

# High-level Roundtable Discussion on Smart Sustainable Cities

---

World Smart Sustainable Cities Organization

Mr. Kyong-yul Lee  
Secretary General

## WHAT IS WeGO?

INTERNATIONAL ORGANIZATION OF 131 CITIES + 5 NATIONAL ICT INSTITUTIONS + 7 CORPORATE MEMBERS

- **President City:** Seoul
- **Executive Vice President City:** Makati
- **Vice President Cities:** Addis Ababa, Beyoğlu, Ha Noi, Jakarta, Mexico City, Moscow, Ulyanovsk Region
- **Executive Committee Member Cities:** Bucharest, Chengdu, Goyang, Hebron, Khartoum State, Kigali, Nairobi, Pittsburgh, Seberang Perai, Ulaanbaatar
  
- **Regional Offices:** Asia, Europe, Latin America, Mediterranean
- **Secretariat:** Seoul Global Center 7F, South Korea



## WeGO MEMBERS



---

**143 MEMBERS WORLDWIDE**

## VISION: Smart Sustainable Cities for All

- Innovative cities that leverage digital technology and connectivity to improve quality of life, efficiency of urban operation and services, and economic prosperity for all citizens, while ensuring long-term economic, social and environmental sustainability



## MISSION

- To promote and facilitate the transformation of cities to Smart Sustainable Cities worldwide;
- To be a global platform for cities to enhance their digital capabilities and leverage their innovation potentials in order to develop transformative solutions; and
- To foster international exchange, cooperation, and learning among cities.

## WeGO ACTIVITIES

---

### 1. Capacity Building

---

- WeGO Smart Sustainable Cities Training Program (Seoul)
- Joint WeGO-NIA-World Bank Workshop for Smart Sustainable Cities & e-Government (Jeju Island)
- FMDV-WeGO Smart City Study Visit in Europe (Brussels, Paris)
- WeGO-TM Forum Smart City Maturity & Benchmark Model
- UN KPIs for Smart Sustainable Cities (ITU)
- Civic Participation System (CPS) Solution
- WeGO Online Smart Classroom
- WeGO Regional Office Training Programs (Chengdu, Beyoğlu)

### 2. Platform for Action-oriented Cooperation

---

- Smart City Feasibility Study and Pilot Project
- WeGO Thematic Clusters

### 3. Knowledge Building and Research

---

- WeGO Smart Sustainable City Projects Catalog
- WeGO Smart Sustainable Cities Best Practices Journal

### 4. Conferences & Exhibitions

---

- AfDB Annual Meeting (Busan)
- 4<sup>th</sup> Asia-Pacific Regional Forum on Smart Sustainable Cities and e-Government (ITU) (Thanh Hoa)
- WeGO Smart City Week + Seoul Digital Summit (Seoul)
- Global City Teams Challenge(GCTC) Tech Jam (Portland)
- OGP Global Summit (Tbilisi, Georgia)
- OGP Asia-Pacific Regional Meeting (Seoul)
- International Digital Economy Conference (Ulyanovsk)
- Smart City Expo World Congress (Barcelona)

### 5. WeGO Meetings

---

- Executive Committee Meeting
- General Assembly
- Smart Sustainable City Awards

## High-level Roundtable Discussion on Smart Sustainable Cities



Dato' Sr Hj Rozali  
bin Hj Mohamud

Municipal President  
Seberang Perai,  
Malaysia



Mr. Mahesh Baral

Chief Administrative  
Officer  
Dhulikhel, Nepal



Hon. Joel Alangsab

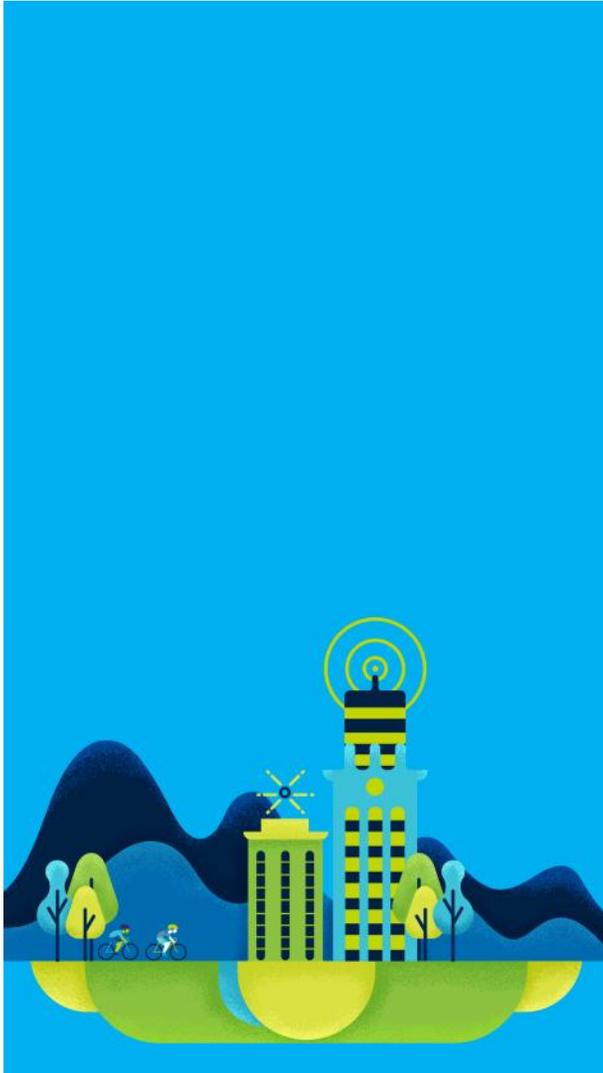
City Councilor  
Baguio City,  
Philippines



Mr. Tran Ngoc Thach

Vice Director,  
Department of  
Information and  
Communications  
Da Nang, Vietnam





# **Seberang Perai's Smart Sustainable City Vision**

---

Dato' Sr Hj Rozali bin Hj Mohamud  
Municipal President  
Seberang Perai, Malaysia



4<sup>th</sup> Asia Pacific Regional Forum  
On Smart Sustainable Cities and  
E-Government  
4<sup>th</sup> July 2018

High Level Roundtable Discussion:  
Seberang Perai's Smart  
Sustainable City Vision



Speaker: Dato' Sr Haji Rozali Bin Haji Mohamud





## 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

4<sup>th</sup> Asia Pacific Regional Forum On Smart Sustainable Cities and E-Government :  
Seberang Perai's Smart Sustainable City Vision



