



SMART CITY DEVELOPMENT in Thailand

by **Chayatan Phromsorn**

Deputy Director General

Office of Transport And Traffic Policy and Planning

16 May 2019

SMART CITY DEVELOPMENT as NATIONAL AGENDA

National Smart City Committee

Deputy Prime Minister



Minister of Transport



Minister of Digital Economy and Society



Minister of Energy



Permanent Secretary
Ministry of Finance



Permanent Secretary
Ministry of Transport



Permanent Secretary
Ministry of Digital Economy and Society



Permanent Secretary
Ministry of Energy



Permanent Secretary
Ministry of Science and Technology



Permanent Secretary
Ministry of Interior



Permanent Secretary
Ministry of Tourism and Sports



Permanent Secretary
Ministry of Public Health



Permanent Secretary
Ministry of Education



Permanent Secretary
Ministry of Natural Resources and Environment



Director
Bureau of Budget



Secretary General
Office of the National Economic and Social Development Board



Secretary General
Office of the National Broadcasting and Telecommunications Commission



Secretary General
Office of the Council of State



Secretary General
The Eastern Economic Corridor Policy Committee



Permanent Secretary
Ministry of Foreign Affairs



Director General
Department of Public Works and Town and Country Planning



Secretary General
Thailand Board of Investment



Secretary General
Natural Resources and Environmental Policy and Planning

Co-secretariat



President/CEO
Digital Economy Promotion Agency



Director
The Office of Transport and Traffic Policy and Planning



Director
Energy Policy and Planning Office

Experts

Economic Affairs Experts

Social Affairs Experts

Telecommunication Experts

Smart City Master Plan and Roadmap

Smart City Project Management and Driven Subcommittee

7 Smarts Subcommittee



Thailand's Smart City definition and dimensions

“ A city that leverages technology, innovation, and good design to increase efficiency, cut costs, and innovate in relation to smart city management and service provision in order to achieve citizen's quality of life, happiness, and sustainability ”



SMART
LIVABLE CITY

SMART
NEW CITY

Smart City Development Roadmap



2018

2019

2022

2020

2019

2018

3 Thai cities in the
world smart city
ranking

100 cities

76 provinces + Bangkok

60 cities

30 provinces

30 cities

24 provinces

10 cities

7 provinces

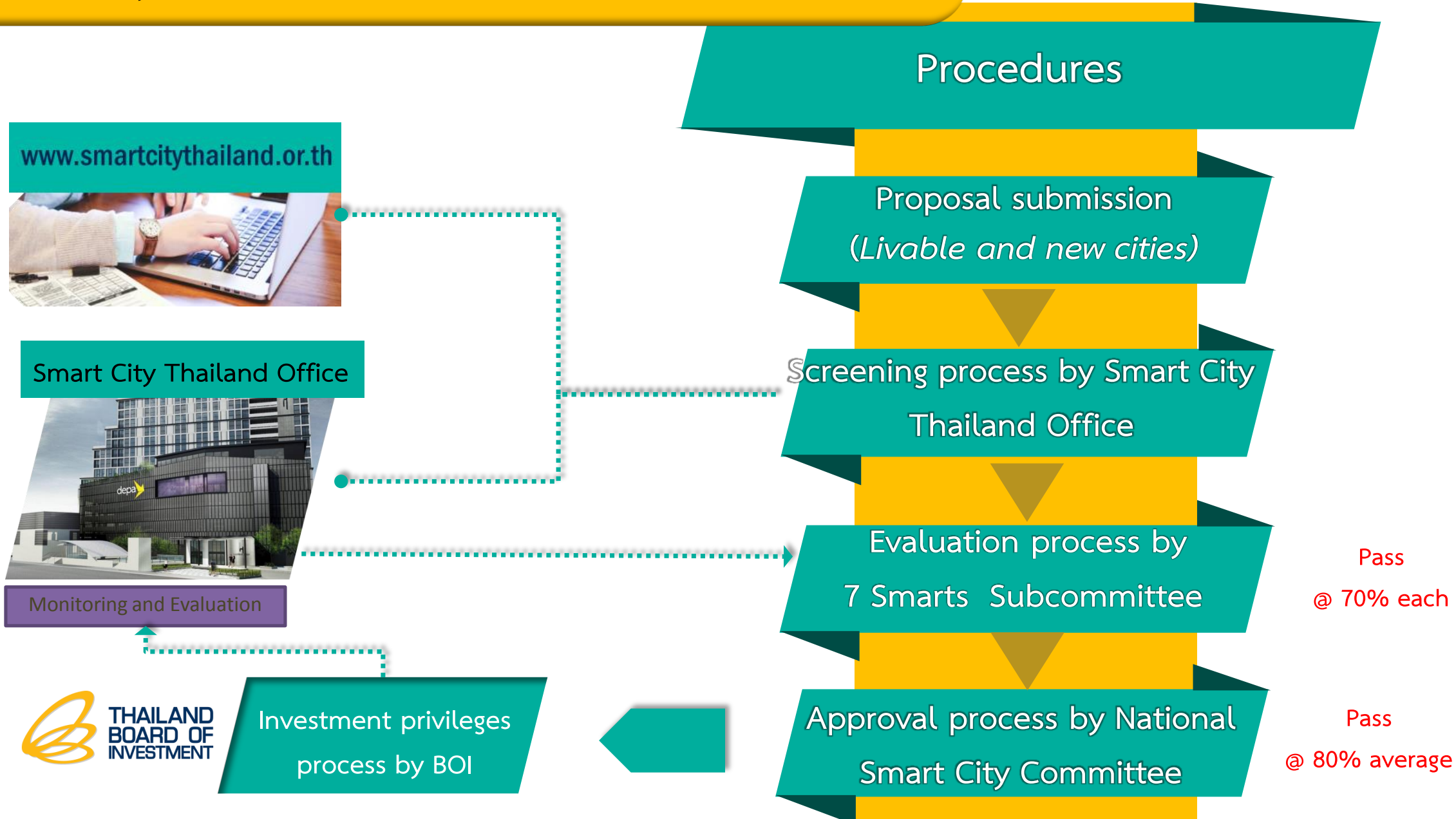
- Phuket
- Chiang Mai
- Khon Kaen
- Bangkok
- Chonburi
- Rayong
- Chachoensao

- Chiangrai
- Pitsanulok
- Nan
- Krabi
- Pangha
- Songkla

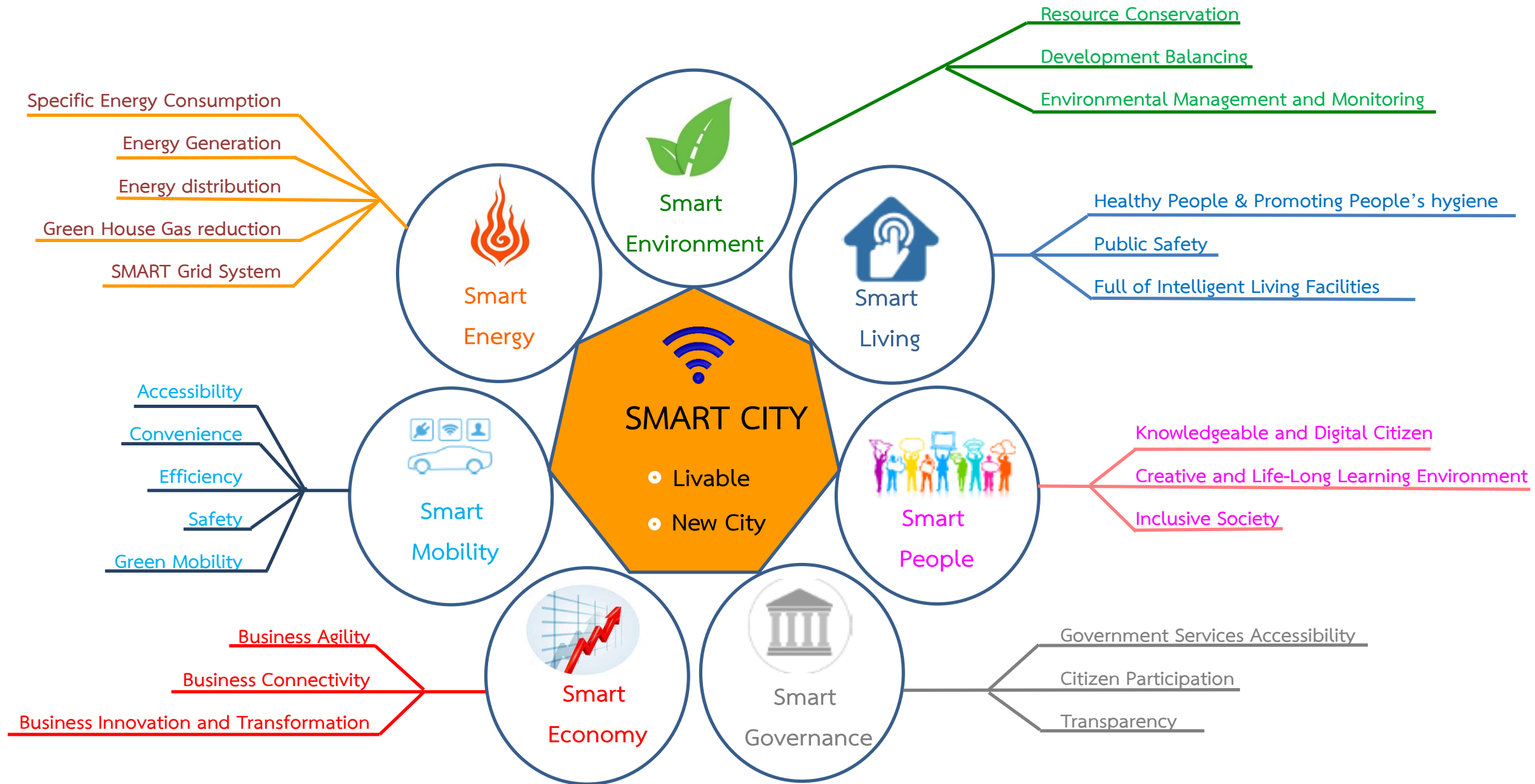
- Ubolrajathar
- Udonthani
- Yala
- Pattani
- Narahiwas

