

全世界
ITS 実務課題別研修に係る実施支援
及び動向調査

ファイナルレポート
巻末資料

2022 年 2 月

独立行政法人
国際協力機構（JICA）

日本工営株式会社
阪神高速道路株式会社

社基
JR
22-046

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2019 年度 ITS 実務課題別研修 巻末資料

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1. 研修員名簿

LIST OF PARTICIPANTS
 Practical Technology on Intelligent Transport System(ITS)

ITS(高度道路交通システム)実務

201984545J002

2019/6/23 ~ 2019/7/20

1		<p>Mr. ABOUENOUR Mohamed E-mail: [REDACTED] Refat Hosnni レファット</p> <p>D1951406</p> <p>Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)</p>
2		<p>Mr. ENNIM Kobina Bortsie E-mail: [REDACTED] コピナ</p> <p>D1950462</p> <p>Principal Engineer, Planning and Development - Accra, Department of Urban Roads</p>
3		<p>Mr. SHARIFF ALI ABDULRAHMAN E-mail: [REDACTED] アリ</p> <p>D1951522</p> <p>Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa</p>
4		<p>Ms. ACHI Nneka Martha E-mail: [REDACTED] ネカ</p> <p>D1951289</p> <p>ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority</p>
5		<p>Mr. ALI Niaz E-mail: [REDACTED] ニアズ</p> <p>D1951238</p> <p>Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority</p>
6		<p>Ms. BIRUNG Rachel Malupeng E-mail: [REDACTED] レイチェル</p> <p>D1951347</p> <p>Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority</p>

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ITS(高度道路交通システム)実務

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2019/6/23 ~ 2019/7/20

7		<p>Ms. CHAIKASETSIN Sruangsaeng E-mail: [REDACTED] ポー</p> <p>D1951420</p> <p>Civil Engineer. Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways</p>
8		<p>Mr. SSENIONJO Abudallah E-mail: [REDACTED] アブ</p> <p>D1900582</p> <p>Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)</p>

2. カントリーレポート

Ministry of Transport

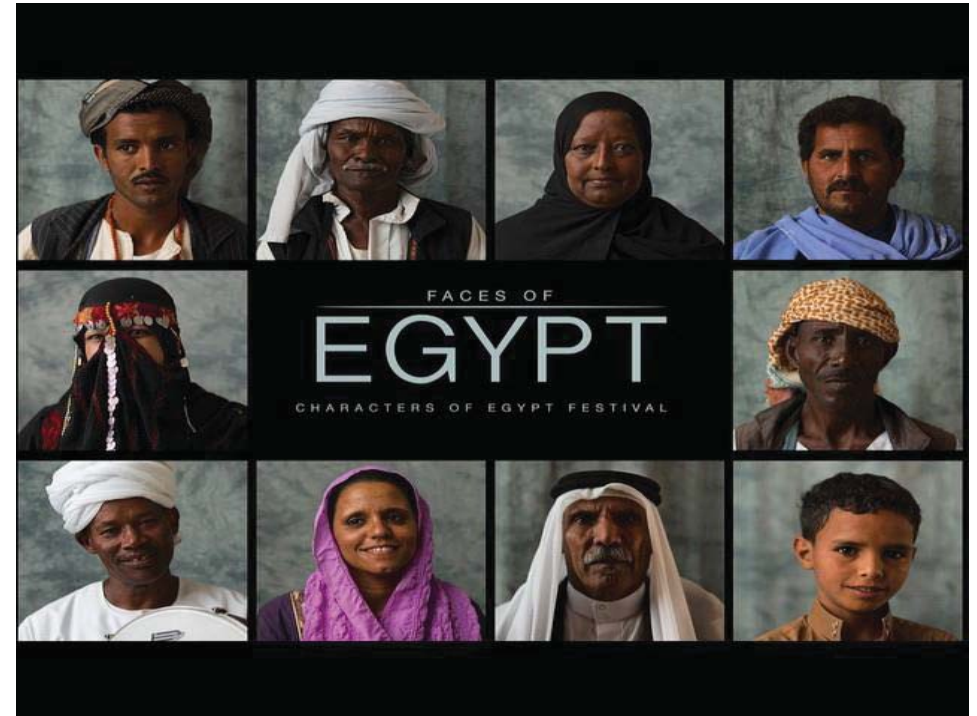
General Authority for
Roads, Bridges and Land
Transport
(GARBLT)

By

Eng.Mohamed Refat



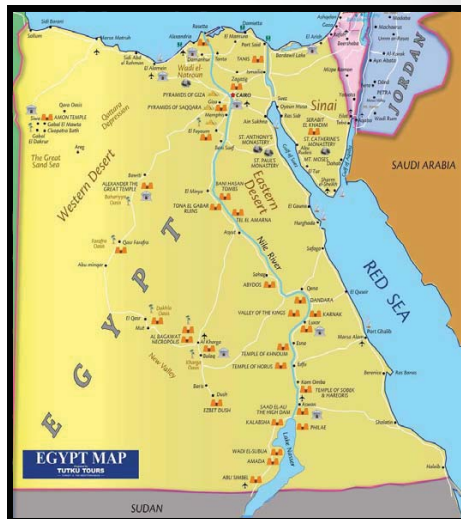
Practical Technology on Intelligent Transport Systems (ITS)



Arab Republic of Egypt

Area and land borders

Capital : Cairo
Official language : Arabic
Currency : Egyptian
pound
1 USD – (17 EGP)
Area : about 1,020,000 km²
28 Governorates
Population : 100 million



