

**KINGDOM OF CAMBODIA**

**NATION RELIGION KING**

**SIEM REAP**



**INTERNATIONAL TRAINING WORKSHOP**

**SMART CITY OF SIEM REAP**

**29<sup>th</sup> August- 1<sup>st</sup> September 2023, NAGOYA, JAPAN**

# SIEM REAP CITY

Ms. LIM PHALLIKA,  
Vice Mayor of Siem Reap Municipality

Email: [Phallikalim28@gmail.com](mailto:Phallikalim28@gmail.com)

Mobile: (+855)12 652 629



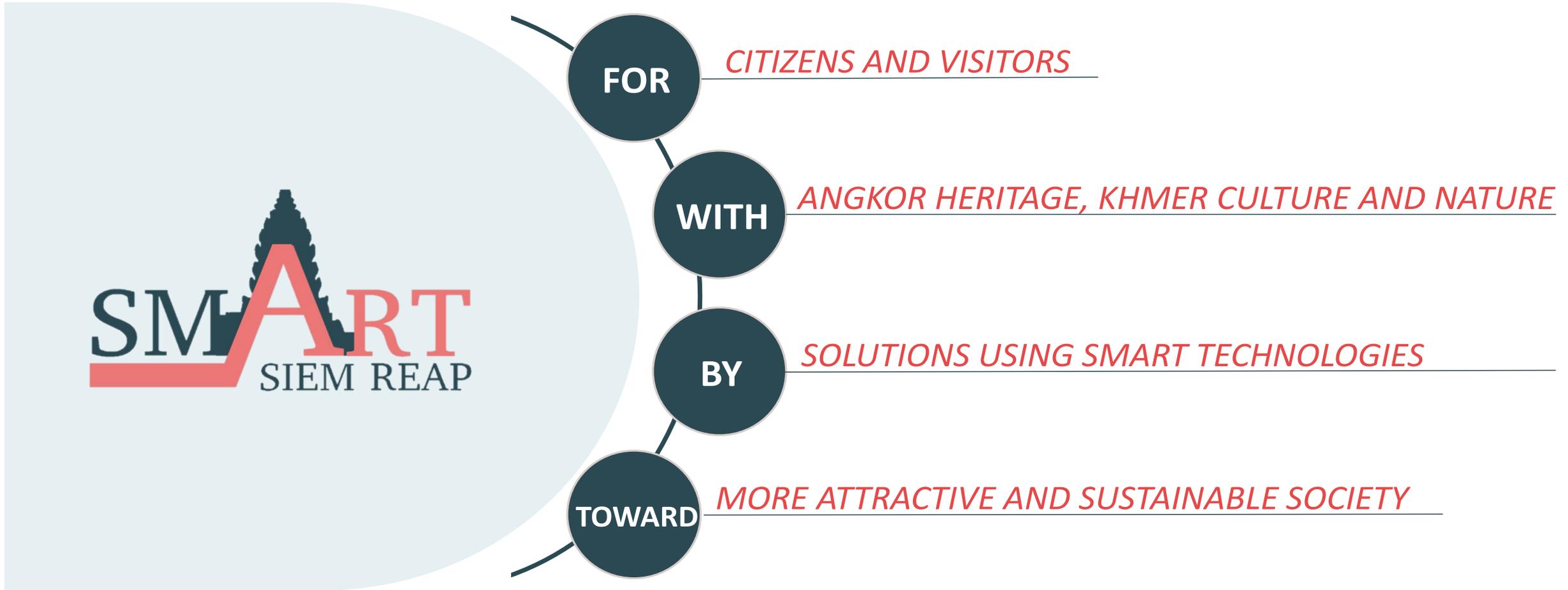
# Content

1. Siem Reap City Profile
2. Siem Reap Smart City Vision
3. Major Issues and Challenges in Siem Reap City
4. New Initiatives, New City Plans and Projects
5. Good Examples and Case Studies of Siem Reap City
6. Expectation from the Smart City Training Workshop

# 1. Siem Reap City Profile

City Data		City Data Economic	
Size of Territory	424.73 km <sup>2</sup>	GDRP	1517.07US\$ (2022)
Topographic Profile	Central Plain Area	GDRP – Share of Agriculture	28 %
Distance to Capital	314 km	GDRP – Share of Industry	0 %
Male Population	146 563 person	GDRP – Share of Services	54 %
Female Population	156 770 person	No of SMEs	1030 places
Population < 18	92 127 person	Main Economic Activity	Tourism Sector
Population >18	227 933 person	Secondary Economic Activity	Agriculture Sector
Total Population	303,333 person ( <i>June 2023</i> )	City Tax Collection / Year	9 685US\$ (2022)
Number of Households	69 964 households	City Budget / Year	896 125US\$ (2022)

# 2. Siem Reap Smart City Vision



# 3. Major Issues and Challenges in Siem Reap City

1

TOURISM

2

SECURITY AND SAFETY

3

WASTE MANAGEMENT

4

MOBILITY

# TOURISM

01

Lack of promotion of tourist attractions other than Angkor Archaeological Site.