# SEBERANG PERAI LANDUSE ZONING



**POPULATION**  
**897,600**  
RESIDENT  
*based on Malaysian  
Population Statistic 2014*



**SIZE**  
**738**  
KILOMETER<sup>2</sup>



**POPULATION  
GROWTH**  
**1.7%**  
PER YEAR



**BUILD-UP AREA** 48%



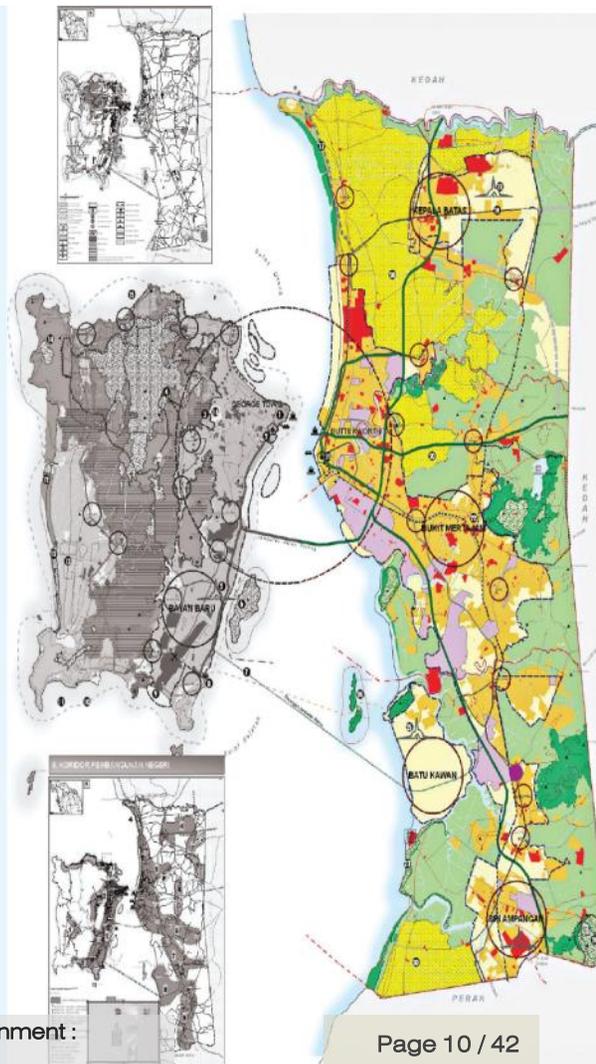
**WATER BODY** 4%



**FOREST** 8%



**AGRICULTURE** 40%



# SEBERANG PERAI

Aspiring City Of Tomorrow

A VISION FOR  
TOMORROW  
& BEYOND

Smart  
Industry  
4.0

Smart  
Street Light

Digital  
Signage

Smart  
Parking

Smart &  
Sustainable  
Hawkers  
Complex

Smart  
Traffic  
Light

Smart Solid  
Waste  
Management

Smart  
Learning  
Center

Citizen  
Participatio  
n System

Cashless  
Payment  
System

Public  
Reporting  
System

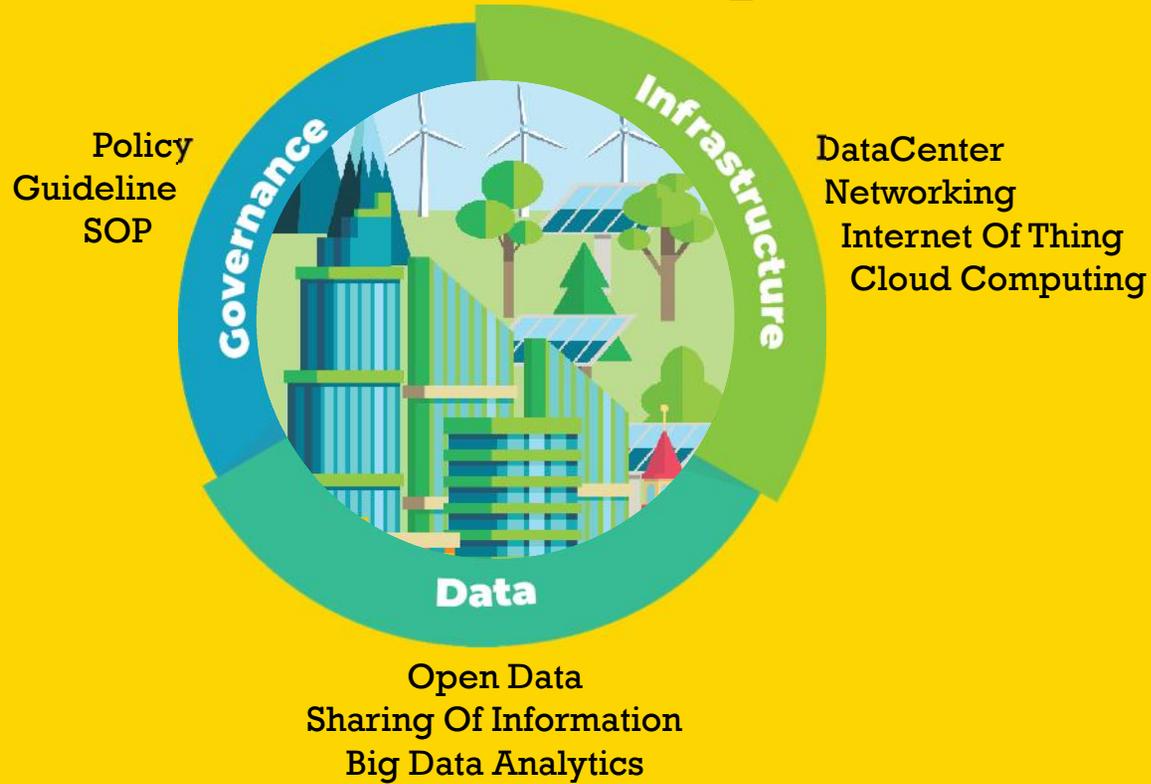
Data  
Exchange  
Platform

Flood  
Managemen  
t System

Smart &  
Sustainable  
Building

Integrated  
Command  
Center

Core Strategic  
for Seberang Perai  
**Smart City**







Smart  
Community

## STRATEGIES

### Public Participations / Engagement

- Town Hall Sessions
- Budget Dialogue
- Consult project
- Slido
- School Eco Rangers & Community Engagement

