SMART ENVIRONMENT INITIATIVES- Seberang Perai Achievement In Low Carbon City & Smart City

27 September 2022

Seberang Perai, An Aspiring City of Tomorrow

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SEBERANG PERAI

EXPERIENCE ON CLIMATE CHANGE

SEBERANG PERAI

EXPERIENCE ON CLIMATE CHANGE

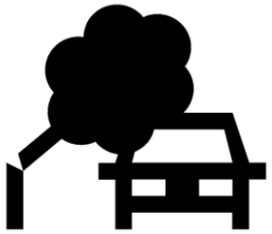
TYPHOON DOKSURI (15th SEPT 2017)

365 houses affected

12 cars trapped

5,328 people affected

15 houses affected



2cars affected

623 people relocated

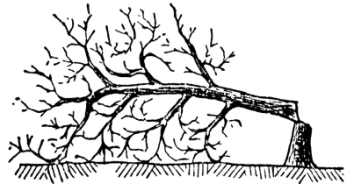
0 Person Died

5 days for recovery

3,856 tonnes Solid Waste collected

245mm rainfall within 5 consecutive hours

2,546 Warriors



76 trees uprooted

RM1.6M Economic Loss

SEBERANG PERAI

EXPERIENCE ON CLIMATE CHANGE

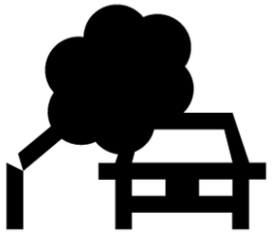
TYPHOON DAMREY (4th NOV 2017)

3,256 houses affected

162 cars trapped

171,428 people affected

358 houses affected



15 cars affected

9,636 people relocated

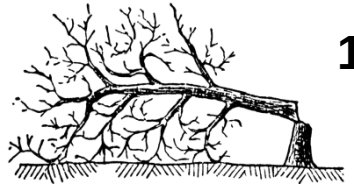
1 Person Died

12 days for recovery

15,942 tonnes Solid Waste collected

362mm rainfall within 6 consecutive hours

11,323 Warriors



1,194 trees uprooted

RM11.3M Economic Loss

SEBERANG PERAI

EXPERIENCE ON CLIMATE CHANGE

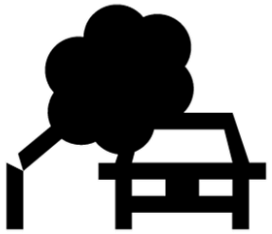
TYPHOON LEKIMA (9th AUG 2019)

0 houses affected

0 cars trapped

3,562 people affected

126 houses affected



15 cars affected

40 people relocated

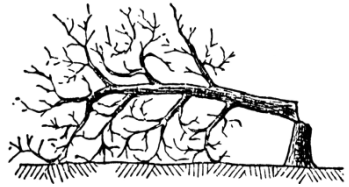
4 Person Injured

7 days for recovery

509 tonnes Solid Waste collected

101.8 km/h Wind Speed Recorded

753 Warriors



463 trees uprooted

RM3.3M Economic Loss


PELITA
ROADSTONE

SEBERANG PERAI

Aspiring City Of Tomorrow

LOCALIZING THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT GOALS

VISION

Seberang Perai Resilient, Inclusive, Green, Competitive and Technology Driven Smart City

MISION

To provide urban service, development planning and infrastructure efficiently, effectively and responsive to the needs of the community in Seberang Perai

Seberang Perai Commitment:

i. Seberang Perai City Council is committed to uphold **Penang2030 "A Family Focused Green** and **Smart State That Inspires The Nations"**
ii. Seberang Perai City Council is committed to a **green and low emission** development.
iii. Seberang Perai City Council is committed to be **resilient city.**
iv. Seberang Perai City Council is committed to being **inclusive, equitable** and to be **people-centered** in developments.
v. Seberang Perai City Council is committed to be **competitive** and a **smart city** in developments.