• Tourism

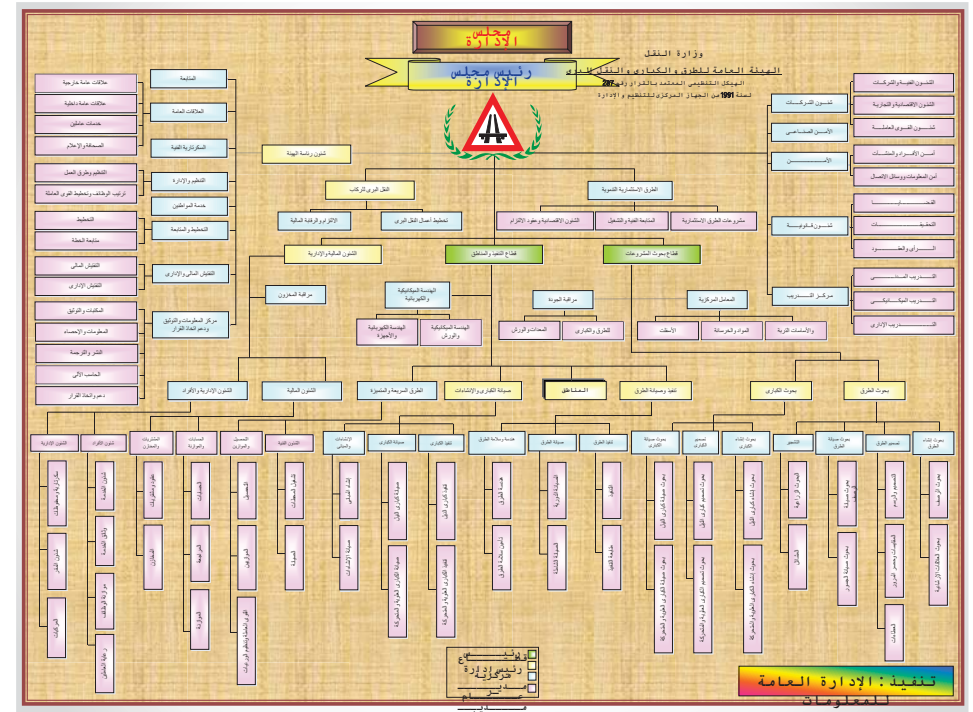
Tourism is one of the most important sectors in Egypt's economy. Egypt has a wide range of beaches situated on the Mediterranean and the Red Sea that extend to over 3,000 kilometres (1,900 miles) in addition to that Egypt has 30 National parks that lately attract thousands of people.



Ministry OF Transport (GARBLT)

- General Authority of Roads ,Bridges and Land Transport (GARBLT) is one of MOT's Entity
- Established in 1913.
- GARBLT has 14 districts around Egypt.
- GARBLT made huge diversification during the last period in two directions Horizontally and Vertically to increase its performance and independency.
- The total road network in Egypt about 60,000 km ,around 25,000 km Belongs to GARBLT of urban expressways (i.e. those between major cities)

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2019年度卷末資料一7

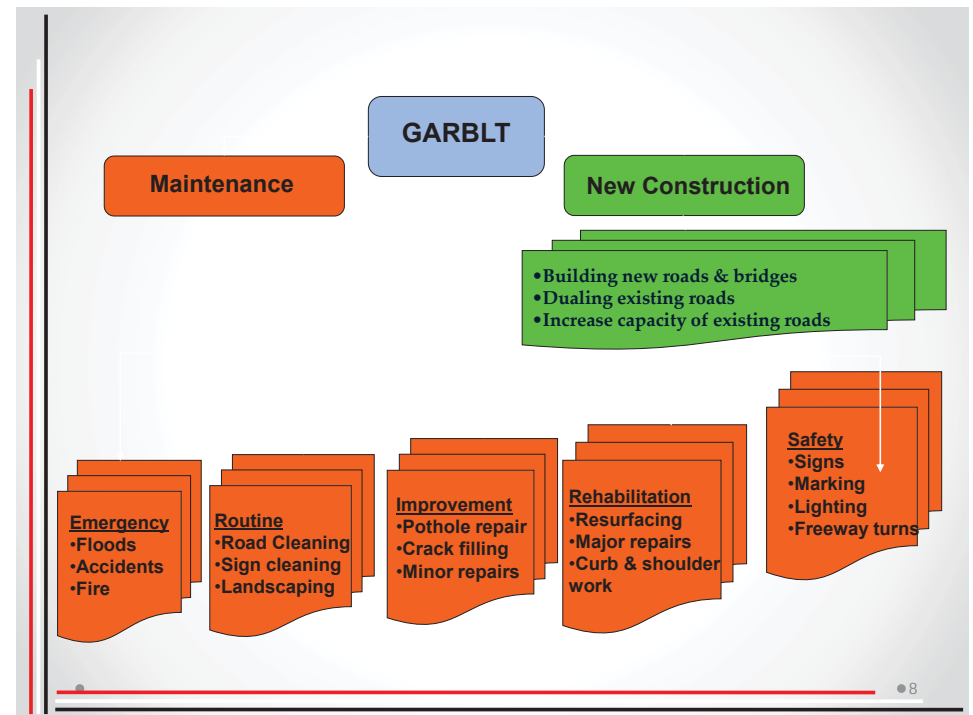
Organizational function :-

- **Develop the Roadway Network (Construct & Upgrade):**
Necessary to secure existing and future needs of people and trade mobility and to create new economic and investment opportunities.
- **Maintaining the Existing Roadway Network:**
A wide range of maintenance and rehabilitation efforts (Major, Routine, Emergency, etc.)
- **Apply Roadway Safety Measures for existing & planned Projects:**
Improved geometrical designs, addition of service roads, Markings, signage, further attention to pedestrian mobility requirements, traffic control barriers, lighting, etc.

The staff members of each section as the following :-

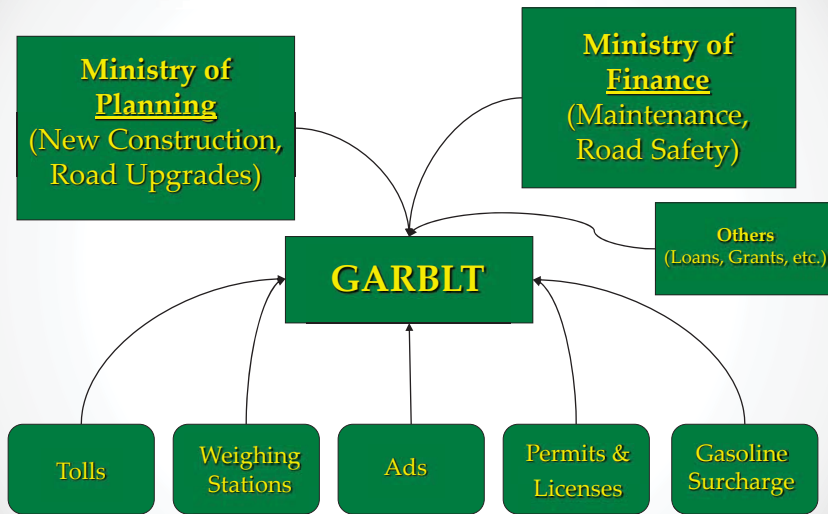
- 373 (7%) Management & Engineering
- 1773 (27%) Administrative (Legal, Finance, Procurement, Budget, etc.)
- 4409 (66%) Technicians, Operators, Landscapers, etc.