### Learning Center / Talent Development

- Butterworth Digital Library

### Complaint System

- Smart Monitoring system

### Upcycle Park

### Hackaton

- Hackfest MPSP 2018 – Cyber Counter
- Hackfest MPSP 2019 – IoT in Local Council



Smart  
Community

## Respondents priority level of MPSP services

### Seberang Perai Strategic Plan 2018 - 2022

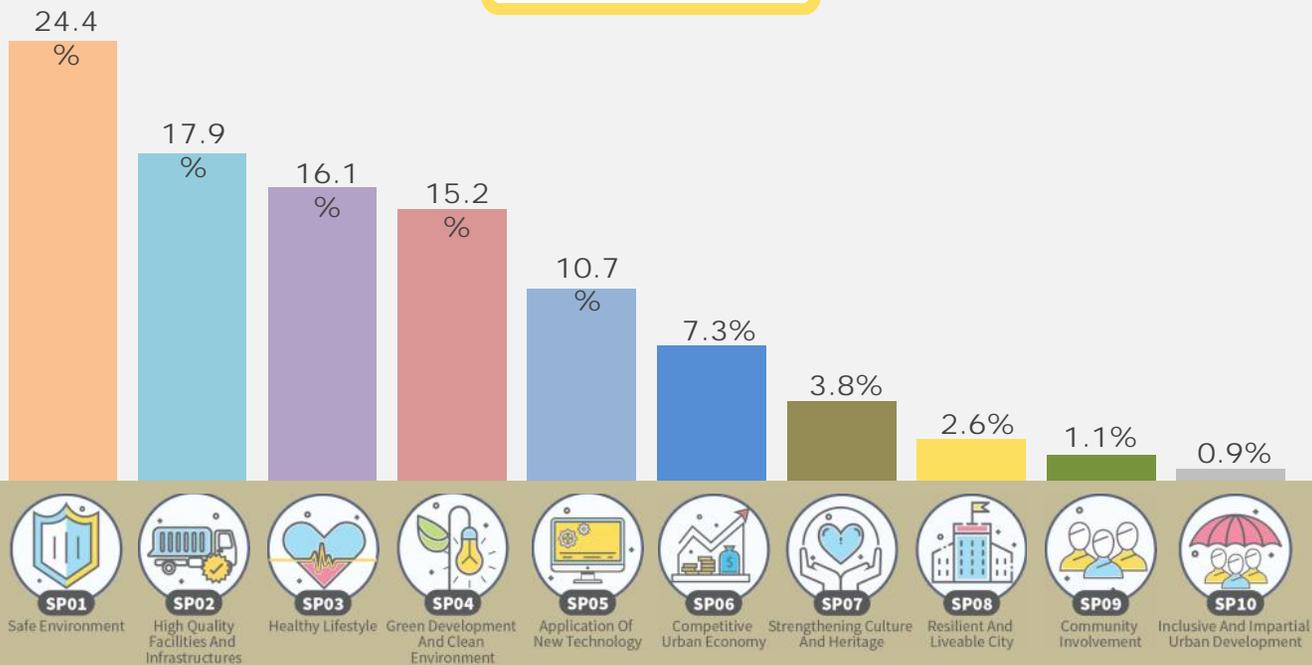




## Smart Community

## Respondents priority level of MPSP services

YEAR: 2019





Smart  
Community

## Townhall Session

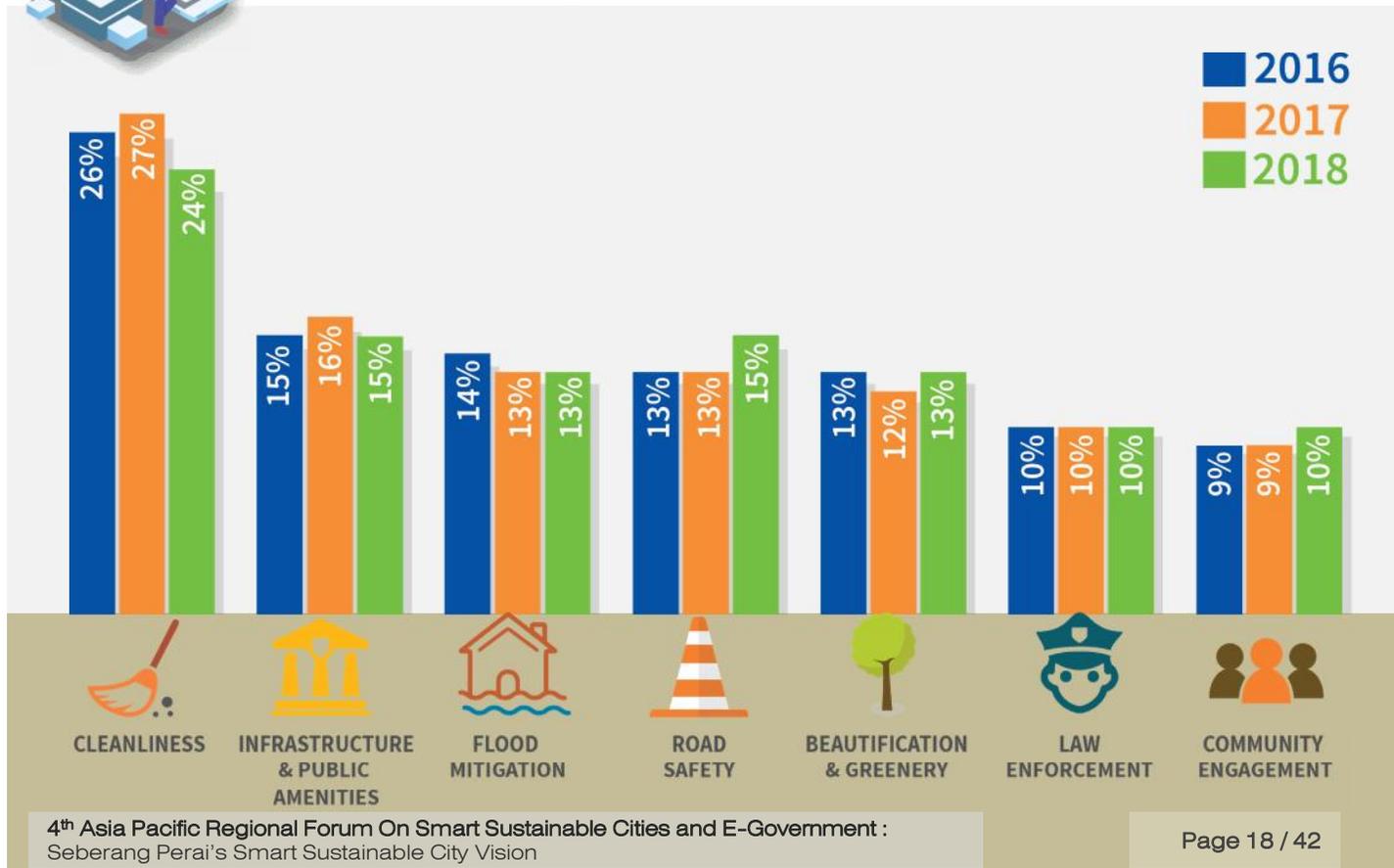
Dialogue  
Budget





Smart  
Community

## Dialogue Budget Respondents priority level of MPSP services





Smart  
Community

Collabration Software  
Slido as Q&A platform





Smart  
Community

## Butterworth Digital Library

Creating the community of Seberang Perai towards the higher level education which results in making Penang State an excellence, tranquil and sustainable city.

24 x 7 x52 working culture  
Walking distance to provide education for all.

**PROJECT TIMELINE**

2015	Created Book of Butterworth
2016	<ul style="list-style-type: none"> <li>2016 Mar: Study of Cultural, Historical &amp; Architectural Heritage of Butterworth</li> <li>2016 Jun: Completion of Book of Butterworth</li> <li>2016 Sep: Study of Butterworth</li> <li>2016 Oct: Study of Butterworth</li> </ul>
2017	<ul style="list-style-type: none"> <li>2017 Jan: Approval of General Design &amp; Program</li> <li>2017 Feb: Preparation of Concept Design - 15 February 2017</li> <li>2017 Mar: Submission of Preliminary Design</li> </ul>
2018	<ul style="list-style-type: none"> <li>2018 Jan: Completion of Phase 1 - Final Design</li> <li>2018 Feb: Final Design - 15 February 2018</li> <li>2018 Mar: Completion of Phase 2 - Concept Design</li> <li>2018 Apr: Submission of Preliminary Design</li> <li>2018 May: Submission of Preliminary Design</li> </ul>
2019	<ul style="list-style-type: none"> <li>2019 Jan: Study, Development &amp; Implementation of Concept Design</li> <li>2019 Feb: Submission of Preliminary Design</li> <li>2019 Mar: Submission of Preliminary Design</li> <li>2019 Apr: Submission of Preliminary Design</li> <li>2019 May: Submission of Preliminary Design</li> <li>2019 Jun: Submission of Preliminary Design</li> <li>2019 Jul: Submission of Preliminary Design</li> <li>2019 Aug: Submission of Preliminary Design</li> <li>2019 Sep: Submission of Preliminary Design</li> <li>2019 Oct: Submission of Preliminary Design</li> <li>2019 Nov: Submission of Preliminary Design</li> <li>2019 Dec: Submission of Preliminary Design</li> </ul>

**BACKGROUND ORIGINAL DESIGN INTENT AND CURRENT USE**

**PRECINCT PLAN PROPOSAL**

North Wing and Single Storey South Wing with a total built up area of approximately 20,000 sqm.

Legend:

- Semi pedestrianised street
- Active node complex access
- Down the on foot point
- Recreate garbage area

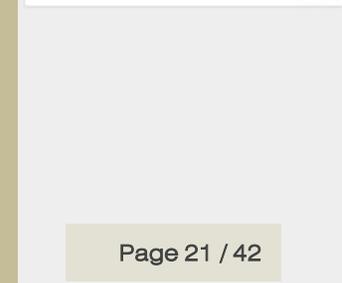
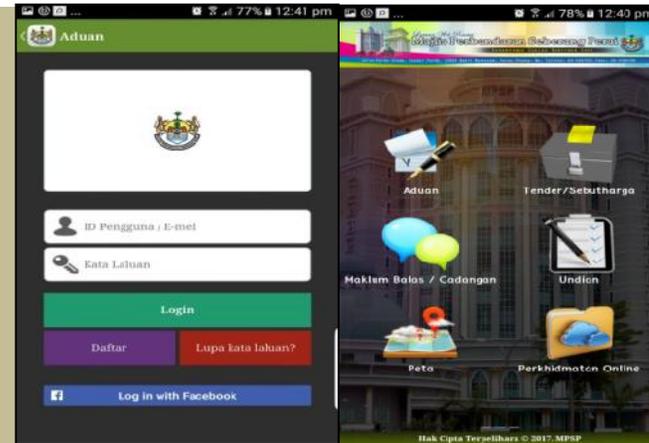
**Page 20 / 42**



## Smart Community

## Smart Monitoring System (SMS)

- 2013 ● Complaints  
(Conventional)
- 2014 ● Facebook  
(MPSP Watch)
- Better Penang Apps
- 2016 ● SMS
- SMS 2.0
- SmartEye
- 2017 ● MyMPSP Apps