- Nong-khai
- Nakhonpanc
- Mukdaharn
- Satul
- Nakornsrihammarat
- Ranong

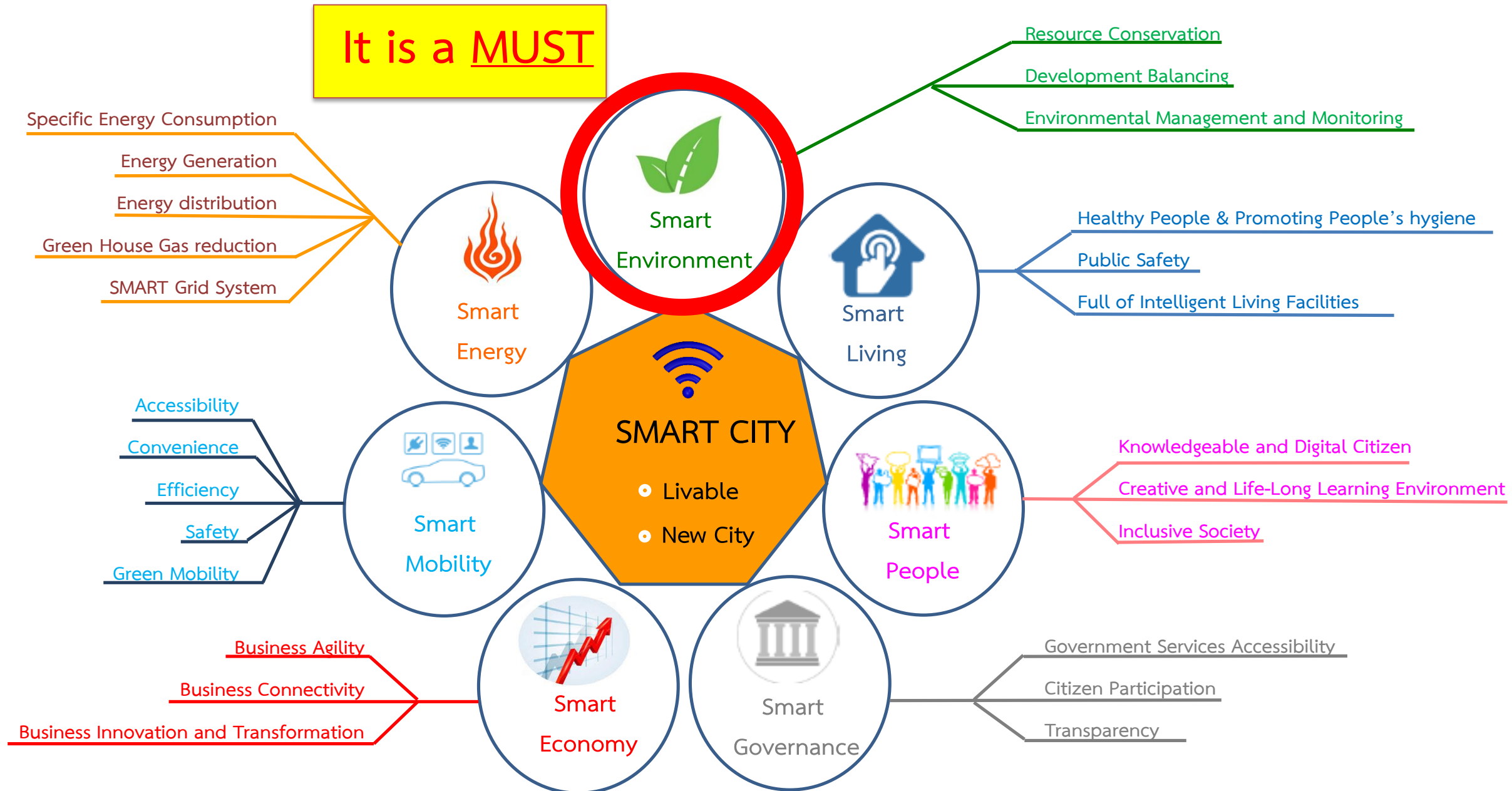
Smart City Evaluation Criteria and Procedures



Criteria of Thailand Smart City



Criteria of Thailand Smart City



Benefit BOI

Area Development

SMART ENVI. (must) + other SMART (at least 1)

- All 7 SMARTS : Tax Exemption for 8 years (Max. Limit)
- 2 - 6 SMARTS : Tax Exemption for 5 years

Supporting System in SMART CITY AREA

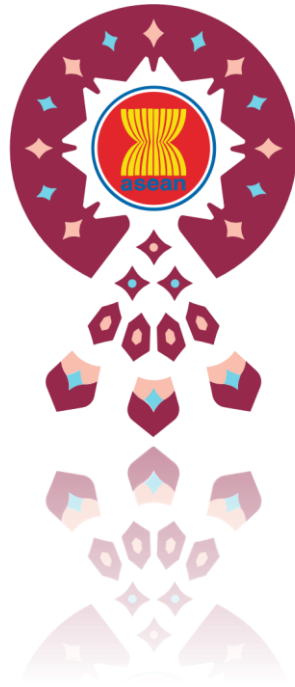
- All 7 SMARTS : Tax Exemption for 8 years
- 2 - 6 SMARTS : Tax Exemption for 5 years (Max. Limit)