6

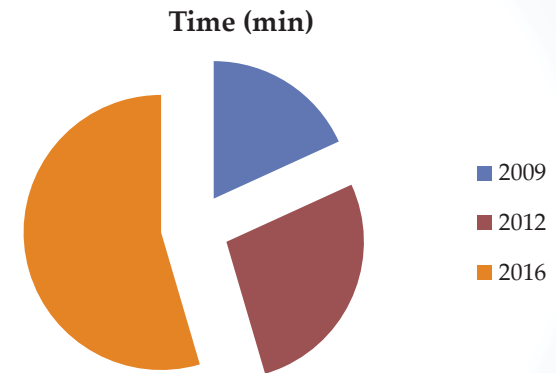


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FUNDING SOURCES



Congestion Effect on Trip Travel time in Great Cairo (2009-2016)



Travel time for trip 25 km in Great Cairo

• Main issues and future perspectives

According to The World Bank Group, over \$US 8 billion are wasted every year on traffic congestion, which is four percent of Egypt's total GDP



According to the Ministry of Transport, GCR as the main urban region of Egypt will experience increasing transport problems in the future. The Master Plan conducted for GCR identified many projects need to be implemented as fast as possible. These projects are characterized as follows:

- Infrastructure projects (including the Metro new lines)
- Management of existing Network by using ITS project

- According to WHO Egypt loses about 12 000 lives due to road traffic crashes every year.
- In 2010 the average number of **Damage by accidents**. Which cost almost **EGP300,000,000**
- Add on the cost effect of delay to other motorists travel time and the high number of users and the true cost will be significantly higher.
- Something needs to be done....



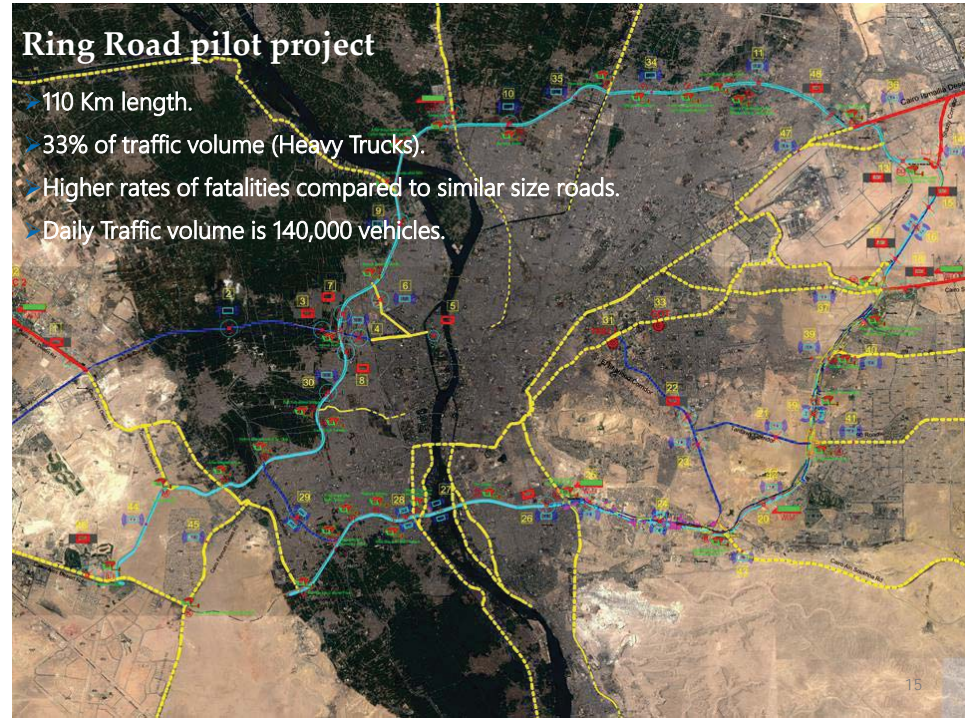
ITS Project importance

1. To improve the safety, consistency and efficiency of transport on Road Network .
2. By gathering information on highway dynamics, accidents etc we can make better informed decisions on how to manage that asset.
3. By knowing what is happening on the highways, through sensors and video we can respond quicker to incidents, changes in traffic patterns
4. We can inform users allowing them to make informed decisions about how they react to matters – diversions, travel time information, alternative routes etc
5. We can operate the roads efficiently through improve monitoring and enforcement
6. It will provide a visible solution to the motorists and support the security needs of the community whilst enhancing the driving experience on the CRR.
7. Solve problems of Noise , Emissions , Congestion & Energy consumption
8. Because it SAVES the Egyptian Government money – ITS saves GDP expenditure that is otherwise lost due to the above effects