PENANG 2030
A Family-focused Green and Smart State that Inspires the Nation

Seberang Perai City Council Sets Its Target Of Becoming Carbon Neutral City By 2030, Which Is 10 Years From January 2020 And Becoming Zero Carbon City By 2050

SEBERANG PERAI CORPORATE KPIs

Recycling increase to 70%

Solid waste reduce by 50% per capita from 1.6 kg per capita to 0.8 kg per capita per day.

Reduction of Green House Gases (GHG) emissions from 8 tons of CO2e to 4 tons of CO2e.

15% renewable energy consumption (RE)

100% LED streetlight

Central Business District (CBD) with TOD concept for each district

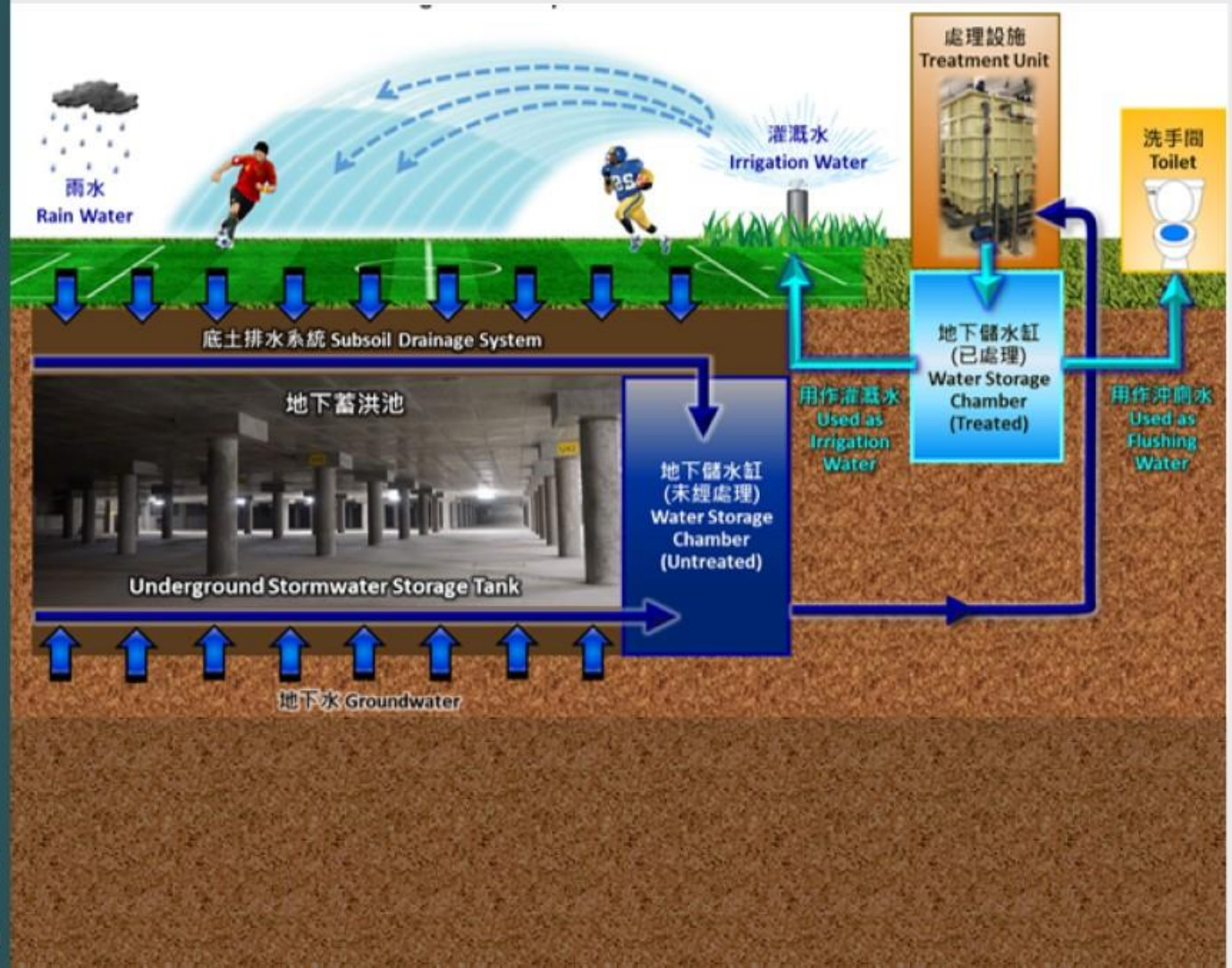
Seberang Perai Circular Economy Roadmap ready to be implemented