OFFICIAL WEBSITE



www.smartcitythailand.or.th



ASEAN
THAILAND 2019
ADVANCING PARTNERSHIP
FOR SUSTAINABILITY

FOR SUSTAINABILITY
ADVANCING PARTNERSHIP
THAILAND 2019

ASEAN Smart Cities Network (ASCN) 2019

2019
Network (ASCN)
ASEAN smart cities



THAILAND : CHAIRMAN of ASEAN



ASEAN
THAILAND 2019
ADVANCING PARTNERSHIP
FOR SUSTAINABILITY

ASEAN

SMART CITIES NETWORK

Pilot Cities



Bang Sue Grand Station

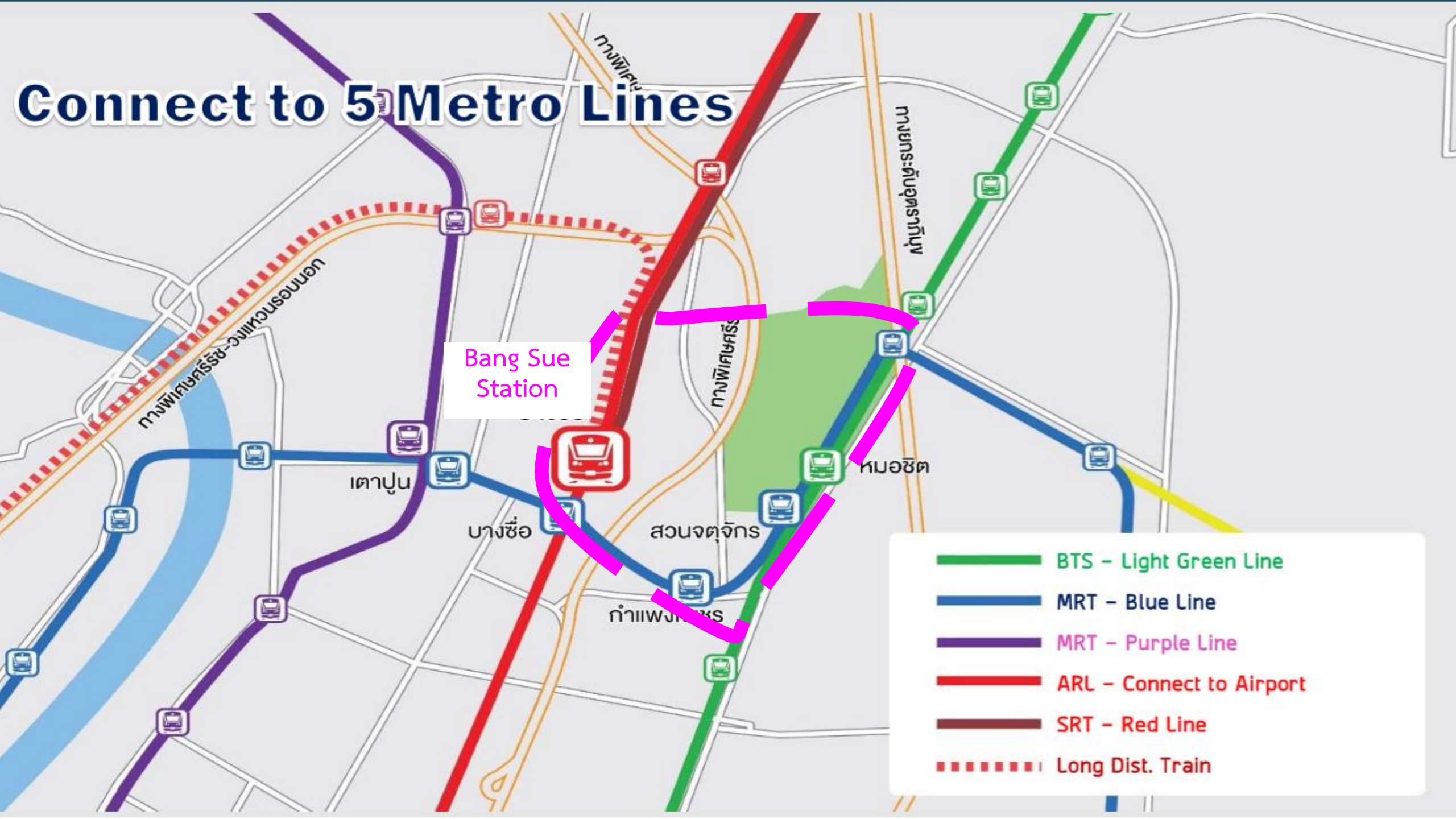


Bang Sue Grand Station

**The beginning of a new journey
with a rail system**



Connect to 5 Metro Lines



From Bang Sue Grand Sta. toward all areas of Thailand

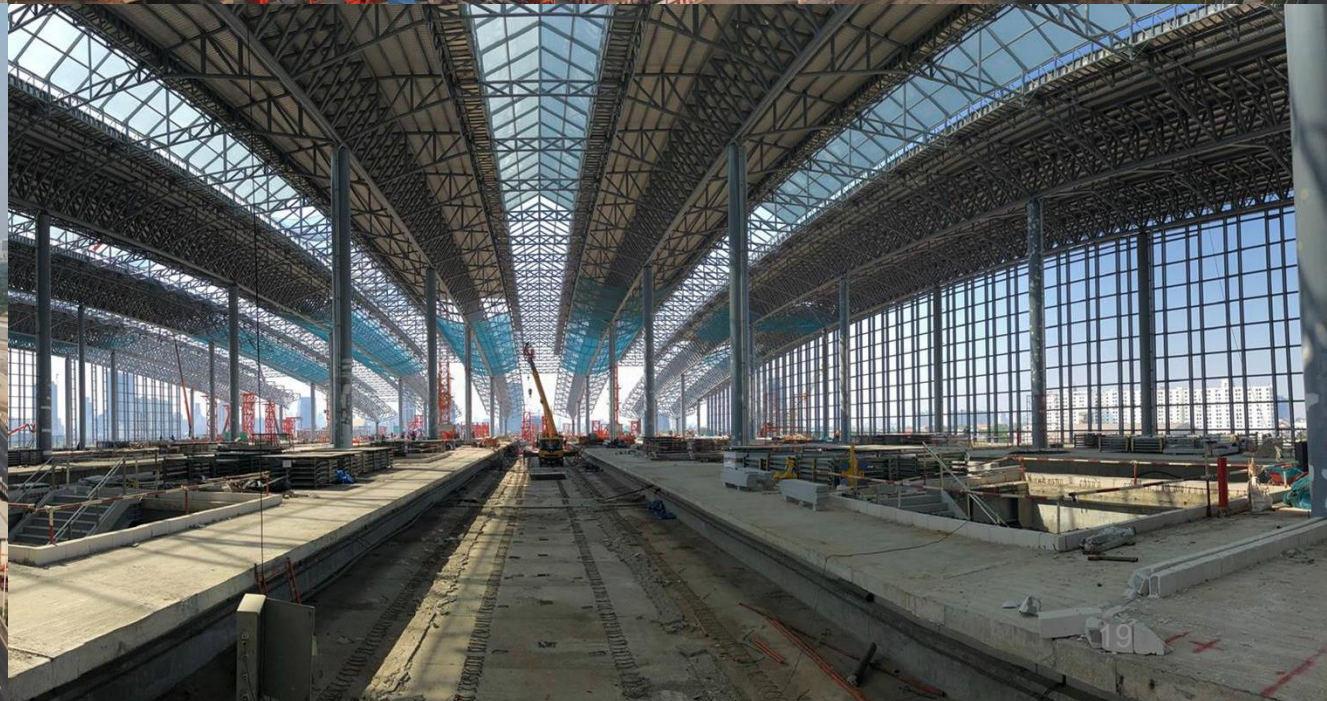


Floor 3 : HSR Platforms

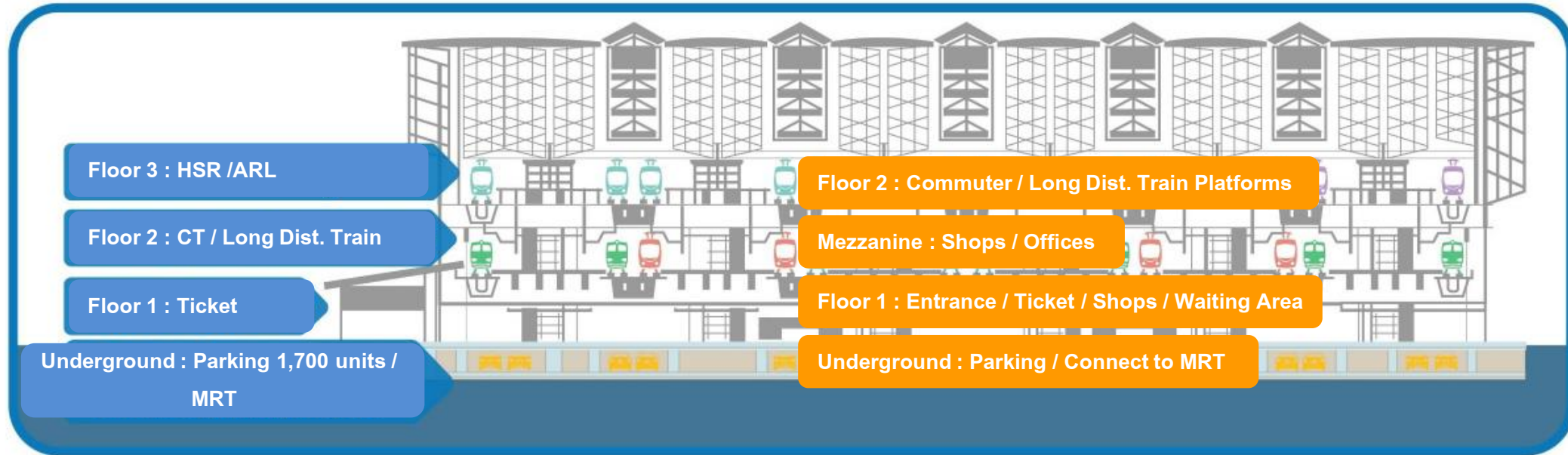


Floor 2 : Commuter / Long Dist. Train Platforms





2021 Opening of New Transport Hub



Area **264,862** sq.m.

4 Platforms for CT

8 Platforms for Long Dist. Train



10 Platforms for HSR

2 Platforms for Airport Rail Link

372 Hectares (2,325 Rais)

Golden Location



**SCG
Chemical**



Bang Sue Grand Station : New CBD



Skywalk connects Office Towers and stations (① ③)

Two stations (① ②) are connected each other through Shopping Mall and water path

Phuket Smart City



PHUKET SMART CITY

Smart City Data Platform

3 Intelligent

Tourism IoT Env. Sensors + Safety Real Estate



2 Interconnected

Data Integration + Analytic → Services



Gov. Open Data



Social Analytic



Data from Instrumental (Near Real time)

1 Instrumental (Near Real time)



City Application



Wast lot



Public WiFi



City + Marine Safety



Env. Sensors



Transport

Smart Safety

Now :- CCTV Integration 700 of 1,300 cameras

- LPR (8 Installation point, 37 cameras, Detected > 59.38 M plate)
- Face recognition (3 Fixed cameras, 8 Smartphone Detected > 1.49 M)
- Traffic law enforcement (5 Installation point, 41 cameras, Detected > 41 M, 620 K Offenders)
- CCTV Command Centre
- Vessel Tracking and Monitoring System (23 Radar + AIS Stations)
- Maritime Safety (1 Pier UAT, 4 Piers expend)
- Guide / Job order System

New :- Integrate data with Smart City Data Platform
- 3,500 cameras for Complete CCTV

Smart Healthcare

Now :- Project plan

Smart Economy

Now :- Smart City Innovation Park (IoT Lab, Co Creation Space, Investment OSSC)

- 200 SMEs participated Digital transform Courses
- 28 BOI Digital Cluster, 156 M Invest
- 5 x 500 K Fund for Smart City Startups

New :- Digital OSS for Startups + SMEs
- 200 SMEs to Digital transform
- 50 Startups

Smart Tourism

Now :- PHUKET App. for FIT

- Support Tourism Startups
- Public free WiFi (1,000 AP / >1.3 M Accounts > 40 K Connected per day)
- LoraWAN Network (35 base, > 500 sq.km)

New :- Collaborate PRSThailand for content + PR on PHUKET App.
- Integrate data with Smart City Data Platform

Smart Environment

Now :- 10 IoT sensors stations (CO, DO, Water levels, etc.)