02

Tourism information is not centralized.

03

Lack of promotion of additional visual information at heritage area.

04

Some potential tourist attractions in city are not fully utilized.

# **SECURITY AND SAFETY**

01

Upgrade of prevention and detection of dangerous driving is needed.

02

Facilities and systems for early fire detection and initial fire extinguishing are needed.

03

Need for more safety against risks of traffic accidents and crimes.

04

Upgrade of crime prevention and crime detection is needed.

# WASTE MANAGEMENT

01

Waste management operation is not fully monitored by the public sector.  
(Solid waste)

02

The capacity of the public sector to manage and control waste management operation is lacking.  
(Solid waste)

03

The environment of the landfill is unsanitary. (Solid waste)

04

The capacity of the wastewater treatment plant is not enough for future wastewater.  
(Sewage)

# MOBILITY

01

Need to improve intersection configuration.

02

On-street parking on sidewalks and roadside occur frequently.

03

Budget for road maintenance is not enough.

04

A lot of gas emission from old vehicles has caused air pollution and decreased comfortability of tourists.

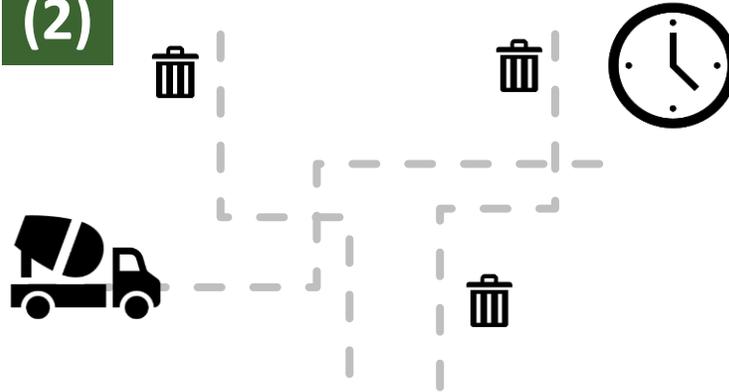
## THE PILOT PROJECTS

(1)



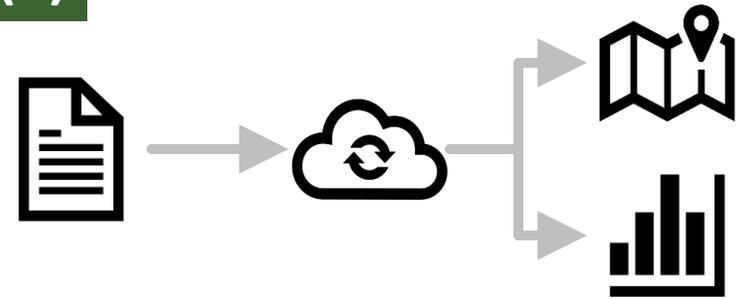
**Illegal Parking Monitoring**

(2)



**Waste Collection Improvement**

(3)



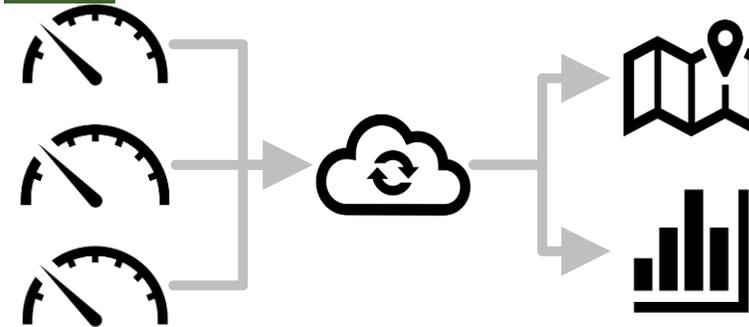
**Tourism Statistics Digitalization**

(4)



**Government Internal Document Tracking**

(5)