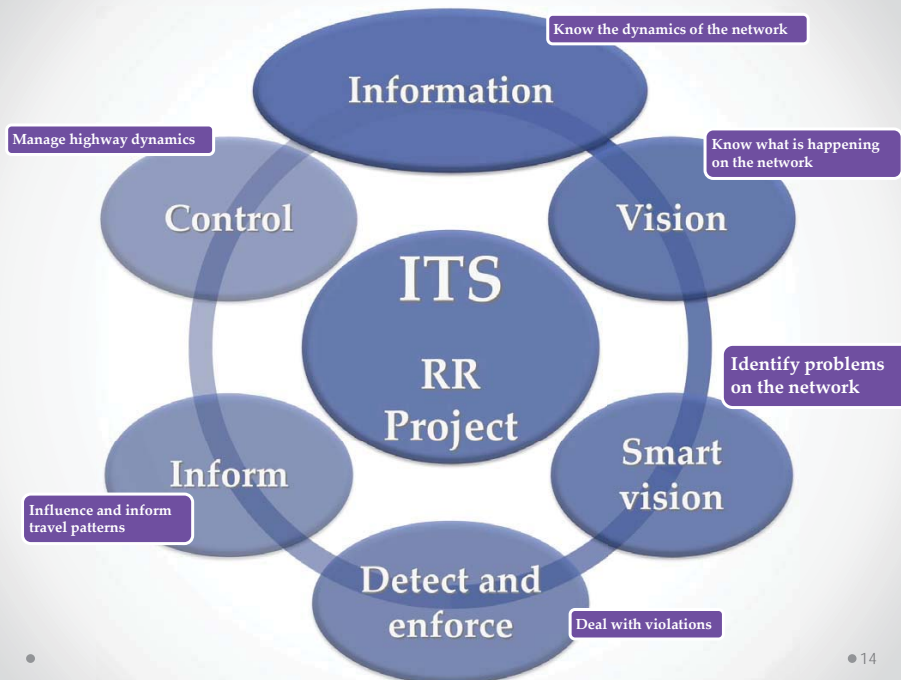
• 13

Ring Road pilot project

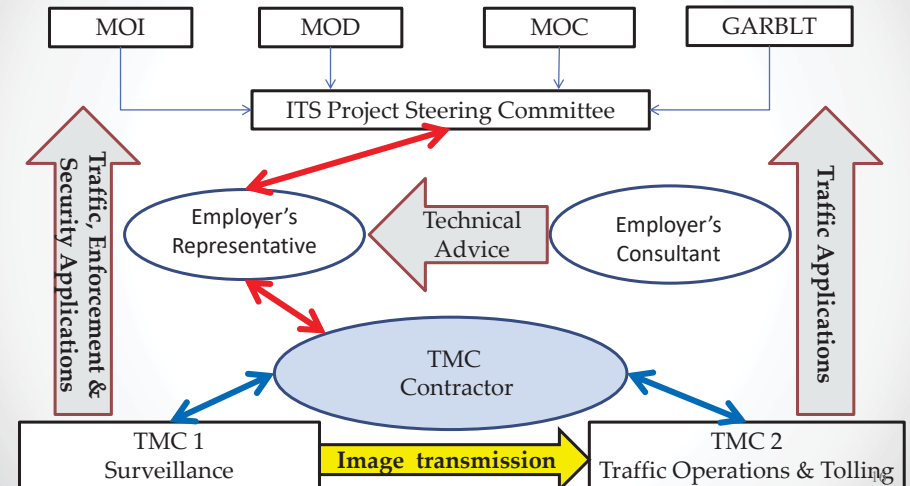
- 110 Km length.
- 33% of traffic volume (Heavy Trucks).
- Higher rates of fatalities compared to similar size roads.
- Daily Traffic volume is 140,000 vehicles.



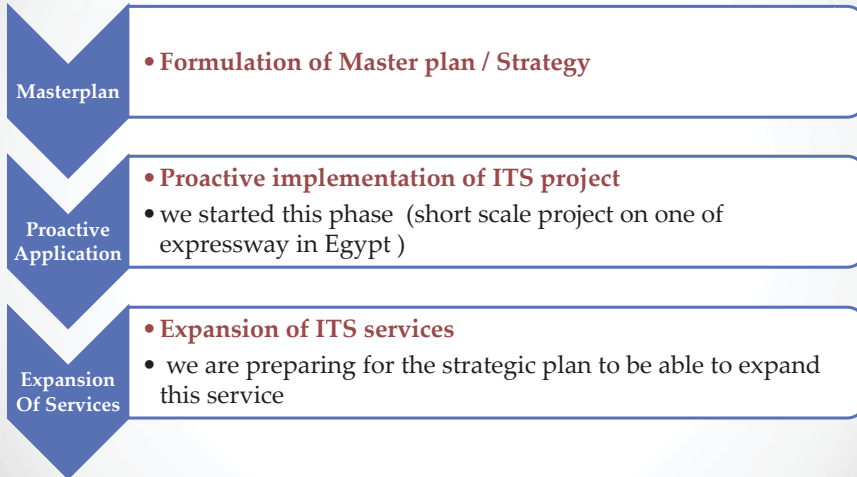
15



Related Organizations & TMC's



The model path of ITS Deployment



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Traffic management systems



Future Gantry Shape



The Key To Success

- Better management / more efficient operation
- Sharing data – collect once, use many times.
- Standardising equipment and protocols – using the best IT can offer
- Reducing cost / achieving operational targets
- Dealing with overload information - highlighting what is important
- Coordinating effort – knowing what is happening and who is dealing with it

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What we are searching for in Japanese experience :

- ITS applications suitable for our issues and how to apply with current situation .
- How related organization deal together for successful system and who is leading in the decision
- Implementation issues and how to avoid .
- high power consumption for radar and VMS and how to solve in remote areas which will be in our future plan
- How to manage resources and optimize exploitation to achieve a financial return works to maintain project maintenance and sustainability

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ありがとうございます



Thank You



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COUNTRY REPORT (GHANA)

DEPARTMENT OF URBAN ROADS

KOBINA ENNIM

(PRINCIPAL ENGINEER, PLANNING AND DEVELOPMENT SECTION)

ORDER OF PRESENTATION

- BRIEF FACTS ABOUT GHANA
- PROFILE OF MY ORGANISATION
- ROAD TRAFFIC SITUATION
- TECHNICAL CHALLENGES OF TRAFFIC MANAGEMENT
- INTELLIGENT TRANSPORT SYSTEM
- CHALLENGES OF ITS
- MY EXPECTATIONS

LOCATION OF GHANA



GHANA IS LOCATED ON THE WESTERN COAST OF AFRICA ALONG THE ATLANTIC OCEAN

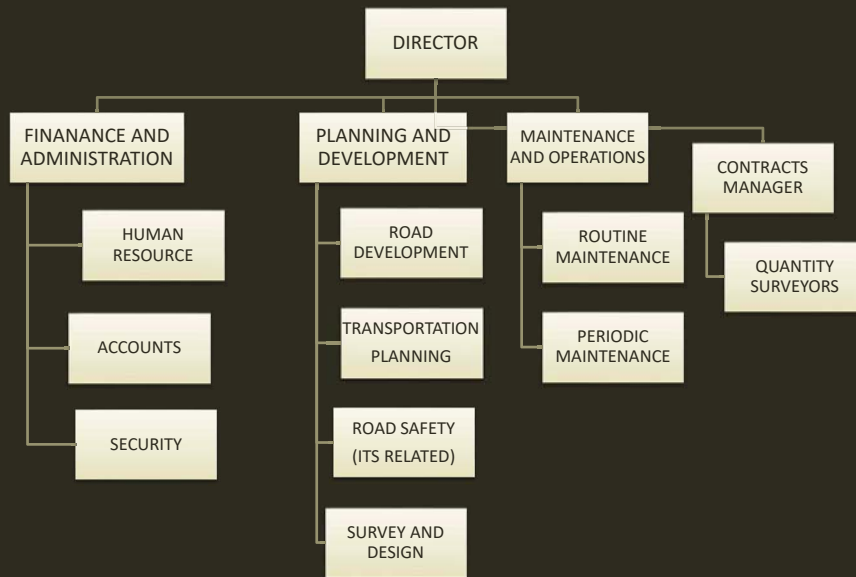
POPULATION: 28.83 Million
LAND SIZE : 238,533 KM²
CAPITAL CITY: ACCRA



PROFILE OF MY ORGANIZATION

- **DEPARTMENT OF URBAN ROADS** is a Governmental Organisation under the Ministry of Roads and Highways.
- It was established in January 1988.
- We are responsible for the Administration, Planning, Development and Maintenance of the urban road networks.