- 16 IoT sensors stations (Rain, Temperature, Humidity)
- Traffic Waste Platform (10 Installation point in Patong)

New :- 5 IoT sensors station on NB-IoT

- Integrate data with other sensors platforms
- Integrate data with Smart City Data Platform

Smart Education

Now :- Project plan

Smart Governance

Now :- Smart City Data Platform

New :- Phuket Intelligent Command Center



Phuket City Data Platform Framework



End User

- Prime Minister
- Minister
- Management
- Governor
- Mayor



End User

- Investor
- Entrepreneur
- Startup
- People
- Tourist

Intelligence

**Use Case Data
Analytic Services**

**Tourist
Behaviour**

**Safety /
Environment**

**Investor
Information**

Phuket City Data Platform



Interconnection



Report & Analytic Tool



Government Open Data

Social Analytics

OPEN DATA



Admin & Support



Cloud Server

Data Source (Near Real Time IoT Data Capture)

Smart City Services



City Application



Public
Wi-Fi



Tourist
Data



IoT Environment
Sensors



Marine
Monitoring



City Safety/
Security



Energy
Reports

VISA



Smart Safety,

Now: CCTV Integration 700 of 1300 cameras for 8 police station + 3 local government

Phuket

การบูรณาการกล้อง CCTV
และประมวลผลภาพเพื่อป้องกัน
อาชญากรรมเชิงรุก



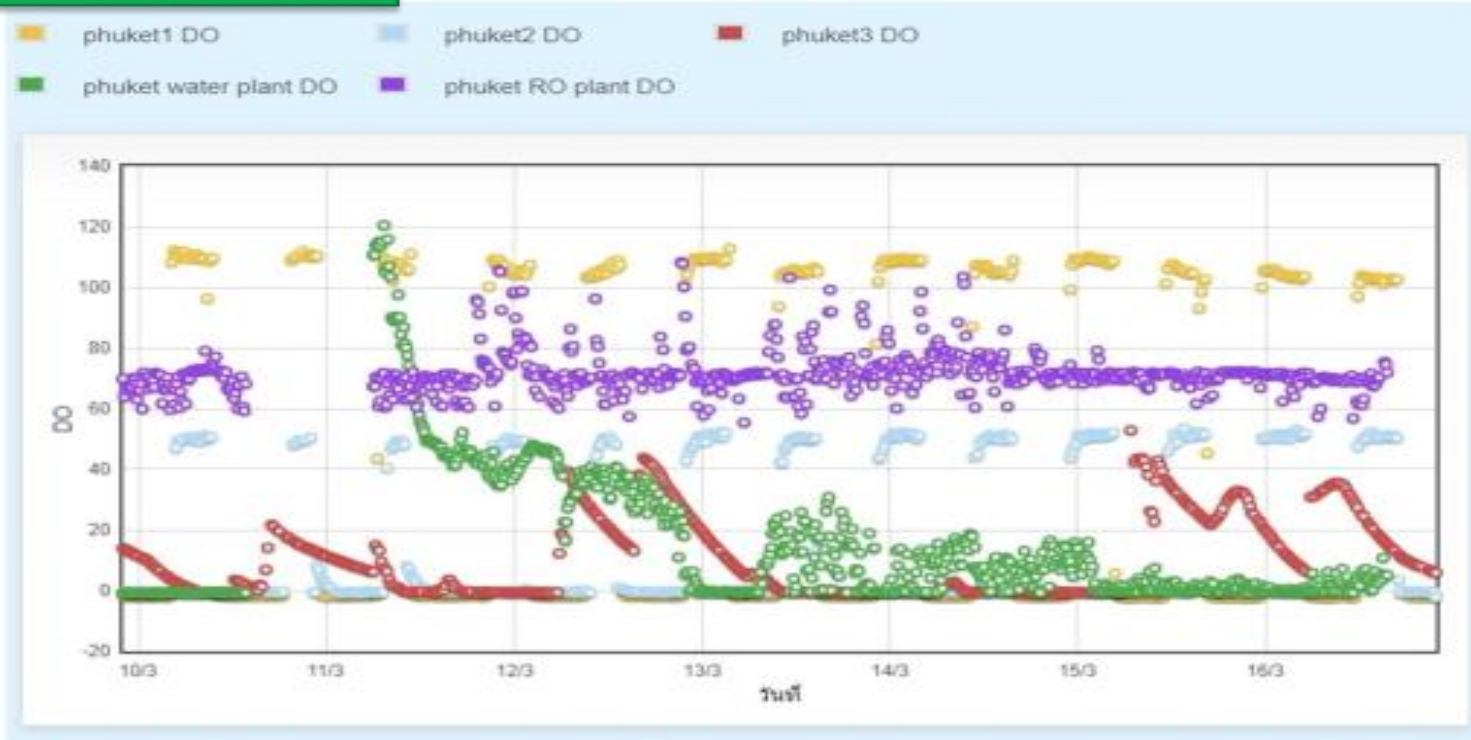
- มี ระบบรู้จำป้ายทะเบียน ตรวจสอบและติดตามรถยนต์ที่เป็นป้ายทะเบียนต้องสงสัยได้ สามารถอ่านป้ายทะเบียนได้ทั้ง ไทย-อังกฤษ
- สามารถคำนวณความเร็วเฉลี่ยของรถผ่านกล้อง ๒ กล้องที่อยู่บนเส้นทางเดียวกันได้
- ระบบประมวลผลรู้จำใบหน้าบุคคลเพื่อตรวจจับใบหน้าของผู้ต้องสงสัย ที่แฝงตัวมากับผู้โดยสารบนรถยนต์ / รถตู้ / รถบัส