Smart  
Community

## Upcycle Park





Smart  
Community

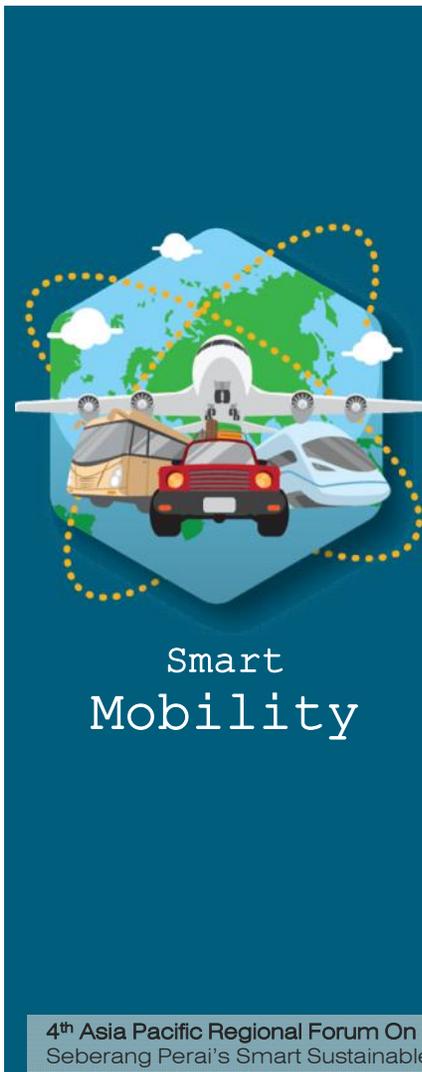
Smart Monitoring System  
(SMS)



To connect people with ideas, expertise, experiences and networking to share and contribute in improving the MPSP's counter services.



Date : 13-15 July 2018  
Venue : MPSP Tower, Bukit Mertajam  
Theme : "Cyber Counter"  
Estimate Participant : 100 people



## STRATEGIES

### Penang Transport Master Plan Traffic Management System

- Green wave technology
- Vehicle counting system

### Vehicle Information System

- GPS tracking vehicle

### Routing Information

- Interconnection between public transportation and bicycle route

### Wireless Internet Access

- Free Penang Wifi

### Cycling- GIS Mapping

### E-Bikes



Smart  
Mobility

## Penang Transport Masterplan



4<sup>th</sup> Asia Pacific Regional Forum On Smart Sustainable Cities and E-Government :  
Seberang Perai's Smart Sustainable City Vision

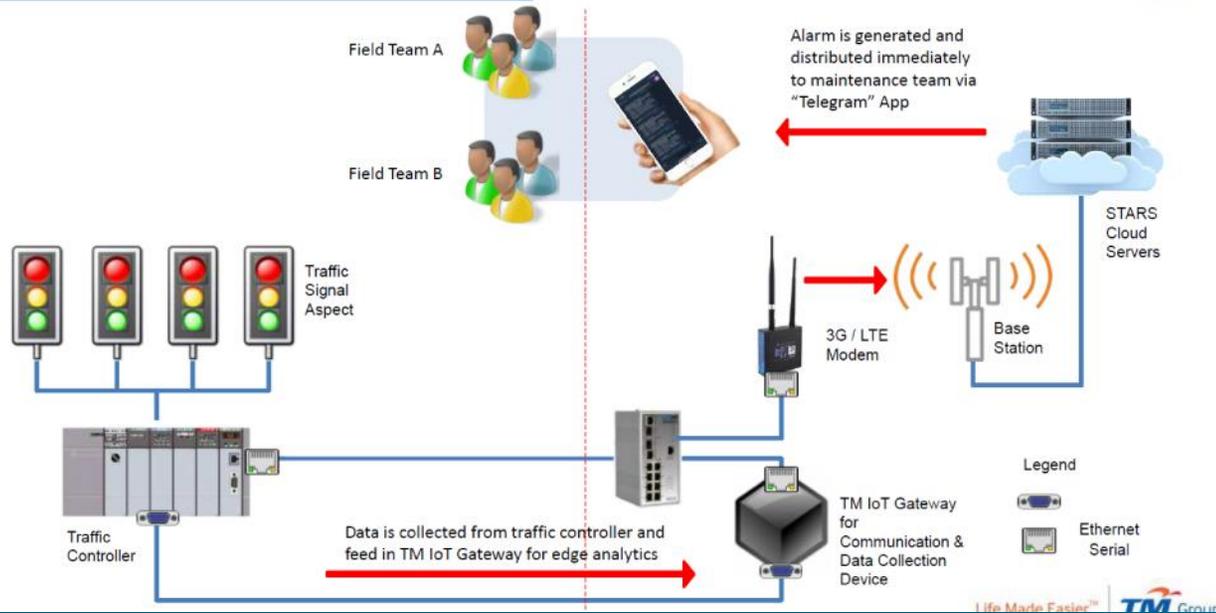
Page 25 / 42



Smart  
Mobility

## Traffic Management Solutions

### STARS Operational Flow





Smart  
Mobility

## Connectivity Penang Free Wi-Fi



- Collaboration With State Government of Penang
- 1550 Hotspot in Whole Penang, 623 Hotspot in Seberang Perai
  - 75Mbps to 375Mbps Bandwidth

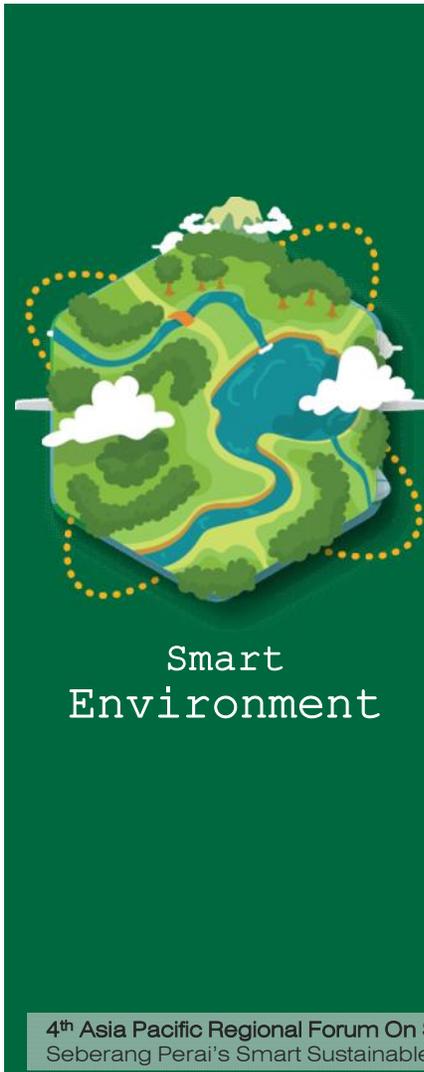
Connect with  
Wireless @ Penang



Smart  
Mobility

## Cycling GIS Mapping





## STRATEGIES

- Sustainable Energy ( Solar, Wind, Wave energy)
- LED Street Lights
- Solid Waste Management
- Flood Mitigation Management
- Water Level Monitoring & Alert Warning system
- Penang State Policy
- Public Education & Mobile Apps
- Corporate Social Responsibility (CSR)



Smart  
Environment

## Sustainable Energy

ISO 50001:2011 (EnMS) Energy Management System (15 August 2014).

C1 immediately issued if developer could reduce 15% energy saving or implement any renewable energy.