PROFILE OF MY ORGANIZATION



PROFILE OF MY ORGANIZATION

- OUR **MISSION** IS TO PROVIDE A COST-EFFECTIVE AND SUSTAINABLE INTEGRATED URBAN ROAD TRANSPORT SYSTEM TO ENSURE ACCESSIBILITY, SAFETY AND RELIABILITY FOR NATIONAL DEVELOPMENT
- Staff Strength is 158
- Our annual budget is GH¢ 158Million equivalent to (¥3.2Billion or USD 29M). This excludes loans and grants from our development partners.

ROAD TRAFFIC SITUATION

- The country is heavily dependent on roads for transportation. Road Transport accounts for about 98% for freight and 95% for passenger traffic.
- 54.68% of the population is urbanised and therefore puts heavy pressure on urban transport. The situation is worse in the major cities like Accra, Kumasi, Takoradi and Tamale.
- Large number of people commute from various distances up to about 25km into the city centres to work.

ROAD TRAFFIC SITUATION

- Morning peak period is between 6:00 – 10:00 am
- Evening peak period is between 3:00 – 7:00 pm
- Average travel speeds reduces to about 20km/h during the peak periods

ROAD TRAFFIC SITUATION

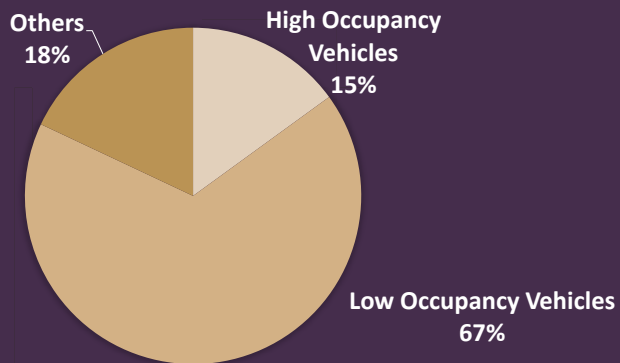


Average travel speeds reduces to about 20km/h during the peak periods

ROAD TRAFFIC SITUATION

Mini buses and low occupancy vehicles constitute about 67% of vehicular volumes whilst high occupancy vehicles constitute about 15%. Utilization of road capacity is therefore not efficient.

VEHICLE COMPOSITION



ROAD TRAFFIC SITUATION



LOVs make up 67% of vehicles on our roads. They are mostly used for transportation within the cities (Intracity transport)



Troto



Taxi

ROAD TRAFFIC SITUATION

HOVs make up 15% of vehicles on our roads. They are mostly used for transportation between the cities. (Intercity transport)



ROAD TRAFFIC SITUATION

- Some of the intersections have exceeded capacity and need to be redesigned or grade separated.
- Stopping of commercial vehicles at unauthorised location to pick or drop passengers often creates bottlenecks in traffic.
- Occasional break down of vehicles in traffic also contributes to delay

TECHNICAL CHALLENGES

- Most of our traffic lights are fixed time control systems. The system does not identify heavily trafficked lanes to allocate more green time. So traffic builds up. The intervention by traffic wardens and the police to overrule the traffic lights seems not effective as they are not always present.
- The traffic lights are not synchronized with adjacent ones and therefore traffic flow through the intersections are not coordinated and effective.

TECHNICAL CHALLENGES

- Frequent power cuts affects the functionality and durability of the system components.
- Occasionally some traffic signals send conflicting information. Where red, amber and green all light up at the same time.
- There is limited technical expertise to maintain and service dysfunctional traffic control systems. So traffic lights frequently breaks down and takes a longer time to be fixed.

INTELLIGENT TRANSPORT SYSTEM

- As a remedy to the frequent power cuts, the Department has introduced solar powered traffic signals at some intersections to replace power from the national grid.

INTELLIGENT TRANSPORT SYSTEM

AREA-WIDE TRAFFIC SIGNAL CONTROL SYSTEM IN ACCRA

- We are currently building an **Area-wide Traffic Signal Control System** in Accra.
- Video cameras have been installed on the selected road corridor for vehicle detection and to send live images through fibre optic technology to the Accra Traffic Management Centre
- Other vehicle detectors have been included as components of the system

INTELLIGENT TRANSPORT SYSTEM

AREA-WIDE TRAFFIC SIGNAL CONTROL SYSTEM IN ACCRA



INTELLIGENT TRANSPORT SYSTEM

AREA-WIDE TRAFFIC SIGNAL CONTROL SYSTEM IN ACCRA

- It will run partly on solar and electricity from the national grid with back up power systems.
- The project is yet to be completed and operationalized.

INTELLIGENT TRANSPORT SYSTEM

AREA-WIDE TRAFFIC SIGNAL CONTROL SYSTEM IN ACCRA



Battery for power back up for traffic lights



One of the video cameras to be mounted

INTELLIGENT TRANSPORT SYSTEM

AREA-WIDE TRAFFIC SIGNAL CONTROL SYSTEM IN ACCRA



Installation of magneto detector in the road for detecting vehicular volumes, speeds and queue lengths

INTELLIGENT TRANSPORT SYSTEM

ACCRA TRAFFIC MANAGEMENT CONTROL CENTER



SYSTEM SERVERS

INTELLIGENT TRANSPORT SYSTEM

ACCRA TRAFFIC MANAGEMENT CONTROL CENTER



INTELLIGENT TRANSPORT SYSTEM (CHALLENGES)

- The system being developed is restricted to only one road corridor in the national capital. This is not enough to resolve the many traffic issues we encounter.
- There is the need to add more road corridors and extend it to other major cities in the country.