Environment



Environment



หมายเหตุ

Phuket1 คือ สะพาน 200ปี

Phuket2 คือ สะพาน ปากบาง

Phuket 3 คือ สะพาน คลอวีล

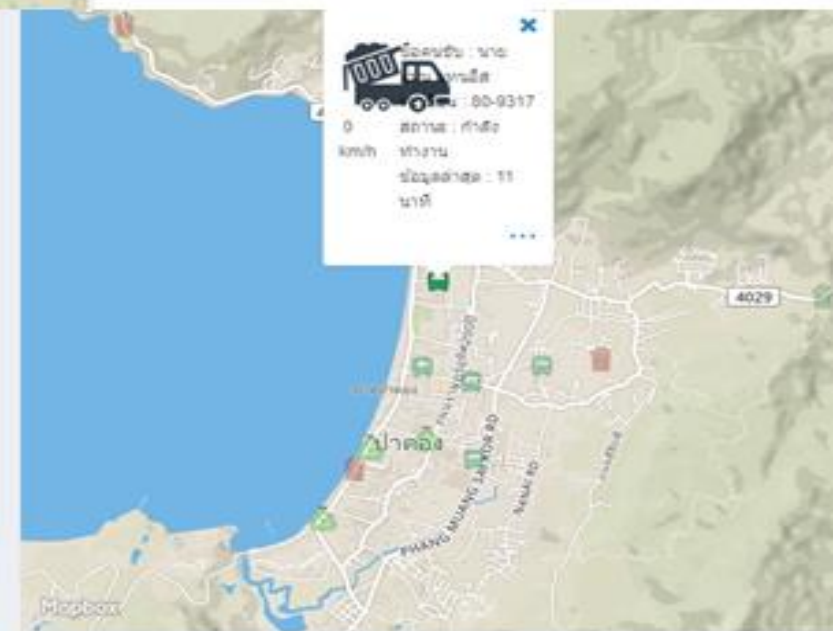
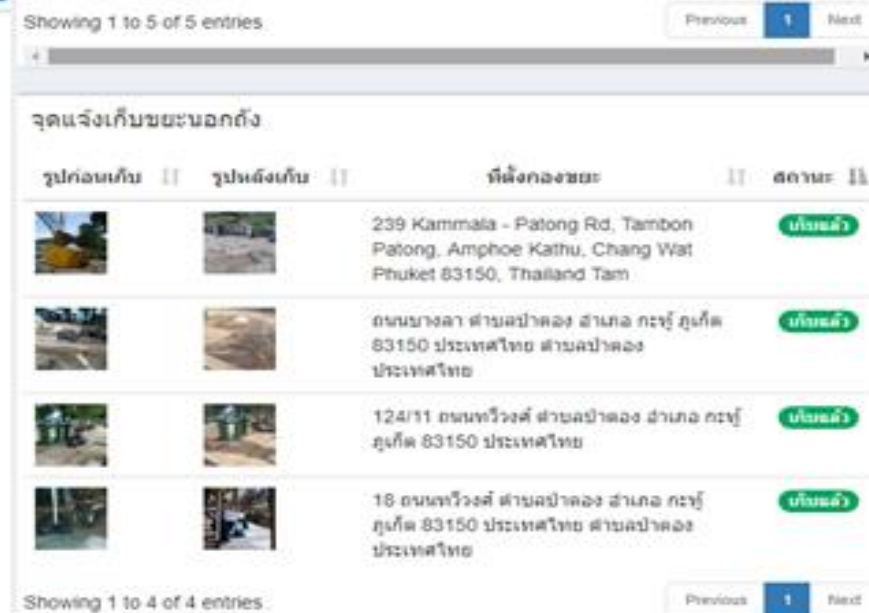
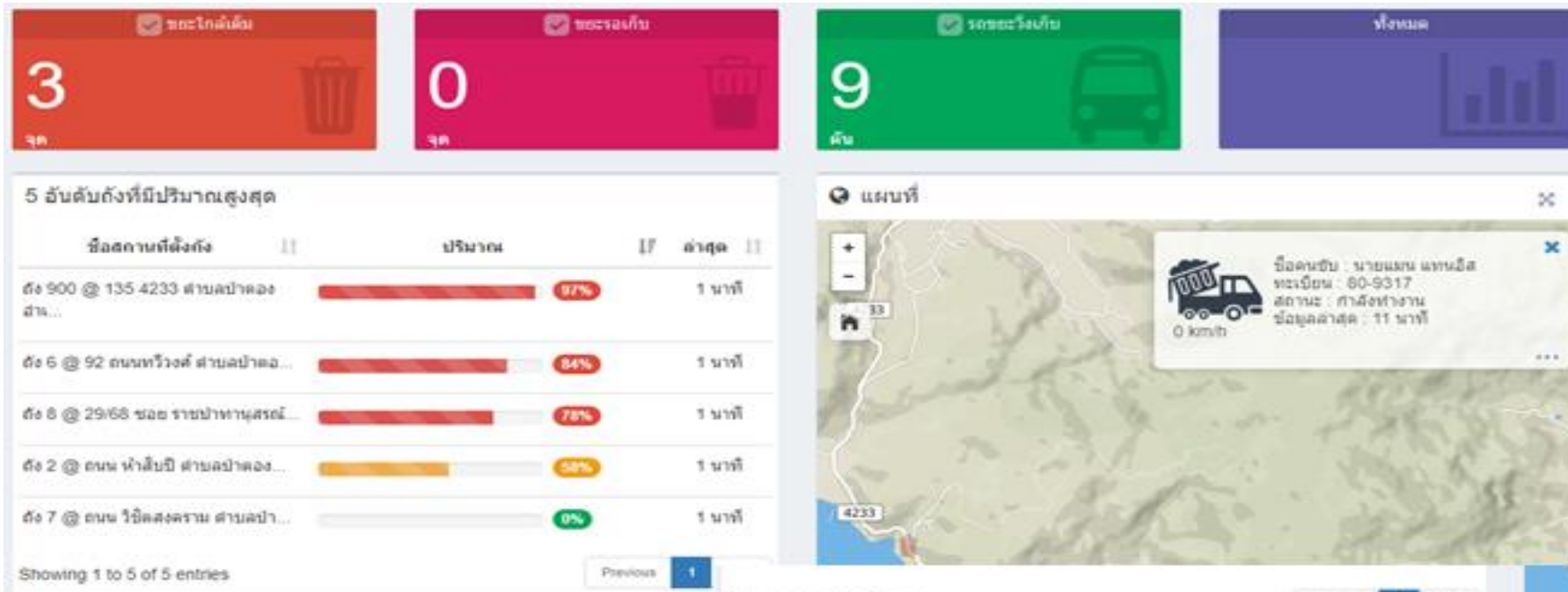
Phuket water plant คือ บ่อน้ำบัก

Phuket RO plant คือ หลังโรง RO

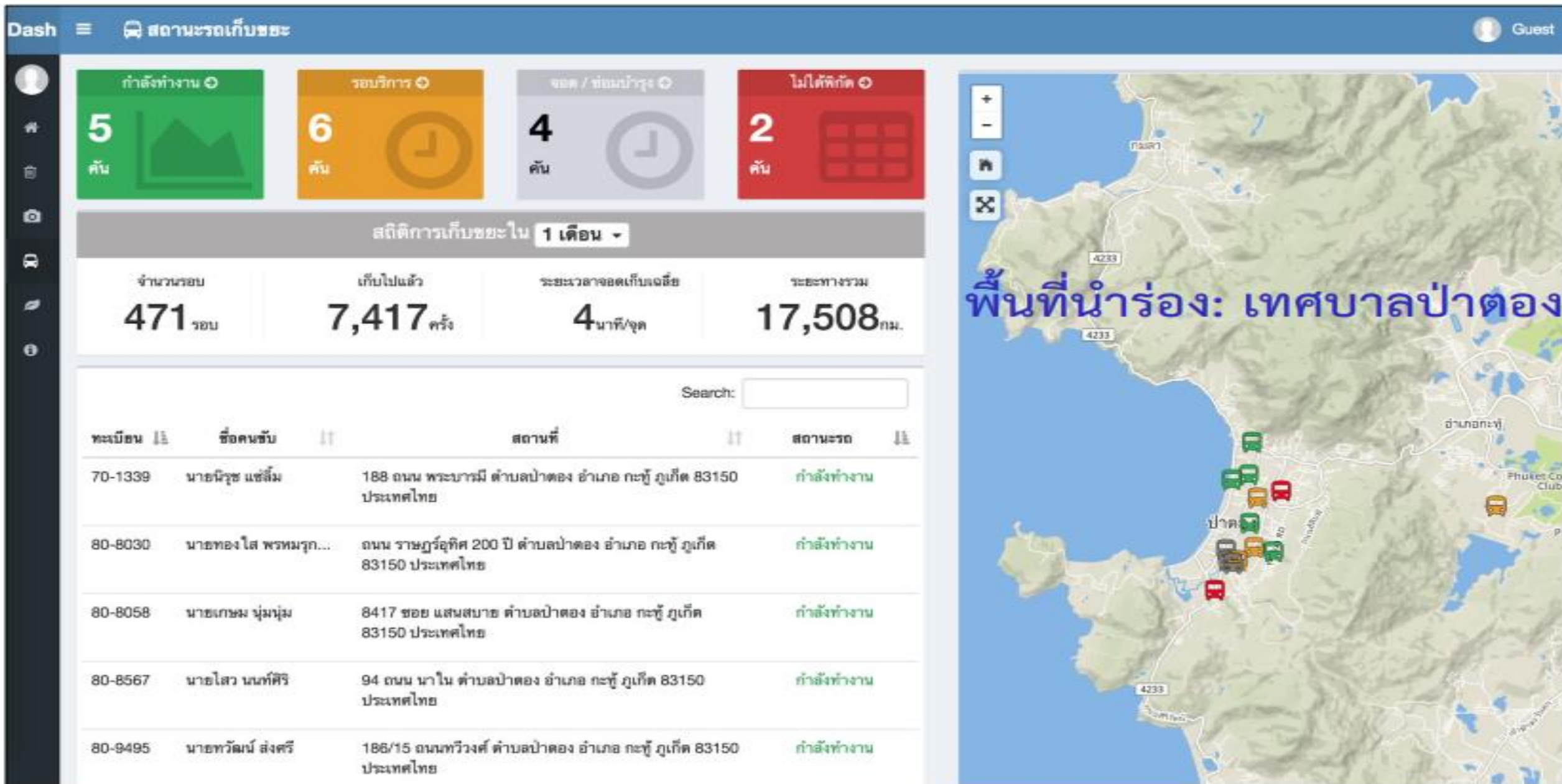
ใช้เฉพาะเจ้าหน้าที่และ
ผู้บริหารเทศบาลเมืองป่าตอง