SMART ENVIRONMENT

PENANG 2030

SMART ENVIRONMENT

FEASIBILITY STUDIES FOR
UNDERGROUND WATER STORAGE IN RESIDENTIAL RETENTION POND FOR FLOOD MITIGATION STRATEGY



1. Feasibility studies shall be conducted to observe the possibilities to convert the existing retention pond to underground water storage.
2. This is among the best strategy to maximise the capacity of the existing pond to retain heavy downfall and surface runoff.
3. On the other hand, the excess water which has been retained in the underground water storage can be used for watering the city council landscaping around Seberang Perai, Penang as well as solving the raw water crisis.
4. The feasibility studies shall be conducted within 18 months.
5. By implementing this method, water crisis, flood issue and limited land for recreation can be solved simultaneously.

SMART ENVIRONMENT

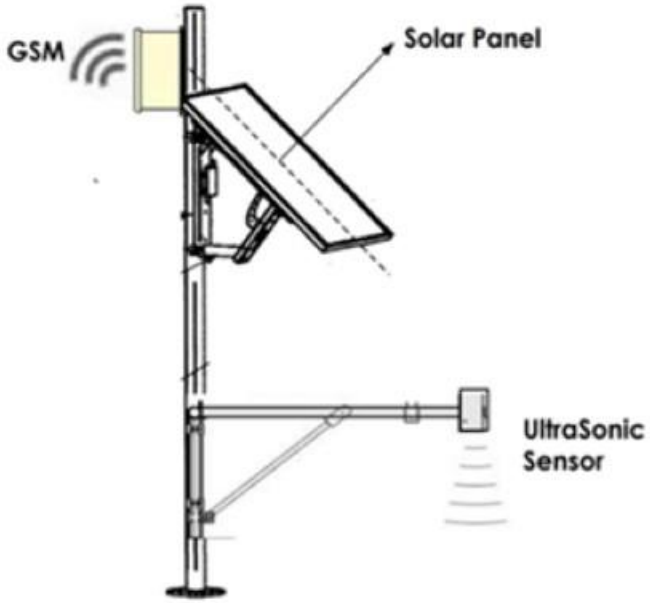
ADAPTATION CLIMATE CHANGE RESILLIENCE BY USING
INTEGRATION FLOOD POND RECREATIONAL PARK FOR RESIDENTIAL AREA FOR NEW DEVELOPMENT

New Residential Development Has Been Implemented With Additional Added Value By The Integration Of Flood Mitigation Strategy And Recreational Park In One New Masterplan.

New Development By Sp Setia Has Imposed Eco-retention Pond In Bertam, Kepala Batas, Penang.

SPARK

INTEGRATED ALERTING FLOOD WATER LEVEL SYSTEM



1. Spark Was Invented To Monitor The Water Level For Pump Operation In Seberang Perai, Penang.
2. By Using This System, Less Manpower Is Needed For Overtime Operation Hence Saving The City Council Expenses By 32% Every Year.
3. The System Is Equipped With Web-based Monitoring Panel And Apps For Fast Response Action At The Site.