Smart  
Environment

## LED Street Lights

Street Lights High Pressure Sodium Vapour  
(HPSV) Change To Light Emitted Diode (LED)  
Under MPSP Jurisdiction

2018- 10,000 Street Lights



LED

HSPV



Smart  
Environment

Solid Waste  
Management

## Big Data Analytic and IoT

- Use of GPS to optimize the use of Vehicles.
- Use of BDA to calculate and design solid waste projections for existing development and new developments.
- Establish database for solid waste management and recycling.
- Loading solid waste data and recycling into the Open Data MPSP portal



4<sup>th</sup> Asia Pacific Regional Forum On Smart Sustainable Cities and E-Government :  
Seberang Perai's Smart Sustainable City Vision

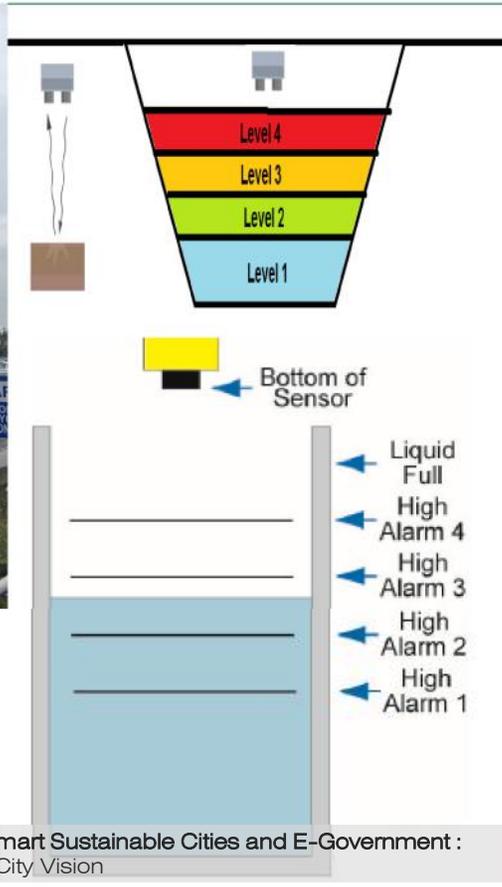
The screenshot shows a web browser displaying the Open Data MPSP portal. The browser's address bar shows the URL: [my.dataset/touristmap/resource/26d4427c-7c3e-4ab2-be42-1d13be982639?view\\_id=d7682](http://my.dataset/touristmap/resource/26d4427c-7c3e-4ab2-be42-1d13be982639?view_id=d7682). The page title is "Data.Maps.Geo.City" and the header includes "Majlis Perbandaran Seberang Perai". The main content area shows the "Tourist Map" dataset with a search bar and a "Page 32 / 42" indicator.





Smart Environment

## Water Level Monitoring & Alert Warning System



Ultra Sonic will detect and send when water increase by it setting level

- Level 1 – Basic Level
- Level 2 – 25% Increase
- Level 3 – 50% Increase
- Level 4 – 75% Increase

Each level increase, system will send a notification via SMS, Email or Apps



Smart Environment

# Penang State Policy

Collaboration with Smart Partner



Penang State Government



MPSP  
**PENANG**  
INSTITUTE  
making ideas work



**PENANG**  
GREEN COUNCIL



No Plastic Bag



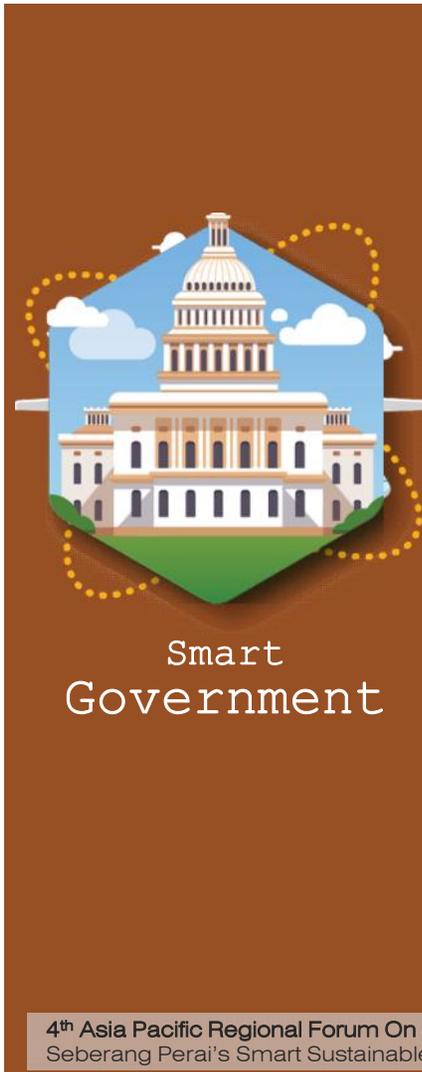
No Polystyrenes



Segregation at Source

Solid Waste has reduced from 1.6kg to 1.3kg per person per day - Source by Penang Institute





## STRATEGIES

### Open & Inclusiveness

- Live Streaming & Sign Language Interpreter

### Open Data Platform

### Security & Safety

### Collaboration System

### GIS Public Portal

### Disaster Preparedness

### Asset Management System

- Regular Maintenance & Services
- Periodically Monitoring Status



Smart  
Government

## Live Streaming Sign Language Interpreter

**Majlis Perbandaran Seberang Perai** was live...  
16 November 2017

Sesi "Townhall" pemertukan pelan strategik Seberang Perai 2016-2022 oleh Yang Berbahagia Dato' Sri Haji Fadzli B. Haji Mohamad, Yang Diertua MPSP pada hari Sabtu, 10 November 2017.

#Townhall  
#Live  
#PelanStrategik  
#MySeberangPerai

Your video is popular in Penang

4 Comments 37 Shares 1.8k Views

**Majlis Perbandaran Seberang Perai** was live...  
Published by Teradek (?) · 25 January at 09:19

People have watched this video for a total of 1.8k minutes

1k Views

Like Comment Share

58 Top comments

15 shares

Boost Post



Smart  
Government

## Open Data 15 Data Sets

- 1) Recycling Center
- 2) List Of Public Market
- 3) List Of Public Hall

#BetterPenang Facebook - Log... Raja Mashitah ... segregation at ... 4) The Location Of Public Market

v.my/dataset/touristmap/resource/26d4427c-7c3e-4ab2-8e42-1d13be982639?view\_id=d763:

6) Schedule For Waste Collection According To The Location In Seberang Perai

7) 2015 Penang Tourism Statistics Publication

Public Basic Data  
Health Basic Data  
Real Estate And Basic Data  
Transportation Basic  
Infrastructure Basic Data  
Map  
e-Data

4<sup>th</sup> Asia Pacific Regional Forum On Smart Sustainable Cities and E-Government :  
Seberang Perai's Smart Sustainable City Vision

Page 38 / 42

Jd	ID	Nama T...	Latitude	Longgit...
1	1	Stesen K...	5.393855	100.366...
2	2	Dataran ...	5.408425	100.369...
3	3	Tukang ...	5.393855	100.366...
4	4	Cepai Ja...	5.518344	100.425...
5	5	Nine Em...	5.440189	100.387...
6	6	Pasar Bl...	5.575795	100.339...
7	7	Batu Se...	5.547882	100.52889
8	8	Masjid J...	5.4475	100.43
9	9	Masjid K...	5.485059	100.450...
10	10	Bumeh T...	5.465906	100.430...



CONTROL ROOM



CCTV

TOTAL CCTV IN  
SEBERANG PERAI

NORTHERN N (SPU)	46 UNITS
CENTRE (SPT)	34 UNITS
SOUTH (SPS)	20 UNITS
TOTAL	100 UNITS



Smart  
Government

## Security and Safety Crisis Management Department

Dedicated team to response during disaster and crisis. This team is available for 24 hours everyday throughout the year. Equipped with multiple vehicles and equipments to tackle almost any sort of municipal crisis.



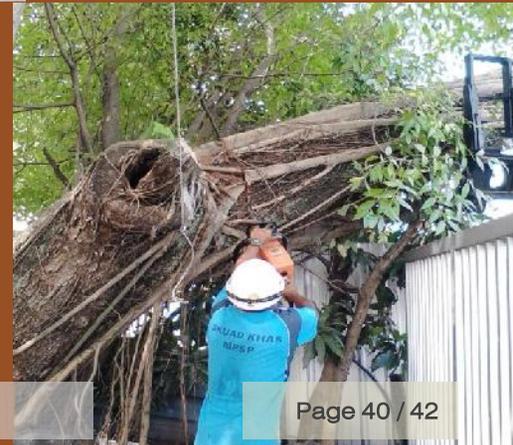
Seberang Perai Disaster Management Plan highlight the role of every members of the community.