Environment



Environment



Develop Application for Tourism

 ภาพรวม

 จราจร

 ชะยะ

 ปริมาณน้ำฝน

2 ส.ค. 2561 15:57:46

 13/14

ความหนาแน่นการจราจร

 8/8

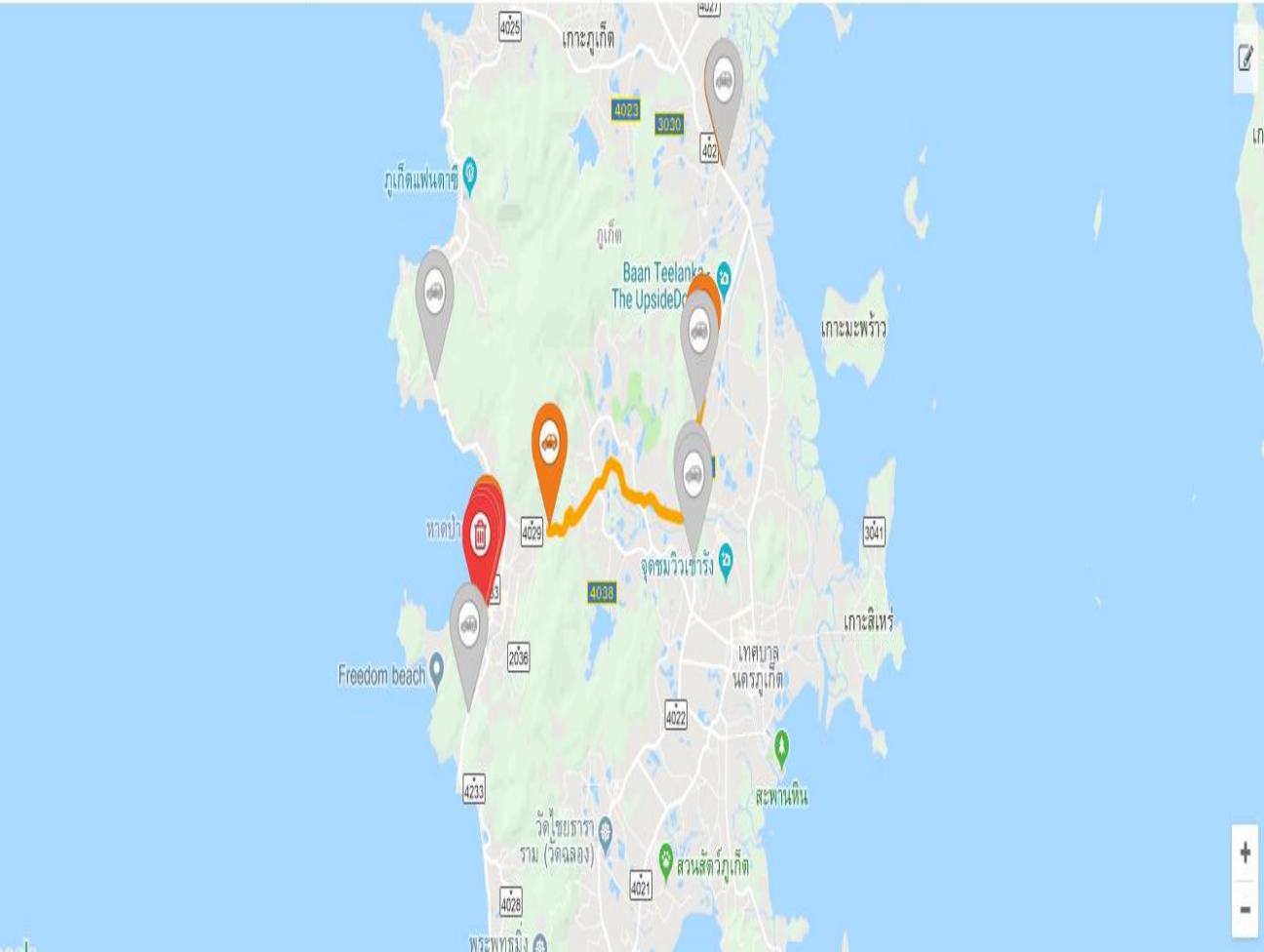
ปริมาณขยะในถัง

 0/21

น้ำฝนสะสมต่อชั่วโมง

 1/22

น้ำฝนสะสม 24 ชั่วโมง



 ภาพรวม

 จราจร

 ชะยะ

 ปริมาณน้ำฝน

2 ส.ค. 2561 15:55:24

21 สถานีทั้งหมด

 น้ำฝนสะสมต่อชั่วโมง

21 ปกติ

0 เฝ้าระวัง

0 เตือนภัย

 น้ำฝนสะสม 24 ชั่วโมง

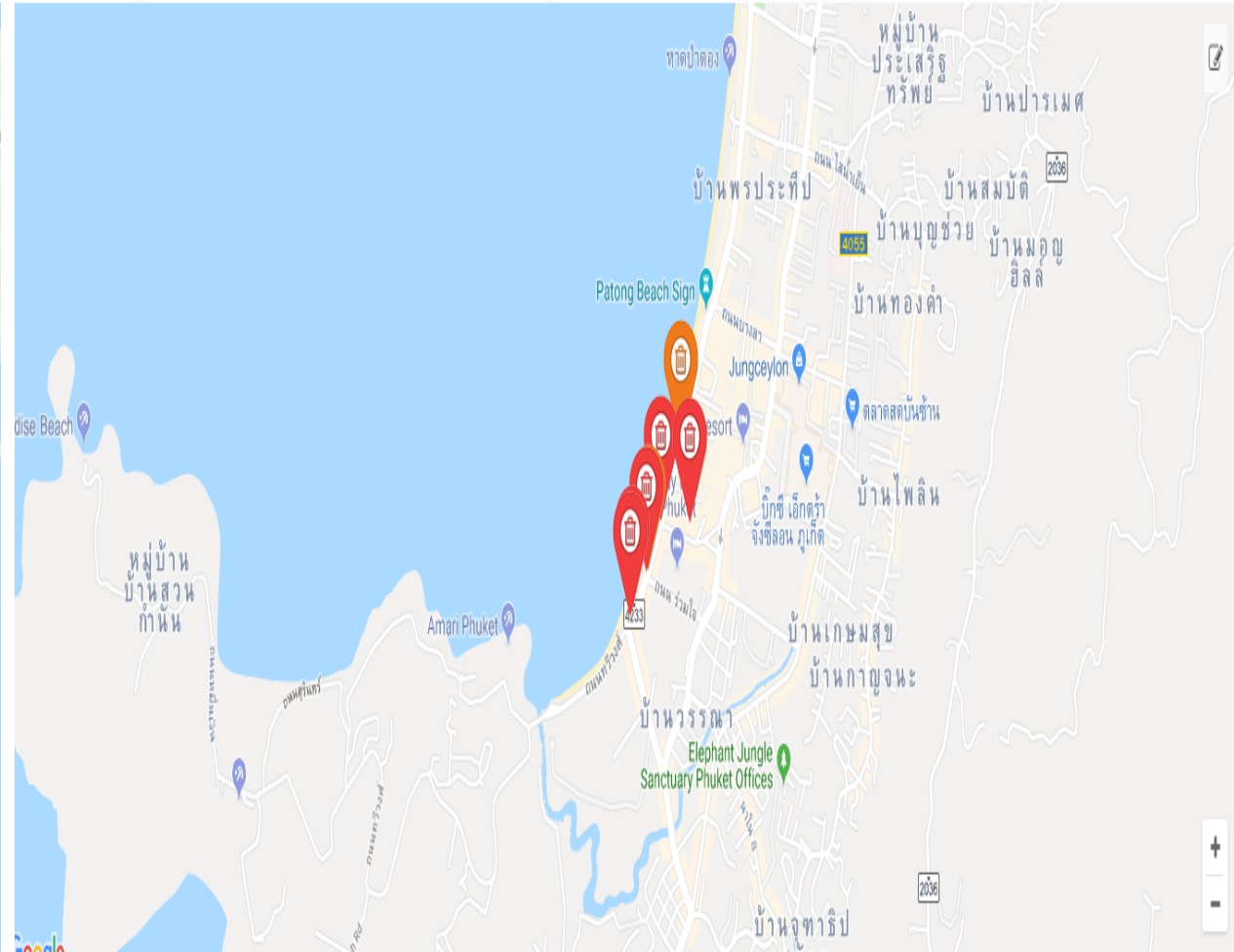
21 ปกติ

0 เฝ้าระวัง

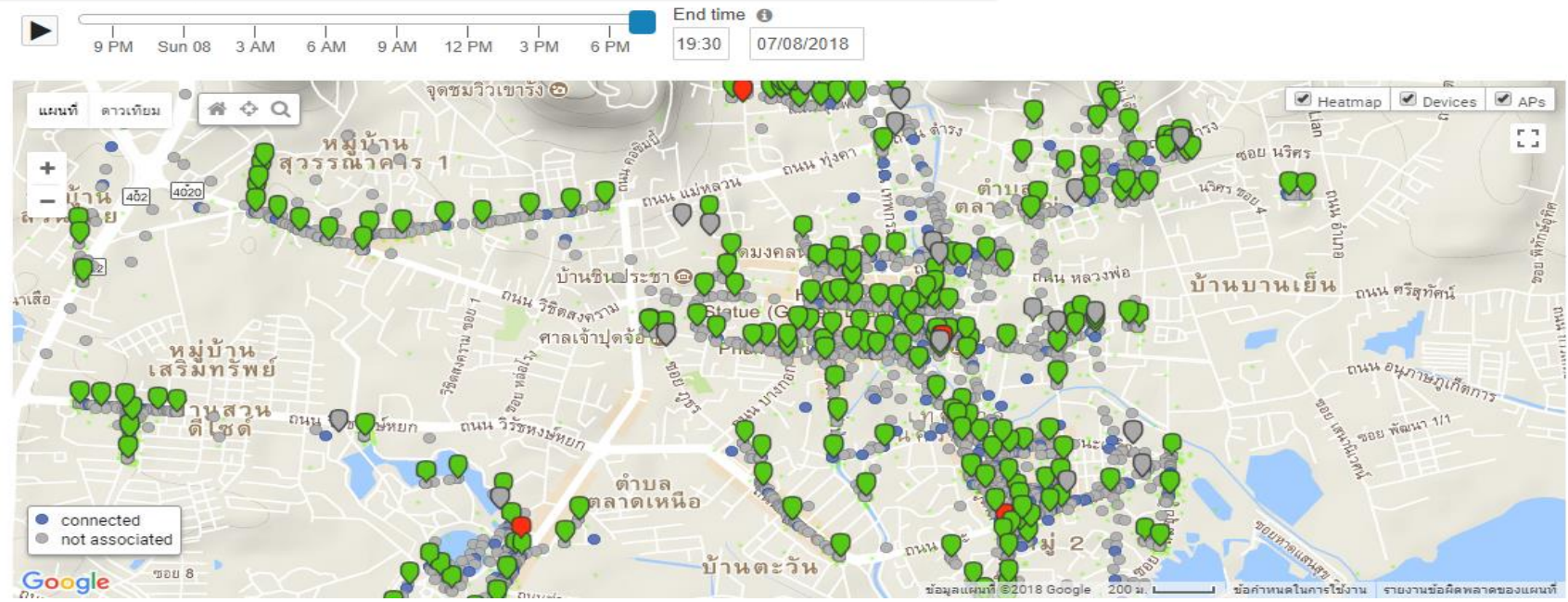
0 เฝ้าระวัง

1 เตือนภัย

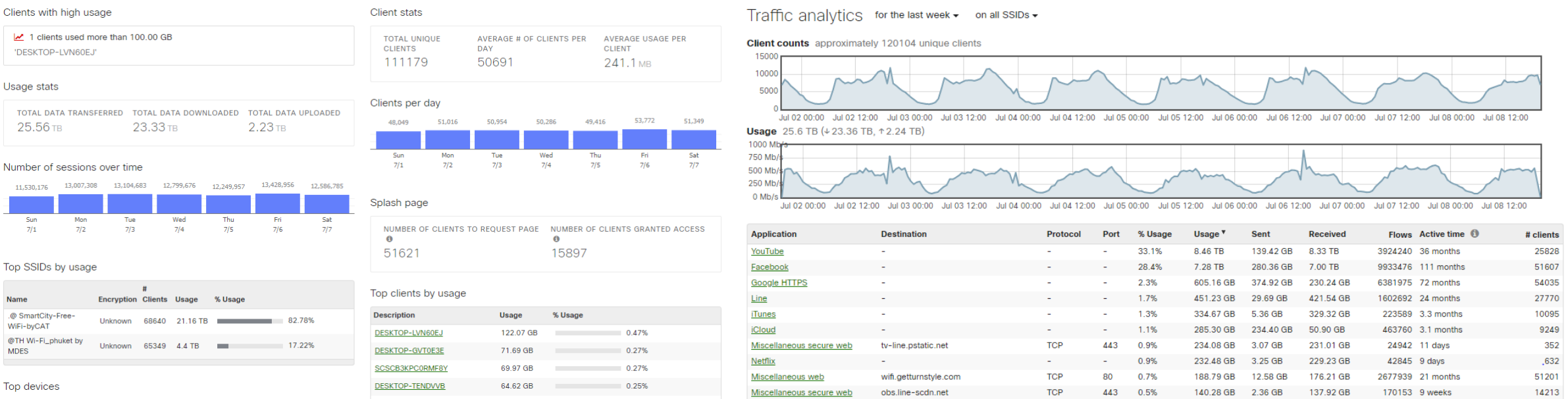
 เปิดพื้นที่ปิด



Develop Application for Tourism



Free WiFi Tourist Behavior analytis



Develop Application for Tourism



จำนวน 16 สถานี

(อ.กะทู้ 12 จุดและอ.เมือง 4 จุด)