Main Control Panel Web-Based System

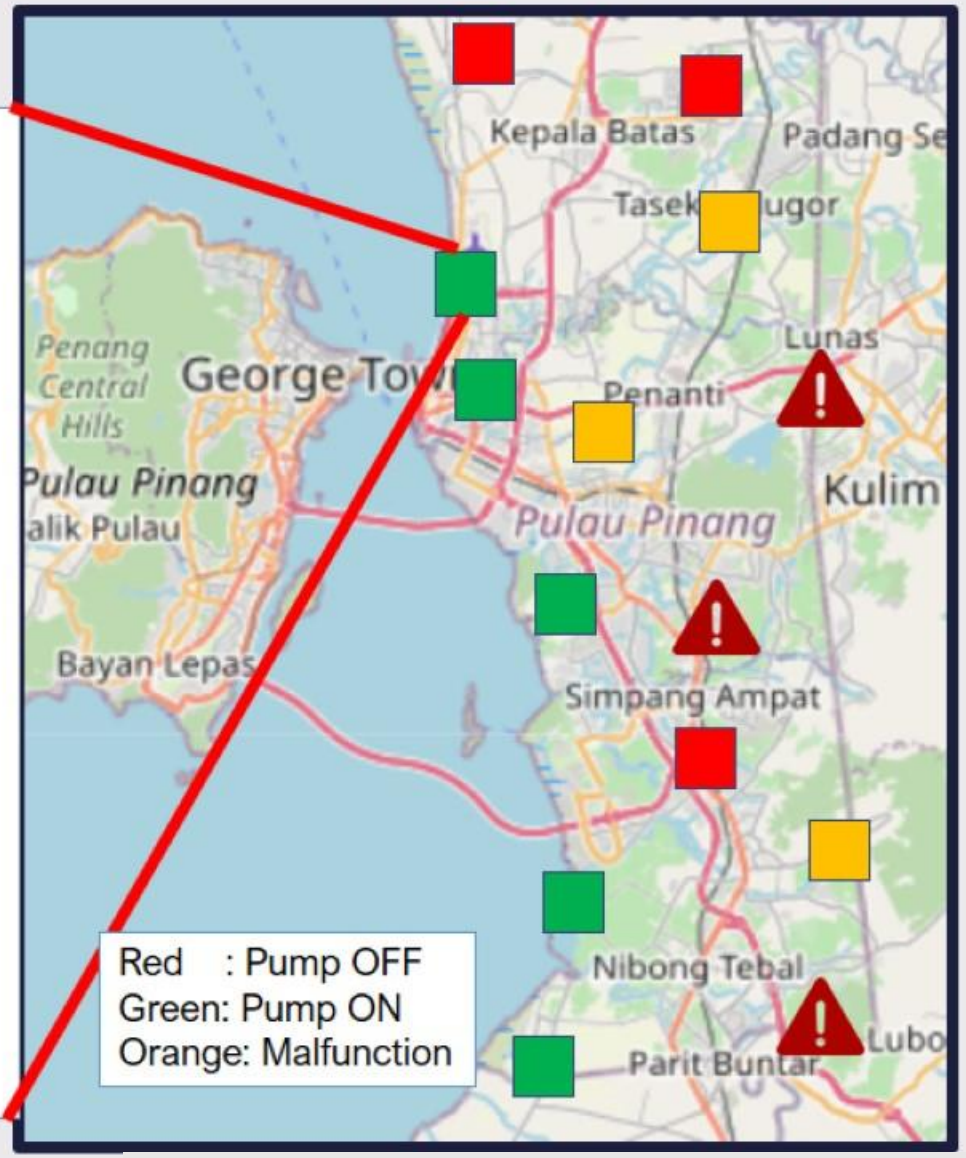
SMART ENVIRONMENT

Area Code	: Taman Mangga (01)
Date	: 17.10.2020
Time	: 15:35:17
Location	: 5.3156° N, 100.4397°
Area Covered	: 315m²
Pump	: ON/OFF
Rainfall	: 135mm
Duration	: 127 min
Rainfall Intensity	: 1.063 mm/min
Flow rate	: 115,000L/day
Water Height	: 1500/3000 mm
Tide Level	: 2.7m

CCTV 1:

CCTV 2:

CCTV 3:



LED STREET LIGHTING IMPLEMENTATION

SMART ENVIRONMENT

2,171 Unit	MBSP Galvanized Iron Pole LED Light
24,996 Unit	MBSP Galvanized Iron Pole LED Light
14,061 Unit	Planning to switch to LED type streetlights
93 Project	Parks / Development are required to install LED streetlights
362 Unit	LED lights in new development have been installed

The MBSP Public Lighting Guidelines require all housing developers to install LED streetlights for all types of new developments in Seberang Perai.