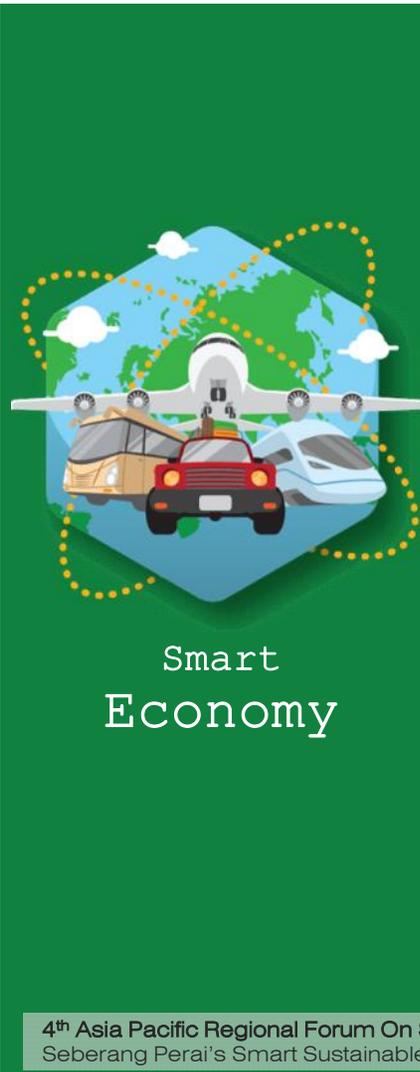
Engagement and partnerships with the stakeholders are the key factors in building a resilient Seberang Perai



168 skill workers work in shift to enhance the preparedness in dealing with disaster and crisis.

This workers have been given adequate training regarding disaster management and





Smart  
Economy

STRATEGIES

### Cashless Society

- Payment
- Parking
- Smart Retail System
- Unified Collaboration
- Security
- Delivery Services

### Cyber Counter

- Online Transaction
- Online Submission
- One Stop Center /UTC
- Kiosk

### Smart & Sustainable Hawker Centers

- Self sufficient Management System (PPP Collaboration)
- Maintenance Service
- Water Harvesting
- Solar Panel
- Digital Signage/ LED Light box
- CCTV Monitoring
- Smart Metering
- Grease trap monitoring sensor
- Water & Electricity usage monitoring
- LED Lightning



### Payment

Cashless payment for Seberang Perai Services to be paid through online and mobile platform

### Parking

- Smart parking through mobile apps and payment kiosk will reduce dependency on actual money being transferred and reducing paper.
- Encouraging the private parking to implement the same system will benefits all parties.

### Smart Retail System

Encouraging small retail business especially under Seberang Perai management such as MPSP food Complex and market will help boost the utilization of Seberang Perai e-Wallet.

### Unified Collaboration

Collaborating with another payment system to assist and utilization of Seberang Perai Cashless society to enhanced and reduce the burden of having multiple system of payment in Seberang Perai.

### Security

Cashless environment will reduce the actual currency being utilize and for security purpose will reduce cases of mugging.

### Delivery Services

Delivery services will be a major roles in the future of Seberang Perai as people mostly depends on fast delivery and utilizing a single platform for ordering and payment will boost the existing system and help small and medium business in Seberang Perai to



Smart Economy

# Cyber Counter

## Online Transaction

- MPSPpay
- Single payment gateway for Seberang Perai Government service

## Online Submission

- OSC Online

## Urban Transformation Center (UTC)

- Government single

## Kiosk

- 13 Kiosk



4<sup>th</sup> Asia Pacific Regional Forum On Smart Sustainable Cities and E-Government : Seberang Perai's Smart Sustainable City Vision



Smart  
Economy

## Smart & Sustainable Hawker Centers

Seberang Perai has more than 100 hawkers centers that has to be manages.

Seberang Perai is hoping to work with the existing tenant to come out with a plan to self manage the complex by utilizing a smart and better solution with green and sustainable technology plus monitoring to reduce and tackle existing issue.

With self manage and monitoring system, the tenant has more control and responsible to take care their complexes for the benefits of

- Self Sufficient Management System (PPP Collaboration)
- Maintenance Service
- Water Harvesting
- Solar Panel
- Digital Signage/ LED Light box
- CCTV Monitoring
- Smart Metering
- Grease trap monitoring sensor
- Water & Electricity usage monitoring
- LED Lightning
- Guard



Smart Economy

## Eco City Batu Kawan



**EcoCity**  
BATU KAWAN

*"Apart from physically greening Batu Kawan, it is also important to look at introducing sustainable green and eco-friendly practices in the area.  
"We hope Batu Kawan can become a model for other townships to eventually adopt an Eco-town concept that promotes a healthy living environment,"*

- Chief Minister Lim Guan Eng




-  **Neighbourhood Concept**
-  **Zero Renovation**
-  **Safe City**
-  **Affordable Homes**
-  **Accessibility**
-  **Solid Waste Management**
-  **Green Building**
-  **Green Neighbourhood**
-  **Preservation**



Smart Economy

# New Butterworth

## NEW BUTTERWORTH

### The Vision And The Principal Of New Butterworth

Butterworth as a unique destination, liveable and celebrate local values

New Butterworth is a joint venture of MPSP and Think City in order to improve the quality of the built environment and the public spaces





Smart  
Economy

## Urban Renewal Bukit Mertajam

# URBAN RENEWAL BUKIT MERTA JAM

Friendship City Programme - City of Yokohama, Yokohama City University,  
JICA (Japan International Cooperation Agency), Universiti Sains Malaysia &  
Municipal Council of Seberang Perai

