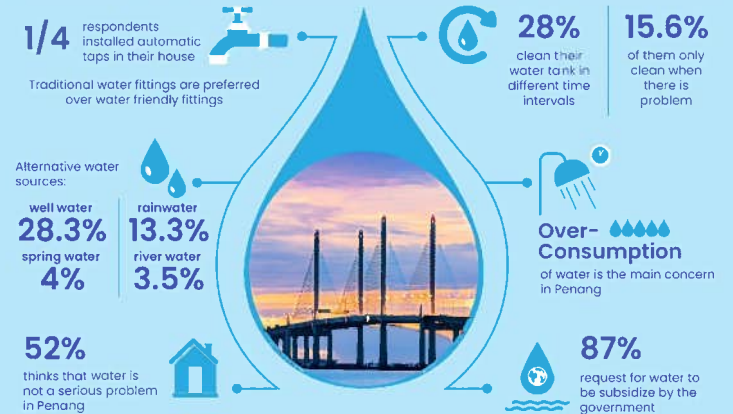
## PENANG WATER USE BEHAVIOURAL SURVEY 2022

Organiser: Strategic Partner:   
 Gift Sponsor: **NIHOMA**

### WHAT WE AIM FOR

- 1 Behavioural usage of treated water in their daily life.
- 2 Study the usage of water & identify methods to reduce consumption.
- 3 Engage Penangites to improve water usage and create a water resilient society.
- 4 Providing information for state government and agencies.

### WHAT PEOPLE SAY



### FUTURE RECOMMENDATIONS

- Tax incentive to reduce price of automatic and water saving devices.
- Encourage dual-flush system where only 2 and 6 litres are dispensed for each flush depending on the needs.
- Increase awareness on 'water saving society' concept.
- Water tariff: Public suggest a 50:50 cost sharing between government and consumers as a fair deal.

SDG 6 PENANG

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# Mitigation and Adaptation Efforts



## Conservation and awareness

Community engagement and outreach are conducted to disseminate the knowledge and create awareness on water-saving.

## Tariff Adjustment

Penang water tariff was adjusted recently in order to support the development of water supply in Penang.

## Technology and Innovation

Exploration of new opportunity to solve the issue including the JICA partnership program with Kawasaki City.

## Alternative Water Source

Identification of new water source to support the demand such as utilization of surface runoff and stormwater along with reviving polluted rivers.

# Collaboration between Penang State & Kawasaki City



Establishment of Circular Society in Water Resource Management Sector in Penang, Malaysia





# Penang Green Industry

Circular Economy &  
Industry Programme



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## Objectives

- Reduce environmental impact of production & consumption within E&E sector
- Improve productivity, environmental performance & competitiveness
- Transform Penang into Green Industrial Hub

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## Outcomes

- Tangible reduction in energy, waste & water footprint.
- Collaboration between government & private sector
- Effective partnership between SMEs & MNCs in promoting greener production
- Increase uptake in ESG & CE among those involved.



# Penang Green Industry

Project Highlight:



Roundtable on ESG and Sustainability in the Supply Chain



ESG Workshop for GLCs



Chengdu-Penang business matchmaking event




Penang Green Finance Conference 2022



Penang ESG Conference & Exhibition 2023





No man is an island. We have  
a role to play in ensuring we  
do not pass on a world beyond  
repair to our children.

~ Josephine Tan ~



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