NECTEC
a member of NSTDA



AMATA CITY





AMATA CITY

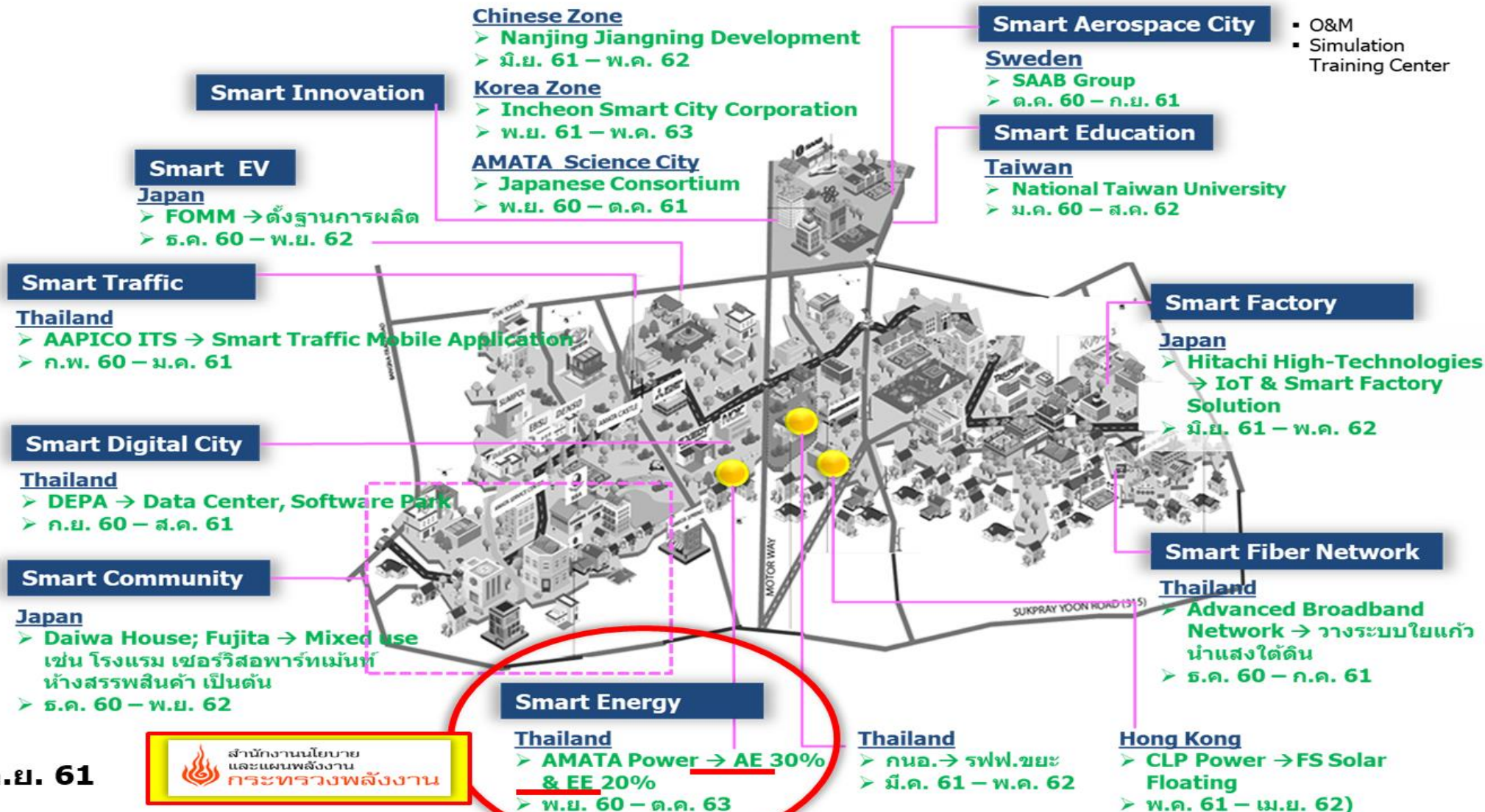


Twin City
with
Yokohama

ก.ย. 61

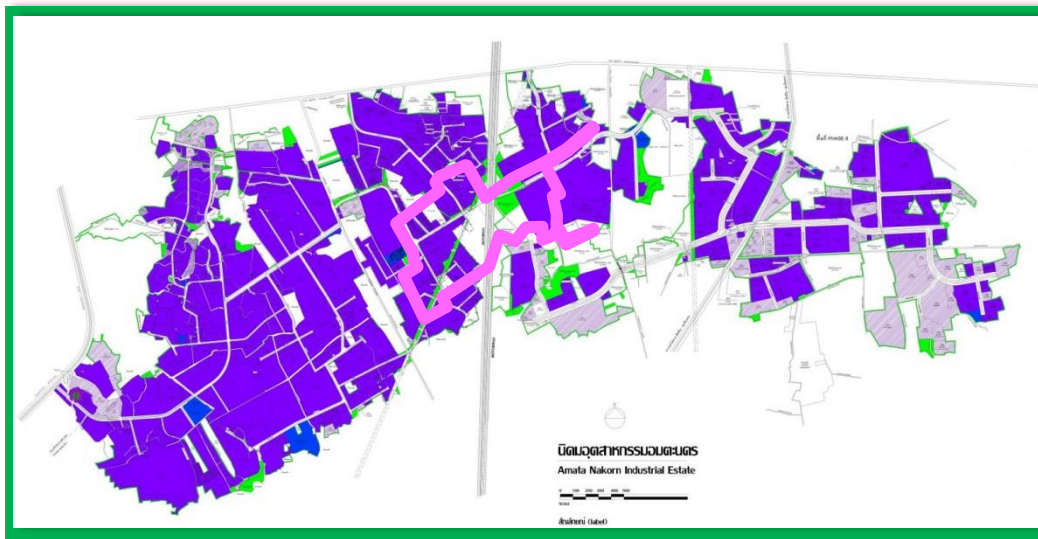


สำนักงานนโยบาย
และแผนพลังงาน
กระทรวงพลังงาน





พัฒนานิคมอมตะนครสู่เมืองอัจฉริยะด้านพลังงาน



END

1. Renewable Energy > 30%
2. Energy Efficiency > 20%



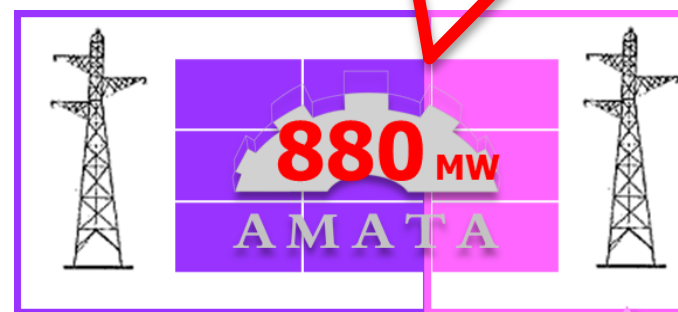
8 Substations

600 MW

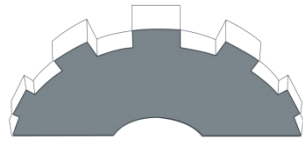


5 SPP/BGrim

730 MW



280 MW



AMATA

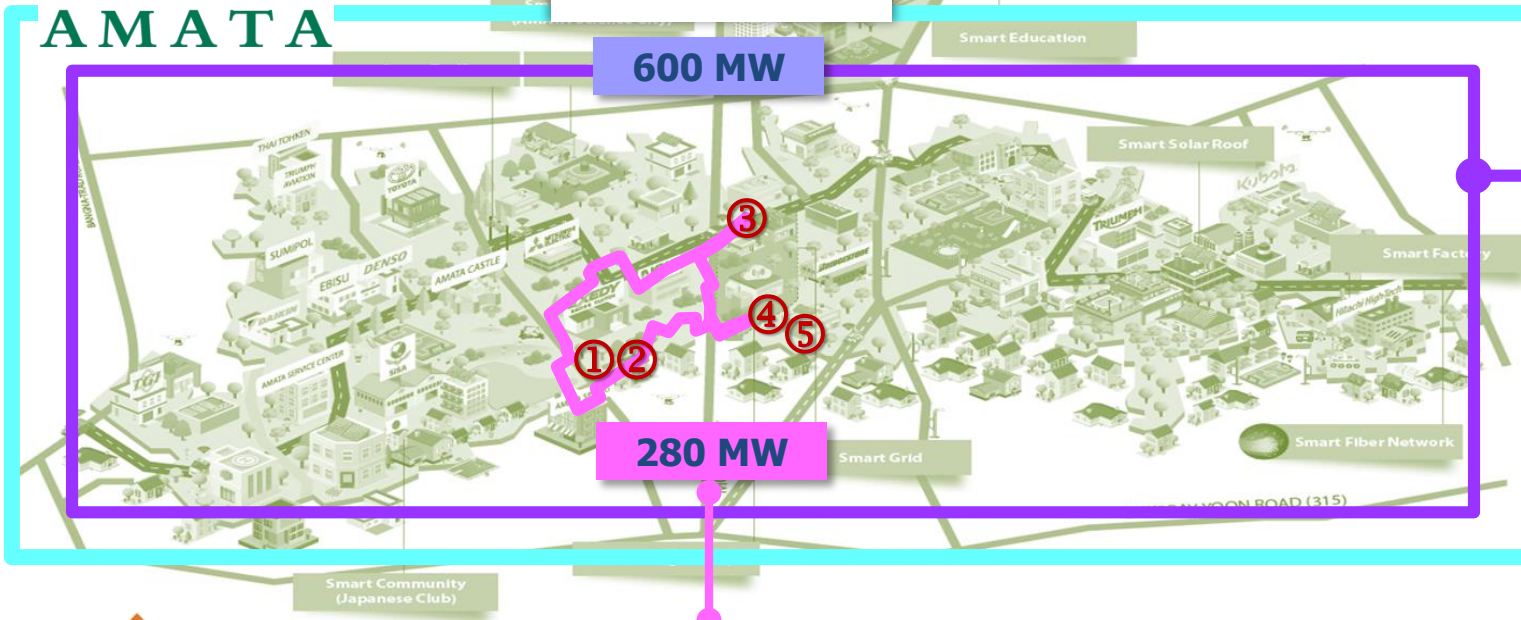
880 MW

115 KV / Back Bone

600 MW

8

Substations



280 MW



ABP					
COD	ก.ย. 41	ก.ย. 44	ก.ย. 55	พ.ย. 58	มิ.ย. 59
MW	166	171	133	131	132
EGAT (MW)	90	90	90	90	90
IUs (MW)	76	81	43	41	42
ton/hr	30	30		30	30
Firm	21 ปี	21 ปี	25 ปี	25 ปี	25 ปี

730 MW

450 MW

280 MW

PPA



EGAT

Power for Thai Happiness



Aims

1. RE 30%
2. EE 20%
3. GHG 30%