**Urban Environment Monitoring by Sensors**

(6)

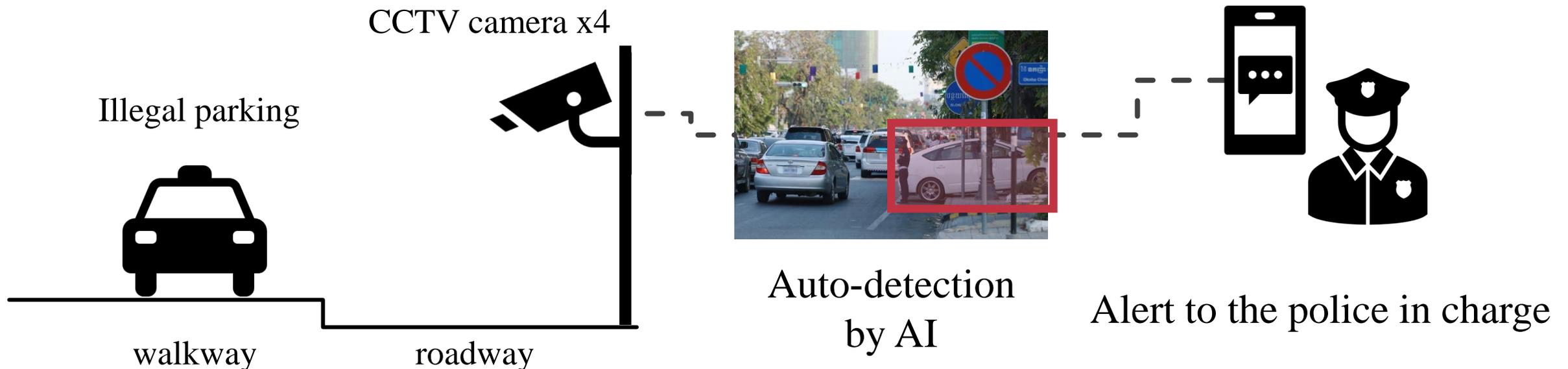


**Public Private Tourism Collaboration**

## (1) ILLEGAL PARKING MONITORING

### OUTLINE

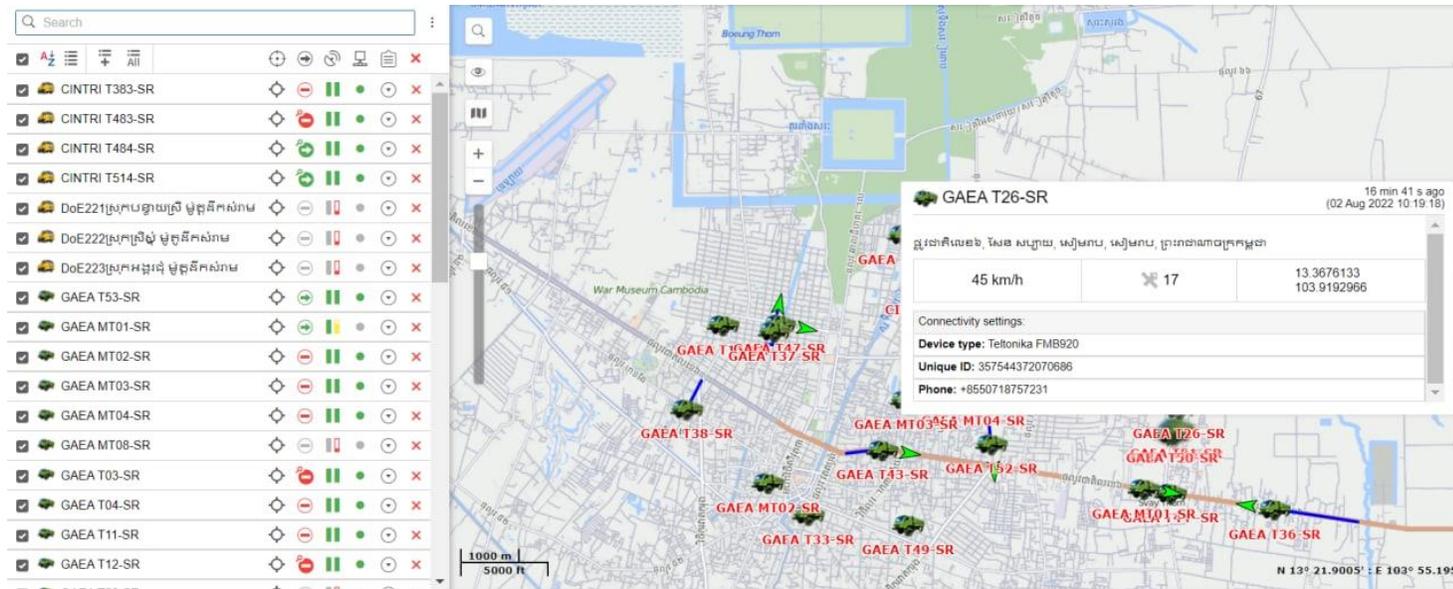
- The objective is to **test an illegal parking monitoring system with the same condition as the 200 cameras**, so that the 200 cameras can be quickly utilized once it is possible.
- Newly introduced 4 CCTV cameras (same specifications as the 200 cameras) shall shoot the images of walkways inside the city. In case there is a vehicle parked on the walkways, the system shall automatically detect the situation. After detection, the system shall automatically send alerts to the police in charge, so that the police can take quick action.