横浜市  
City of Yokohama

YU  
YOKOHAMA  
CITY  
UNIVERSITY

JICA

USM  
UNIVERSITI SAINS MALAYSIA



MUNICIPAL COUNCIL OF  
SEBERANG PERAI  
PENANG, MALAYSIA

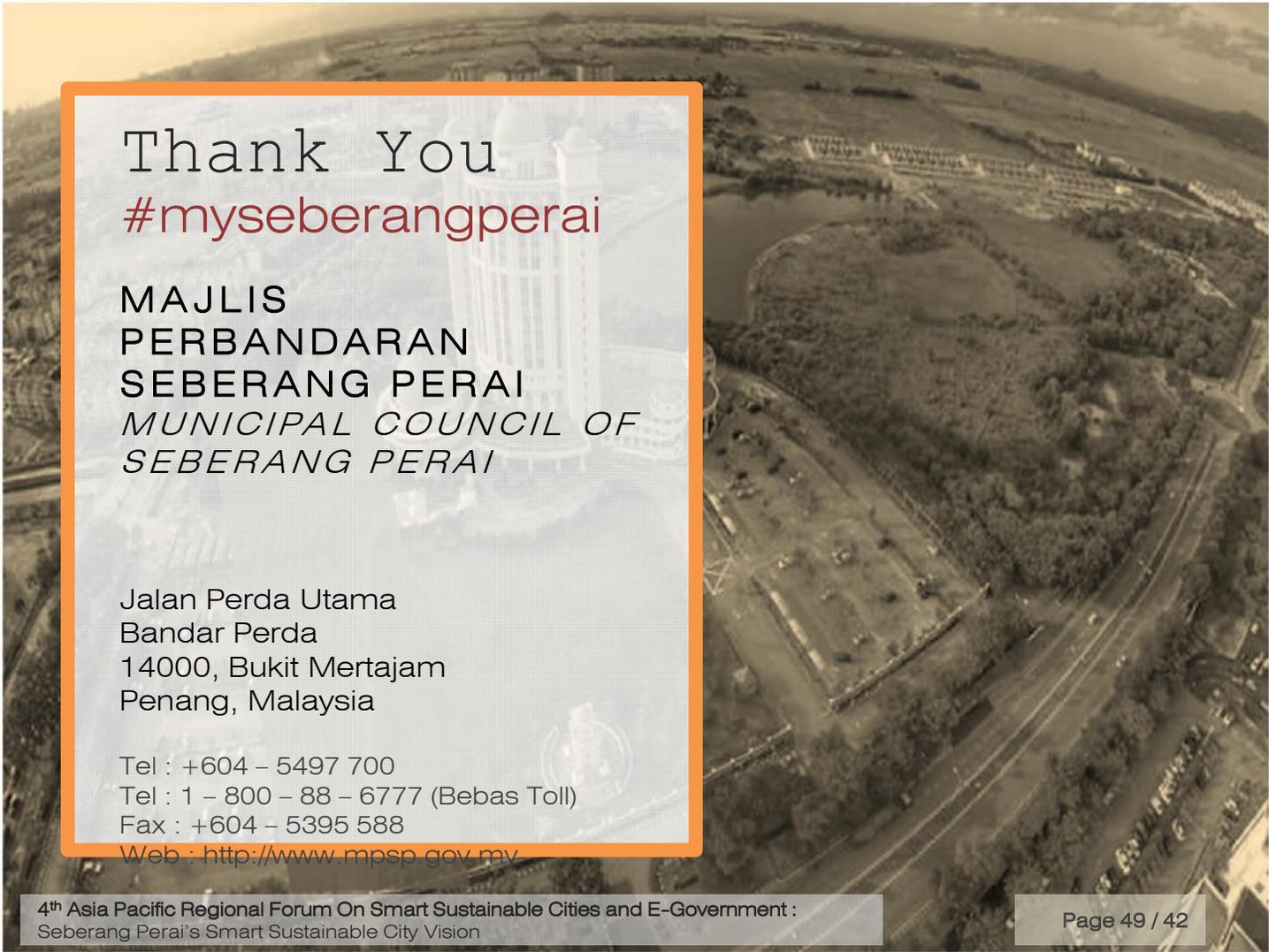
*“Project to  
Create  
Townscape  
/ Communities  
for the City of  
Seberang Perai,  
Malaysia, that  
Accents Its  
History and  
Nature”*

Seberang Perai's Smart Sustainable City  
Vision

# Pilot Project

- Blueprint for Sustainable Hawkers Complex
- IoT Management System
- BDA SWM
- Seberang Perai Wireless Infrastructure for IoT.
- R&D for IoT
- Water Level Monitoring



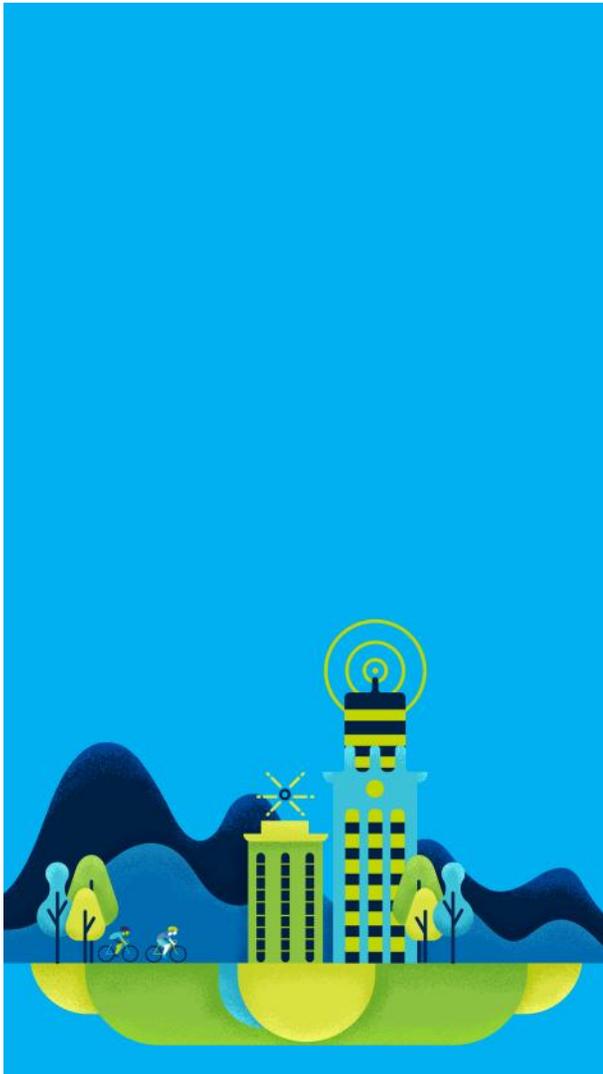


Thank You  
#myseberangperai

MAJLIS  
PERBANDARAN  
SEBERANG PERAI  
*MUNICIPAL COUNCIL OF  
SEBERANG PERAI*

Jalan Perda Utama  
Bandar Perda  
14000, Bukit Mertajam  
Penang, Malaysia

Tel : +604 - 5497 700  
Tel : 1 - 800 - 88 - 6777 (Bebas Toll)  
Fax : +604 - 5395 588  
Web : <http://www.mpsp.gov.my>



# High-level Roundtable Discussion on Smart Sustainable Cities

---

4<sup>th</sup> Asia-Pacific Regional Forum  
on Smart Sustainable Cities and e-Government  
Thanh Hoa, Vietnam



## **Information and Communication Technology: A Tool for Sustainability and Good Governance in the context of Nepalese Municipalities**

---

Mr. Mahesh Baral

Chief Administrative Officer

Dhulikhel Municipality, Nepal



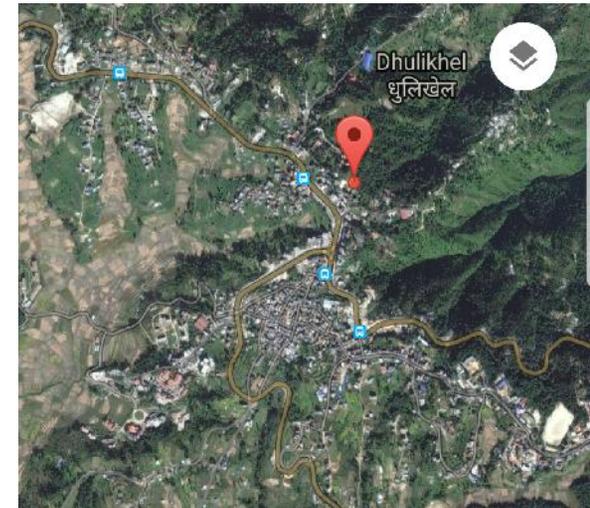
Information and Communication Technology:  
**A Tool for Sustainability and  
Good Governance,**  
In the context of Nepalese Municipalities

4<sup>th</sup> Asia Pacific Regional Forum, 2018

Thanh Hoa, Vietnam, 4-6 July 2018

**Mahesh Baral,**  
**Chief Administrative Officer,**  
**Dhulikhel Municipality, Nepal**

- ❖ **Facts & Figures of Dhulikhel Municipality**
- ❖ **ICT in Municipal Governance in Nepal and Dhulikhel**
- ❖ **ICT related policies and programmes of Dhulikhel**
- ❖ **Efforts towards Smart City: Dhulikhel**
- ❖ **Limitations and expectations**