Engineering design & financial modeling
Micro smart grid: High RE & ESS & etc.

Zero Net?

Independence grid

- ไม่เป็นภาระกริดใหญ่
- ช่วยกริดใหญ่นำมาจ่ายเงิน

Feasibility

2

1

AMATA
SANDBOX

HOW?

Single Grid

3

New
innovation

- ESS
- EMS
- AMI
- Big data
- ML
- Blockchain
- ...

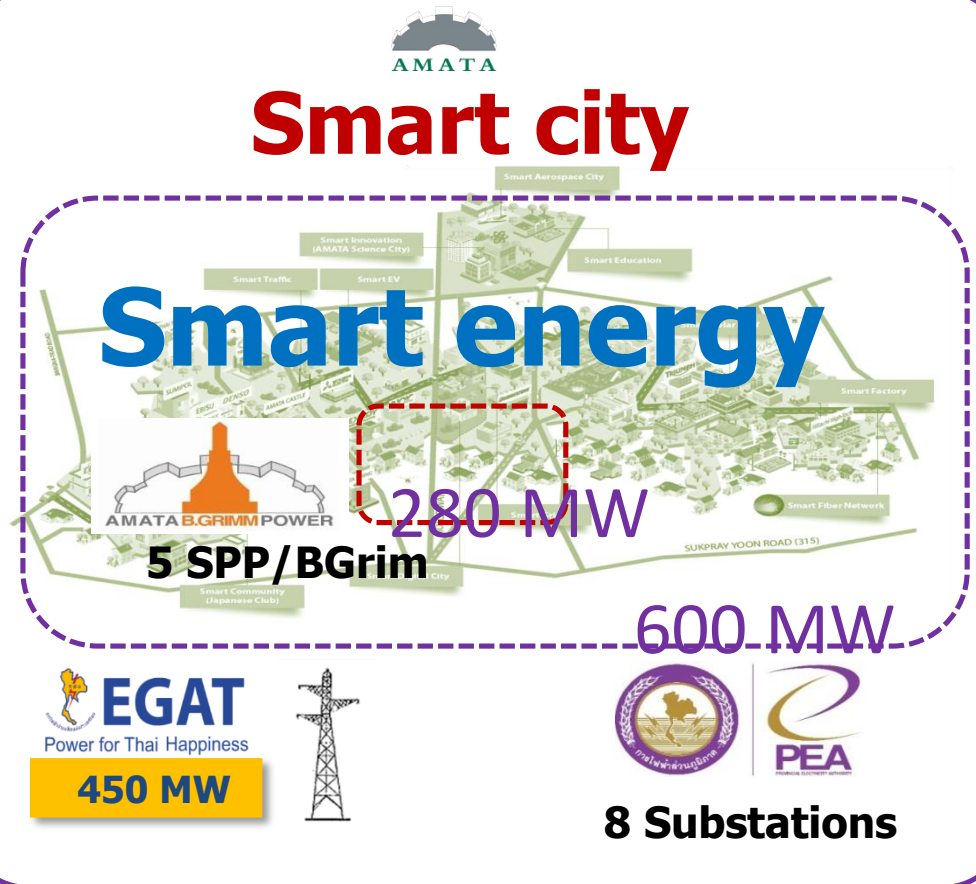
4

DR Business

5

Release Law &
Regulations

- P2P
- Realtime pricing
- CRP pricing
- TPA
- ...



AMATA
PDP

❖ ASEAN Smart Cities Network Workshop

Date : 6 - 7 June 2019

Activities: Roundtable Meeting, Study Visit, Exhibition, Conference

❖ ASEAN Smart Cities Network Conference and Exhibition

Date : 22 - 24 August 2019

Activities : Roundtable Annual Meeting, Study Visit, Exhibition, Seminar, Business Matching

❖ ASEAN – Japan ASCN High Level Meeting

Date : 7 – 9 October 2019

Place : Yokohama, Japan



THANK YOU



Thailand SMART CITY