ITS RELATED ORGANISATION

GOVERNMENT ORGANISATIONS

- **Ministry of Transport**
address: www.mot.gov.gh
- **Ghana Highway Authority**
address: www.mrh.gov.gh
- **State Transport Corporation**
address : www.stc.gov.gh
- **National Road Safety Commission**
address : www.nrsc.gov.gh

ITS RELATED ORGANISATION

BUSINESS ORGANISATIONS

- **Facol Limited**, P. O. Box AN 3043, Accra, Ghana
Tel: +233244316186
- **Dakal Construction Works**, P. O. Box 11739, Accra-North
Tel: +233244646080
- **Angel Data and Telecom Service**, P. O. Box Ks 1962, Teshie Nungua Estates
Tel: +233242902003

MY EXPECTATIONS

- To broaden my knowledge and understanding of ITS and its application
- To identify possible challenges related to ITS and how to resolve them.
- I intend to share knowledge and experience I acquire from this programme to improve Ghana's ITS



THANK YOU



Japan International Cooperation Agency



COUNTY GOVERNMENT OF MOMBASA COUNTY DEPARTMENT OF TRANSPORT, INFRASTRUCTURE & PUBLIC WORKS

ENG. ALI SHARIF
DIRECTOR - OPERATIONS

www.mombasa.go.ke

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CONT'

Organizational Function

To ensure efficient and effective maintenance of the transport and infrastructure components of the city of Mombasa which includes roads, street lighting, proper drainage etc.

The number of staff members of each section

- Road section has 15 members
- Traffic Control 120 members
- Fire and Rescue Services section has 150 members

How many staff members are there in your organization?

County of Mombasa as a whole has approximately 4000 employees. The Department of Transport Infrastructure and Public Works however has 600 employees.

What is the organization's annual budget?

Stands at around Ksh. 9 Billion of which Ksh.6 Billion goes to recurrent expenses and Ksh. 3 Billion on development.

PERSONAL & ORGANIZATIONAL INFORMATION

Name

Eng. Ali Sharif

Country

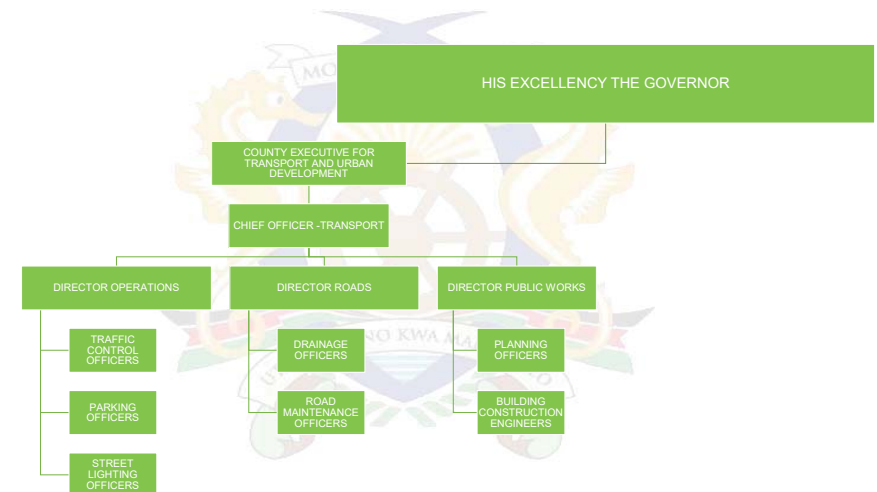
Kenya

Name of organization and date of its establishment

County Government Of Mombasa Established On March 2013

Present post of the in the above organization

Director Operations and Services.



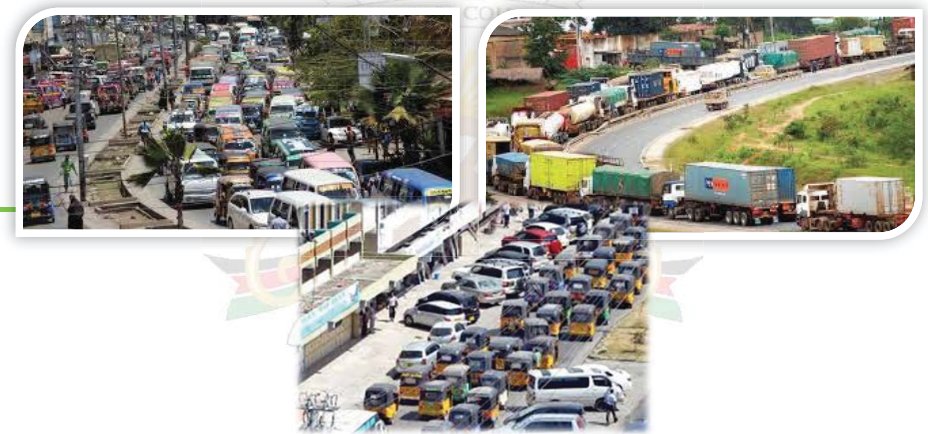
Current County, Urban and Traffic Situation

Traffic congestion in Mombasa County has been a policy issue which has often called for a policy response. Currently the traffic situation is pathetic with all major roads being congested at peak hours.

Major Traffic Issue/Problem In the County

- Rapid growth of urban areas: cities are major engines of growth in most countries (Mombasa expected to have 3 million people by 2040)
- Very rapid increase in motorization: urban motor vehicle ownership and usage is growing even faster than the urban population
- Substantial increases in traffic congestion: ownership and usage of cars is growing faster than the ability to provide road space and alternative means of coping with the problem

Current Traffic Situation



Cont'

Major Traffic Issue/Problem In the County

- Private vehicles has resulted in a substantial decline in the trips being provided by urban public transport systems.
- Few traffic Marshalls (104) positioned at specific areas. They are expected to man all 17 junctions and access roads.

Technical problems encountered (not limited to ITS)

Technical problems that our organization is currently facing

- Lack of coordination among Levels of Govt and Department on issues planning and development.
- Lack of enough resources to cater for adequate urban planning and infrastructure development.
- Lack of proper citizen participation and acceptance of projects.¥
- Lack of enough technical human resources on areas of ITS and planning.

Intelligent Transport System(ITS)

An Intelligent Traffic System (ITS) involves a much closer interaction between all of its components: drivers, pedestrians, public transportation and traffic management systems. Adaptive signal systems, driver advisory and route planning and automated vehicles are some of the goals set up to increase the efficiency of actual systems.