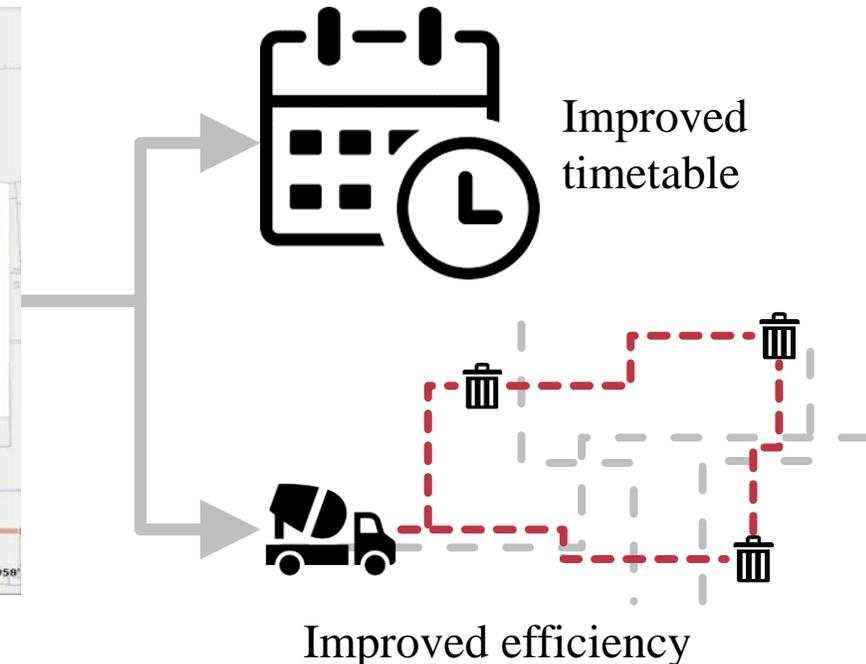
## (2) WASTE COLLECTION IMPROVEMENT

### OUTLINE

- The objective is to **improve the waste collection services inside the city**, by using the GPS data of garbage trucks.
- The GPS data of garbage trucks monitored by MoE shall be extracted for analysis. After the analysis, improved timetables for waste collection and improved manual for waste collection operation will be proposed.



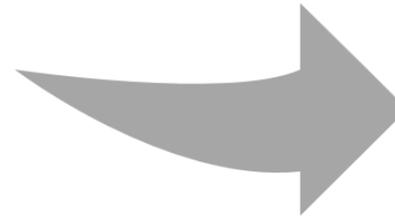
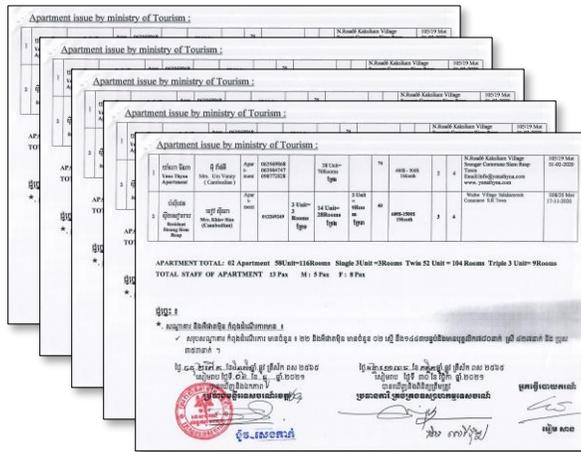
GPS data of garbage trucks in Siem Reap monitored by MoE



## (3) TOURISM STATISTICS DIGITALIZATION

### OUTLINE

- The current process of making **tourism statistics shall be digitalized** by Excel.
- **PC skill training** shall be conducted for DoT officers. In the future, the data shall be stored digitally on a cloud platform, open to public, and shown on web GIS and dashboards.