SUSTAINABLE ENERGY CONSUMPTION

SMART ENVIRONMENT

SARE

Supply Agreement Renewable Energy - Carbon Reduction Through The Use Of Solar Energy Installed At Bertam Sports Complex, Jalan Betek Sports Complex And MBSP Jalan Betek Branch Office

Incentive Fast Track

Planning Permission Plans & Building Plans Will Be Granted To Developments Designed Using 15% Renewable Energy

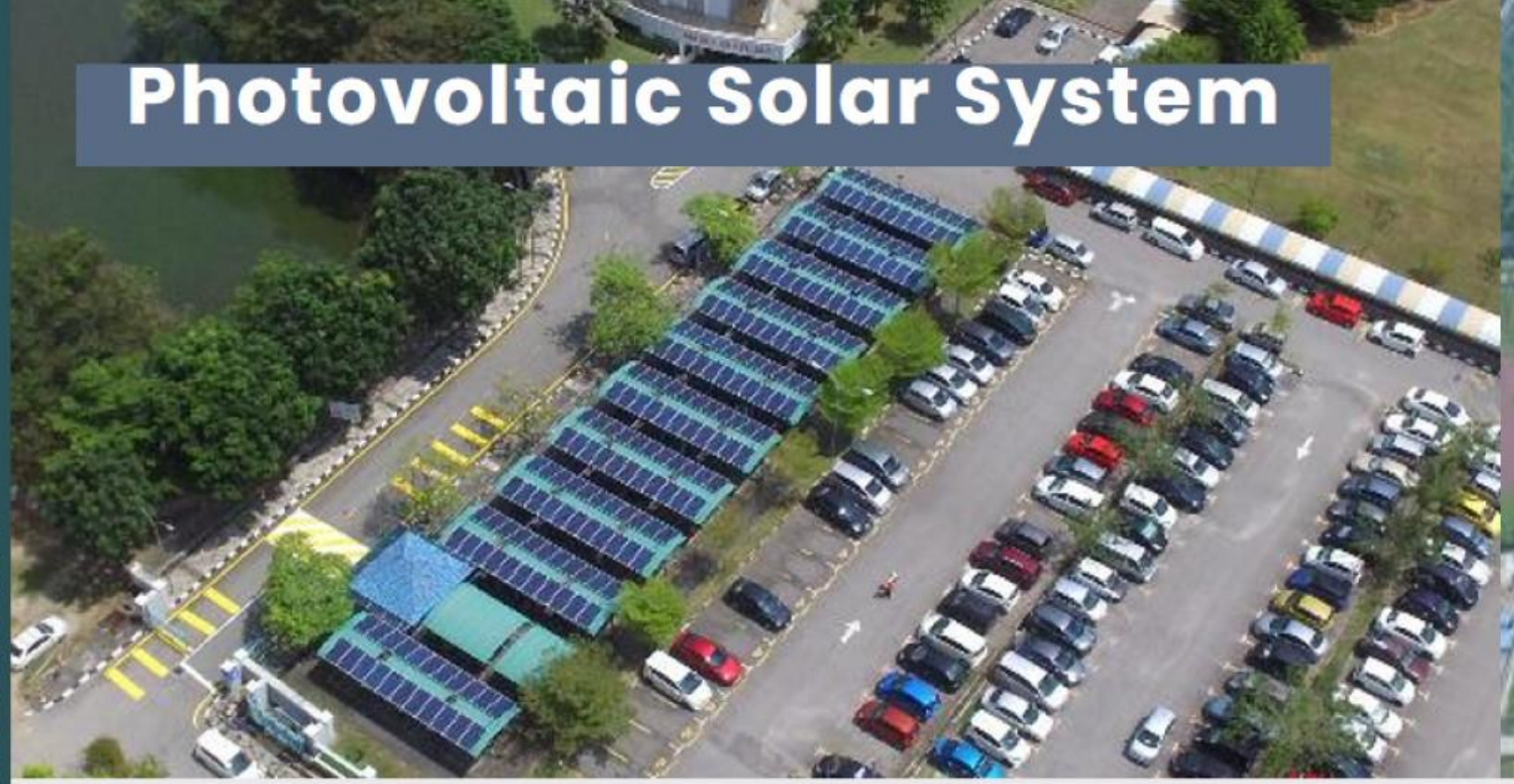
Renewable Energy

Commercial Complexes With Floor Space Exceeding 5,000 Square Meters & Commercial Development Permitted Plot Ratio Exceeding 1: 3 Required To Obtain 15% Of The Energy Used From RE Sources