Technical problems that our organization is currently facing

- Lack of resources for ITS implementation
- Lack of a sufficient infrastructure to support full ITS implementation

Outline of existing ITS in your county

Introduction of existing ITS in your country or city.

- ✓ The county has already setup street cameras (44) across the city junctions. Currently seeking funds to complete the the remaining components in ITS
- ✓ The Situation room is located in the offices at Shimanzi.
- ✓ The Cameras are linked using a dedicated line of fiber to the situation room for display.
- ✓ A DVR is available for recording of footage.
- ✓ The system has assisted in combatting traffic offenses as well as crime.

Outline of ITS related organizations

Introduction of ITS related organizations (both government and private sectors) in your country.

- National Transport and Safety Authority (NTSA)
- Kenya National Highway Authority KNHA)
- Kenya Urban Roads Authority (KURA)
- Kenya Private Sector Alliance (KEPSA)
- Mombasa Transport Association (MTA)





In order to build a new future city of Mombasa means correction of the existing situation characterized by;

- ❖ Insignificant pedestrian ways
- ❖ No facilities for cycling
- ❖ Inadequate shades and stages
- ❖ Inadequate walking space
- ❖ High congestion of motorised modes
- ❖ High pollution

Expectation and the Issue Regarding ITS

What is expected from ITS? What is the problem about ITS introduction / operation?

- To go back to Kenya with adequate technical Knowledge of ITS
- To understand the steps Japan took to achieving the implementation of ITS
- To understand the planning and design processes of ITS from the eyes of Japanese ITS experts.
- To be given examples of sister cities to Mombasa who have implemented ITS and how they did it.

Problems

- Lack of sufficient budget
- Lack of political good will
- Lack of sufficient land space.

CURRENT NMT SITUATION IN MOMBASA COUNTY





NAME	Nneka Martha Achi
COUNTRY	Nigeria
ORGANIZATION/ YEAR OF ESTABLISHMENT	Lagos Metropolitan Area Transport Authority (LAMATA) 2003
POSITION	Intelligent Transport System Officer

LAMATA

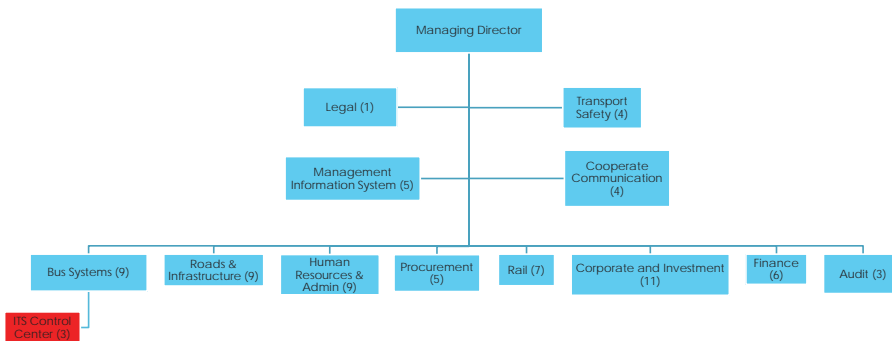
LAMATA is responsible for planning, implementation, regulation and coordination of transportation related projects that ensures seamless mobility and customer satisfactory in the Lagos metropolitan area.

FUNCTIONS OF LAMATA

The functions of LAMATA include but are not limited to:

- Planning, development and regulation of Public Transportation in Metropolitan Lagos
- Co-ordination of transport Policies in Lagos Metropolitan Area
- Maintenance of the Declared Road Networks within Metropolitan Lagos
- Regulate Bus Rapid Transit (BRT) along prioritized corridors
- Collect and levy transport road user charges
- Development of Strategic Transport Master Plan (STMP) for Lagos State
- Make policy recommendations on policy issues on public transportation

- * Staff Members: 110 Persons
- * Annual Budget: N 22.9 Billion (\$ 63.6 Million)



LAMATA'S PROGRESS ACTIVITIES





- Predominant means of Transport: Road
- Over 90% of movement of goods and people is by road
- Traffic situation: Heavy traffic with low level of service in the Urban cities of various states. In the rural areas, traffic is relatively lower
- Non-motorized transport infrastructure facilities are limited

NIGERIA

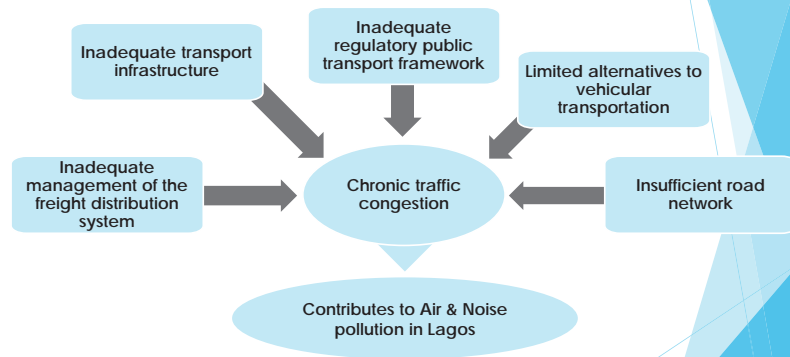
- Location: West Africa
- Area: 356,667 square miles
- Population: Estimated at over 200 million (UN)
- Boundaries: North by Niger, East by Chad and Cameroon, West by Republic of Benin and South by the Gulf of Guinea(Atlantic Ocean)
- Human Settlement: Urban and Rural.

URBAN AND TRAFFIC SITUATION IN LAGOS— THE MEGA CITY

- Most populous city in Africa – Over 20 million inhabitants
- Lagos State is bigger in population than 23 countries in Africa – Benin Rep, Mali, Botswana etc.
- Hub of nation's economic, commercial and industrial activities.
- Contributes 25% of Nigeria's GDP
- Metropolitan Lagos generates about 20m trips per day.
- The urban transport sector is a major source of air and noise pollution in Metropolitan Lagos
- Larger economy than Ivory coast, Ghana, Madagascar e.t.c
- 45% of nation's skilled manpower reside in the city.