PC skill training

The image shows an Excel spreadsheet with a green Excel icon in the top left. The spreadsheet is titled "Sales and ratings" and contains two main tables: "Sales by Product and Year" and "Ratings by Product and Year".

Category	Sum of Sales	Column Label	2015	2017	Grand Total	Average of Rating	Column Label	2015	2017	Grand Total
Accessories	\$ 29,300	\$ 120,700	\$ 233,800	\$ 383,800	0.81666667	Accessories	0.81666667	0.875	0.93666667	0.81666667
Bike Racks	8,700	13,800	63,700	86,200	0.65	Bike Racks	0.65	0.9	0.92	0.62
Locks	30,000	29,800	30,200	74,800	0.99	Locks	0.99	0.9	0.99	0.99
Lighting	1,300	21,600	36,700	59,600	0.9	Lighting	0.9	0.9	0.9	0.9
Components	8,300	17,000	34,200	59,500	0.85	Components	0.85	0.9	1	0.82
Bike Racks	300	22,100	33,700	56,100	0.1	Bike Racks	0.1	0.8	0.95	0.62
Pumps	700	16,400	30,700	47,800	0.9	Pumps	0.9	0.85	0.9	0.88
Bikes	18,300	\$ 23,300	\$ 37,800	71,000	0.3875	Bikes	0.3875	0.3075	0.4625	0.4225
Road Bikes	1,500	8,300	14,900	28,700	0.48	Road Bikes	0.48	0.46	0.6	0.51
Cargo Bike	3,200	6,700	9,300	19,200	0.25	Cargo Bike	0.25	0.4	0.46	0.40
Mountain Bikes	3,100	6,300	8,500	17,800	0.5	Mountain Bikes	0.5	0.46	0.65	0.54
Touring Bikes	500	3,800	3,200	7,400	0.22	Touring Bikes	0.22	0.35	0.22	0.20
Wheels	10,000	16,700	21,800	48,500	0.3625	Wheels	0.3625	0.4875	0.56	0.63333333
Chains	8,700	16,400	20,200	45,100	0.51	Chains	0.51	0.2	0.51	0.28
Brakes	2,300	3,400	5,400	11,100	0.28	Brakes	0.28	0.36	0.22	0.29
Handlebars	2,800	3,300	5,000	10,600	0.65	Handlebars	0.65	0.48	0.4	0.51
Pedals	800	1,500	6,200	8,500	0.56	Pedals	0.56	0.66	1	0.78
Saddles	2,100	2,800	3,300	8,200	0.22	Saddles	0.22	0.28	0.48	0.33
Bottom Brackets	700	1,000	600	2,100	0.3	Bottom Brackets	0.3	0.99	1	0.78
Year	2015	2016	2017	Grand Total	0.36	Year	0.36	0.25	0.35	0.22
2015	66,300	128,000	133,700	328,000	0.49714286	2015	0.49714286	0.42428571	0.50142857	0.47380952
2016					0.34	2016	0.34	0.36	0.38	0.36
2017					0.62	2017	0.62	0.7	0.75	0.78
Grand Total					0.35	Grand Total	0.35	0.38	0.35	0.36
					0.36		0.36	0.37	0.38	0.30
					0.49		0.49	0.38	0.42	0.43
					0.66		0.66	0.75	0.96	0.79
					0.4632		0.4632	0.4216	0.5424	