GBI Certified

Requiring In CPM For Residential & Commercial Buildings Built In Eco-city Batu Kawan

Photovoltaic Solar System



SMART ENVIRONMENT

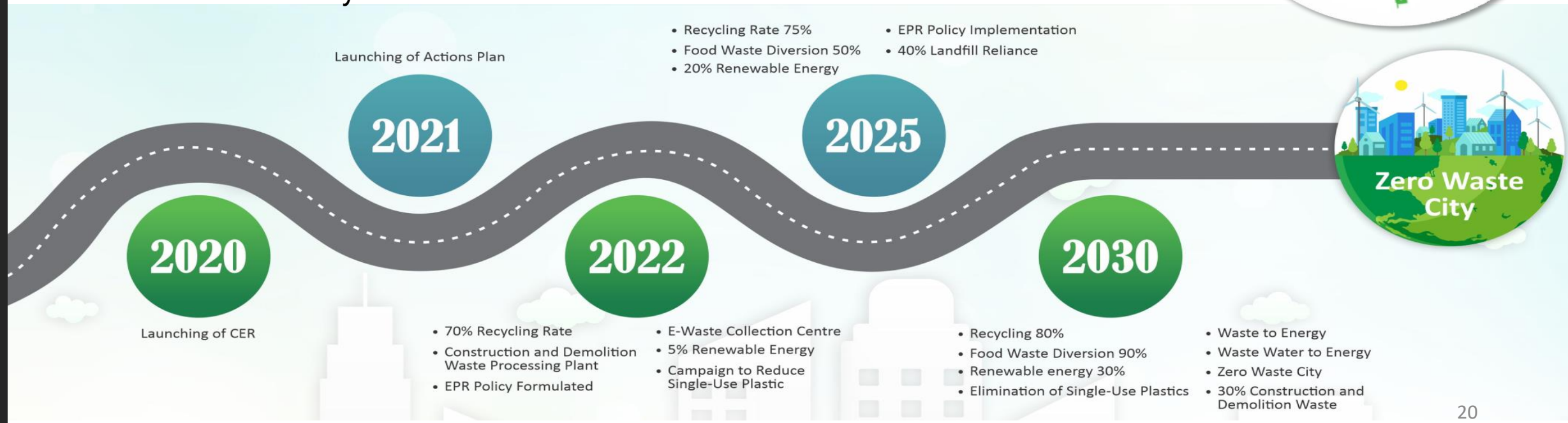
Collaboration with TNB to install solar systems in MBSP – owned buildings, converting ordinary electricity supply modules to renewable energy. Program under the Supply Agreement with **Renewable Energy (SARE), 3 MBSP buildings** are involved which will completed in **March 2020 (Contract for 25 years)**

Implemented and maintained by PLB Terang Contractor, a concession company that conducts **waste disposal operations** in Penang. This **20Mwatt (Solar Farm)** will take 23 years to install.

Seberang Perai Circular Economy Roadmap

Seberang Perai City Council is emphasizing a circular economy and digital economy that improve the efficiency of urban and rural developments. In a circular economy, product, components and resources are designed to be maintained, reused, re-manufactured and recycle to minimize waste.

CIRCULAR ECONOMY ROADMAP



Seberang Perai Circular Economy Roadmap Post Covid-19 Economic Focus

WASTE TO PROTEIN | **WASTE TO COMPOST** | **WASTE TO ENERGY**

- The people of Seberang Perai produce 1600 tons of solid waste per day.
- A total of 700 tonnes of domestic solid waste is generated while the rest is industrial solid waste.
- To reduce the amount of domestic solid waste disposal in Seberang Perai, MBSP has plans to implement projects that include Waste To Energy, Waste To Protein & Waste To Compost.
- New products will be produced such as wood chips, animal feed, fertilizers and even new sources of electricity.
- Through this project, MBSP intends to treat 100% of domestic solid waste generated in Seberang Perai (zero waste).