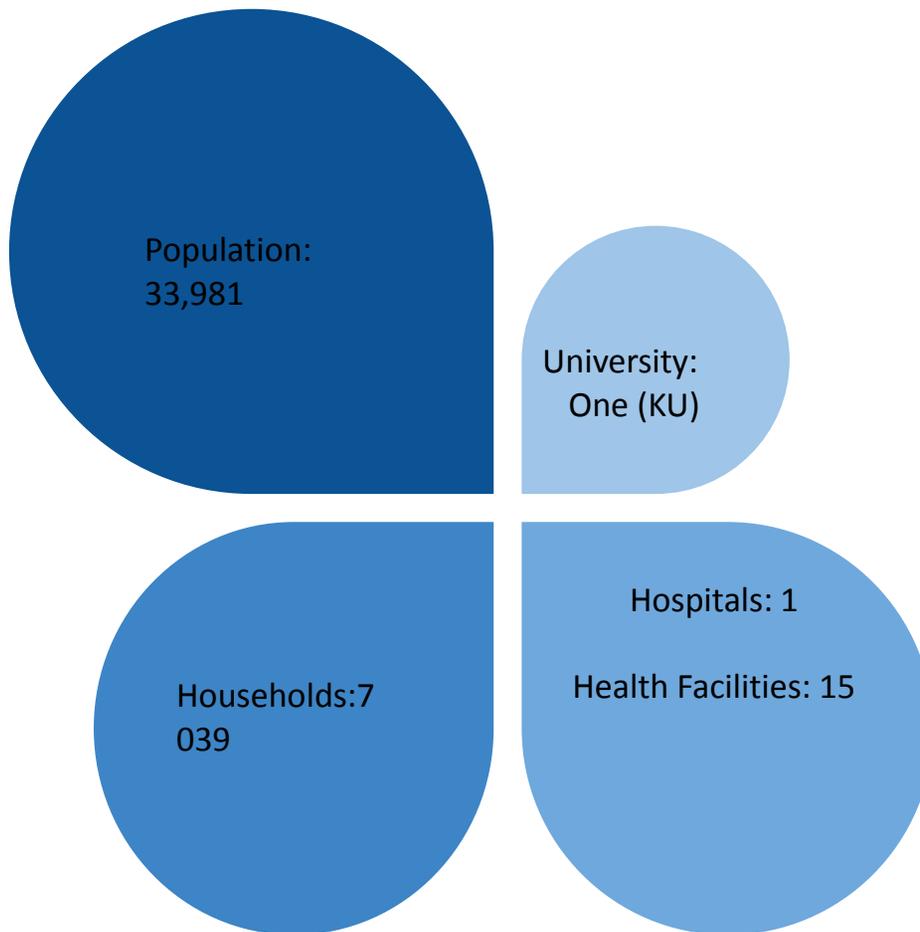


## Dhulikhel

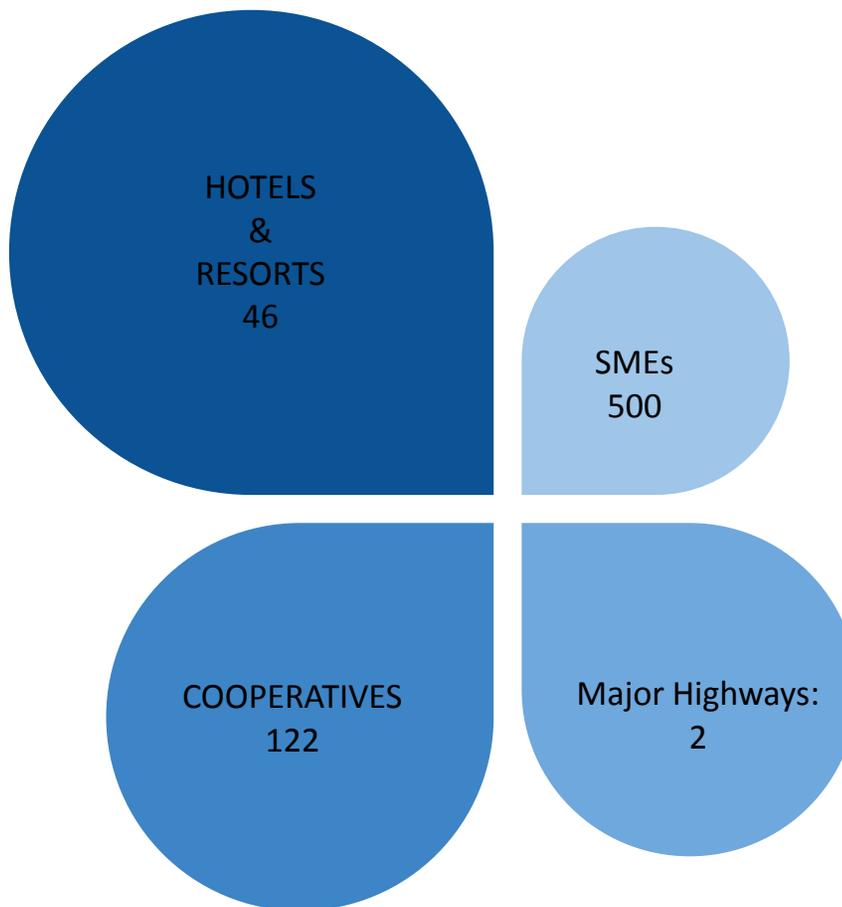
**Dhulikhel Municipality** is located in Province-3, Kavrepalanchowk District, Nepal and has a population of 33,981. Dhulikhel lies in the coordinates 27° 36' 992" N 85° 33' 432" E.

Located 30 km to the east of Kathmandu valley, Dhulikhel Municipality was established on 2043/11/05 constituting 9 wards. At present, with the expansion of area, the municipality constitutes of 12 wards covering a total of 54.62 sq. km.

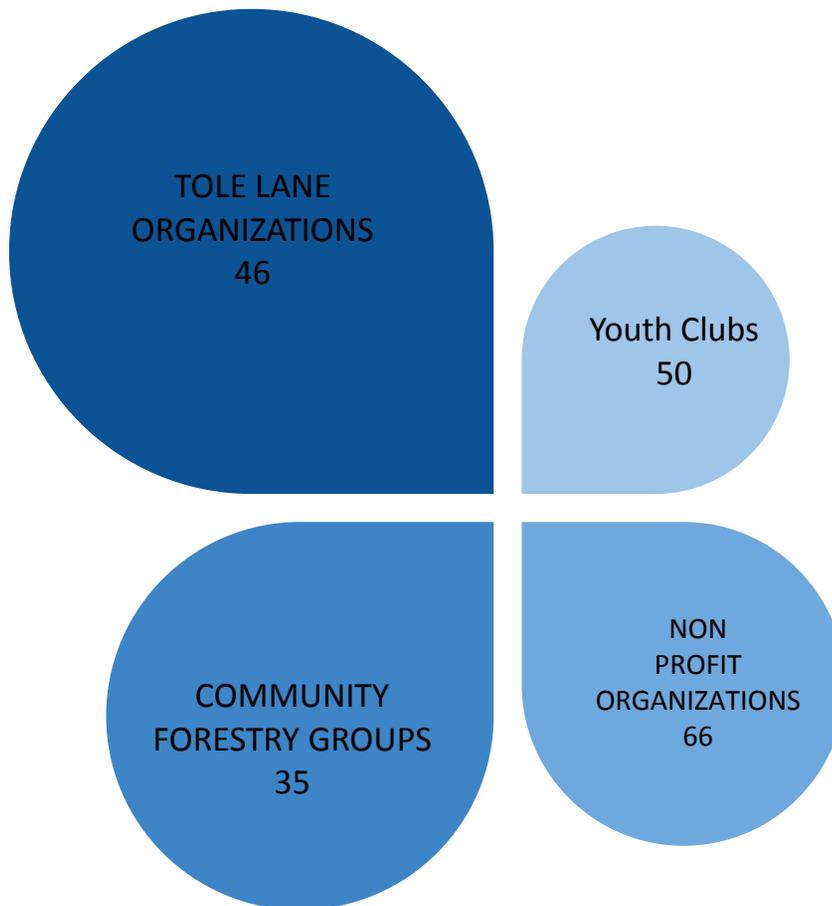
# DHULIKHEL: FACTS & FIGURES



# DHULIKHEL: ECONOMIC DRIVERS



# DHULIKHEL: SOCIAL DRIVERS



## ICT in Dhulikhel Then & Now

### Then

- ▶ Network system was unmanaged and improper.
- ▶ Digital Literacy was low
- ▶ Computer with low capacity were used. (Processor, RAM, Hard Disk and peripherals etc.)
- ▶ Pen drive were used for data transfer

### Now

- Internet Connection through optical fiber.
- Network infrastructure is well managed.
- Software-based Services.
- Different Management Information System (MIS) are used
- Data Server is established and maintained
- Bottleneck analysis are carried out