## (4) GOVERNMENT INTERNAL DOCUMENT TRACKING

### OUTLINE

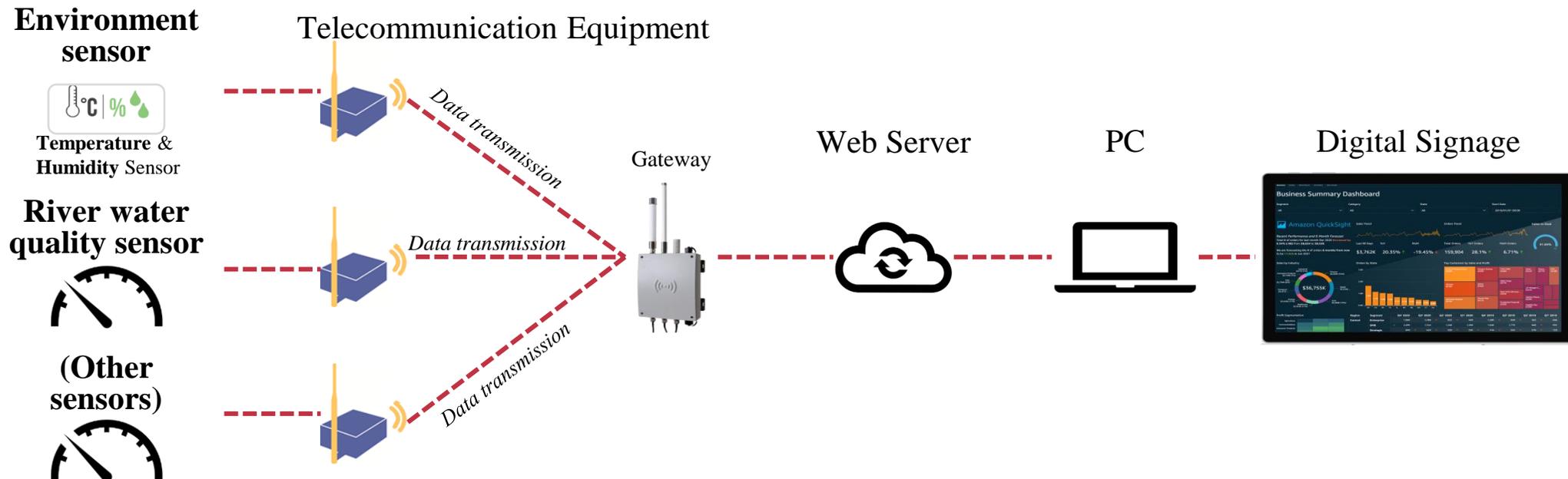
- The objective is to **establish a monitoring system of the internal process of document receipt** in Siem Reap Provincial Administration.
- The features of “Document Tracking System” are as follows: (i) Protocol and Documentation Office staff register letter information in the system with their PCs; (ii) staff handing over the letter update the status with their smartphones; and (iii) all relevant officers can monitor current location of the letter from their PCs and smartphones.



## (5) URBAN ENVIRONMENT MONITORING BY SENSORS

### OUTLINE

- The objective is to **introduce a wireless (LoRaWAN) telecommunication environment** for public use and **test its usability by introducing sensors**.
- The sensors shall monitor the urban and river environment, and the data shall be transmitted via LoRaWAN so that it can be displayed on a dashboard



LoRaWAN: Long Range Wide Area Network

## (6) PUBLIC PRIVATE TOURISM COLLABORATION

### OUTLINE

- Start **discussions for cooperation** between the public and private sectors
  - ✓ to conduct tourism promotion activities by smart approach (ex. AR)
  - ✓ to hold tourism events with smart technologies
  - ✓ to discuss expected roles of players, system, regulations of tourism industry
  - ✓ to discuss how to establish a tourism digital platform
  - ✓ to discuss how to encourage start-up business of smart tourism



Link to the  
Feasibility  
Study of  
“Smart JAMP”

AR tourism promotion contents (one of examples)

# 5. Good Examples and Case Studies of Siem Reap City

- Royal Government of Cambodia provided USD150 million to repair and improve infrastructure in Siem Reap City.
- In the Project to repair and improve infrastructure in Siem Reap City, also will focus on smart traffic lights installation, CCTV Camera installation.
- Cooperation with Huawei company on the project of CCTV Camera installation (100 target areas).
- Investment Project by Mizuda company on building incinerator solid waste in Siem Reap City. The feasibility study already done.



- 5,143 LED Smart Street Light controlled by smart monitor (Minebea Mitsumi Company 2,450 and Visun Company 2,693).
- Sewage Drainage System Project (ADB and World Bank).
- Permeable Interlocking Block Pavement in Siem Reap City (JICA).
- JICA Sent Survey Team to do Feasibility Study on Smart City Project in Siem Reap (Tourism, Waste, Mobility, Security, Data Management) etc.



## **6. Expectation from the Smart City Training Workshop**

- Get more knowledge from UNCRD and some cities that implement Smart City.
- Gain more knowledge and experiences on good practice of smart city through knowledge exchange and visit.
- Be able to develop effective planning, smart mobility and water disaster risk reduction.
- To gain insights on utilization of smart technology to improve effective government services.

**THANK YOU**