SMART ECONOMY

SEBERANG PERAI CIRCULAR ECONOMY ACTION PLAN

Majlis Bandaraya Seberang Perai has launced their own Circular Economy Action Plan in 2nd October 2021, This Action Plan is part of the Seberang Perai Climate Action Strategy that launched in January 2020 which target to mitigate climate impact in Seberang Perai.

Circular Economy Action Plan will serve as policy framework for the next ten years to develop integrated solutions and improve the quality of life in Seberang Perai.

Waste Management
(Fleet Tracking System)

Connected Garbage Truck For Smarter Waste Management

Proposed Smart City and Urban Development Related Projects Under the Economic Cooperation Chapter of MKFTA

Integrated Waste Management Facility in Pulau Burung Sanitary Landfill

VISION

Transit to Circular Economy for waste management, and building a thriving local industry for waste reuse, repair, remanufacturing and regeneration

Outcome 1: Towards zero waste disposal at Landfill by 2030

Outcome 2: Achieving 80% waste recycling rate by 2030

Outcome 3: Fostering practice of segregating waste and storing recyclables at source by households and trade premises for collection by 2025

Outcome 4: Aligning waste management towards Seberang Perai's decarbonization aspirations, and realizing the vision of Carbon Neutral City by 2030 and a Zero Carbon City by 2050

Integrated Waste Management Facility in Pulau Burung Sanitary Landfill

CURRENT WASTE MANAGEMENT

Waste Generation – 538,000 tonnes/year

Pulau Burung Sanitary Landfill

- Located at Pulau Burong, South District of Seberang Perai
- Disposal of municipal waste from (a) South District of Seberang Perai, and (b) Penang City Council
- Disposal of non-hazardous industrial waste from Seberang Perai
- Currently, 1/6 of landfill capacity has been used up, and the landfill is projected to reach full capacity by 2035

Ampang Jajar Transfer Station

- Receiving waste from households, wet markets, food courts from North and Central Districts of Seberang Perai

PROPOSED
WASTE MANAGEMENT

aste Processing & Treatment Centre under development
- •Location: – Co-located with Ampang Jajar Transfer Station
- •Capacity: 650 tonnes/day
- •Material Recovery Facility (MRF)
- •Anaerobic Digestion Plant (AD)
- •Construction and Demolition (C&D) waste facility 10% inert waste will be sent to Pulau Burung Sanitary Landfill for disposal

oposed **Integrated Waste Management Facility** (IWMF) to mplement the Waste Processing & Treatment Centre
- •To further reduce the reliance on Pulau Burung Sanitary Landfill
- •To drive waste management towards a circular economy
- •To build a comprehensive waste management system and resilient waste infrastructure

WAYS FOWARD

Integrated Waste Management Facility (IWMF)

Invitation to technology companies (with the necessary technologies, and planning, design, EPC and O&M experience and track records of Waste to Energy (WtE) plants and Materials Recovery Facility (MRF), and finance institutions to participate in:

Developing a 1,000 tonnes/day capacity Waste to Energy plant

Exploring the recycling infrastructure required to support the Materials Recovery Facility operations

A Temasek Foundation Urban Resilience Project brought to you by:

Seberang Perai Success Strategy :

Seberang Perai has the **highest recycling rate** in the country with **52.16%.**

Domestic waste was **reduced** from **263,989 tonnes** in 2019 to **245,770 tonnes** in 2020.

Average **15,000 trees** planted **every year**

i. Per Capita Carbon Emissions was **reduced to 6.31 tCO2eq in 2020** compared to 8.00 tCO2eq in 2016, a **reduction of 21.62% or 4.32 % annually**.
ii. Per Capita carbon Emissions during **MCO** decreased **by 8.2% in 2020** compared to 2019.
iii. **Cumulative reduction** in carbon emissions from 2016 to 2020 was **14.25 Million tons** of CO2eq

PENANG 2030

Thank You