URBAN AND TRAFFIC SITUATION (LAGOS, NIGERIA)



TECHNICAL ISSUES REGARDING ITS

- System downtime
- No traffic control system

TECHNICAL PROBLEMS ENCOUNTERED (NOT LIMITED TO ITS)

- Inadequate availability and usage of technology software to help perform functions and meet objectives. The insufficient training on new software and programs have in the past resulted in making deployed programs useless.
- Inadequate technical Capacity Building/ training in terms of new software and programs as well as new educational knowledge and skill.
- Difficulty in adequately monitoring field operations and field staff from head office is one of the problems being encountered. There are poor means of cross referencing manual reports generated. This is also linked to the operations of the system provider and vendors.
- Lack of remote access to LAMATA in-house cloud system network. This would have enabled ability to work on the network regardless of location.

ISSUES REGARDING ITS

- Operational hours are limited due to power outage
- Operator not adhering to schedule
- Traffic causing severe delay (60% segregation)
- Inability to monitor and measure overspeeding
- ITS is not linked with traffic control system
- Extended change over time
- Network instability
- Weather condition and Bad road network
- Data gathered from ITS requires extra tools for analysis



EXPECTATIONS FOR ITS

- ▶ The implementation of ITS is expected to result in:
 - Provision of real-time video monitoring of the bus corridor, shelters and terminals;
 - Effective monitoring of bus activities from the control center
 - Improvement in E-ticketing
 - Implementation of traffic management and monitoring to mitigate against congestion and bunching of buses
 - Improvement in operator's bus maintenance scheduling and deployment
 - Passenger count

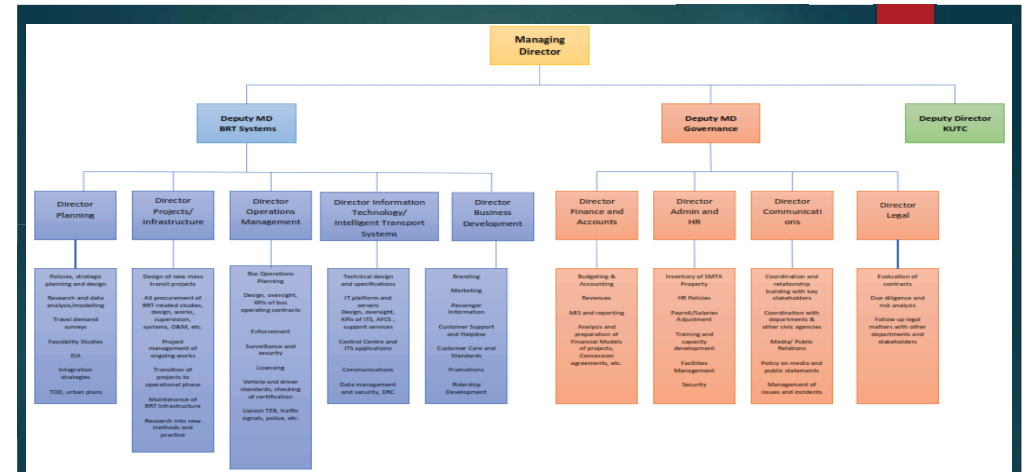
THANK YOU!

Practical Technology on ITS (J19-04209)

Presented By:

Niaz Ali

Director Intelligent Transport System (ITS)
Sindh Mass Transit Authority
Government of Sindh
Karachi, Pakistan.



P.S: Sindh Mass Transit Authority (SMTA) is in the process of establishment at the same time the first BRT line is nearing completion of construction and a company (TransKarachi) is being designed to manage BRT lines on behalf of SMTA. The organisational structure of SMTA and TransKarachi will be revised according to their core functions.

2019年度卷末資料 28

Government of Sindh, Pakistan, established and empowered the Sindh Mass Transit Authority in 2015, for the purpose of, inter alia, planning, coordinating, constructing, developing, operating, maintaining, monitoring and regulating mass transit systems in the Province of Sindh and carrying out all ancillary functions thereto for providing safe, efficient, comfortable, affordable, sustainable and reliable forms of mass transit systems.

Details of SMTA Staff and Budget

SUMMARY OF SMTA STAFF		
S#	Department/ Section	No. of Staff
1	Chairman Secretariat	03
2	Secretary Governing Body	04
3	Vice Chairman Secretariat	03
4	Managing Director's Secretariat	07
5	Directorate of Planning	16
6	Directorate of Projects	22
7	Directorate of BRT Operations	14
8	Directorate of ITS	15
9	Directorate of Business Development	15
10	Directorate of Finance & Accounts	20
11	Directorate of Administration & HR	24
12	Directorate of Communication	08
13	Directorate of Legal	11
Total		162

SUMMARY OF SMTA BUDGET			
S#	Description	Amount PKR (millions)	Remarks
1	Development Budget (Approved Schemes)	8454	Utilization of Budget is less than 50 %
2	Non-Development Budget (Staff Salaries, Utilities, Office related expenditures)	157	
3	Total	8611	

Karachi At a Glance

Administrative Area	3,600 sq. km
Built-up Area	1,200 sq. km
Administrative Structure:	
Districts Municipal Corporations	6
Cantonments	6
Metropolitan Corporation	1
District Council	1
Population as per 1998 Census	9.856 million
Population as per Provisional Census, 2017*	16.051 million
Average Annual Growth Rate as per Census, 2017*	2.60 %
* Source: Pakistan Bureau of Statistics (Census, 2017, Sindh, Table 5)	

Existing Situation Of Traffic In Karachi



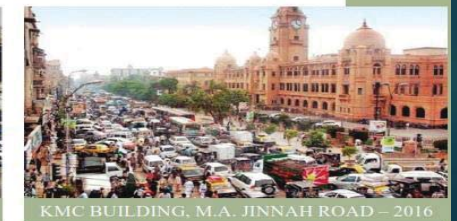
SHAHRAH-E-FAISAL – 2016



LI CHUNDRIGARH ROAD – 2016



EMPRESS MARKET – 2016



KMC BUILDING, M.A. JINNAH ROAD – 2016

Existing Situation Of Traffic In Karachi

- Total Registered Vehicles in Karachi 4.77 Million
- Currently 6,457 buses of various sizes on 192 routes as against the requirement of 10,600 buses
 2,715 contract carriage (Buses / Coaches)
- 85% (i.e. 5,400 buses) are more than 20 years old
- Poor quality of service, high fuel consumption
- Approximately 7,619 private vehicles and 24,197 Motorcycles are being registered* monthly:
 - Leading to more traffic congestion (Population growth of 1.67 times from 2010 to 2030)
 - Causes more pollution
 - Increase traffic density (Increase in car ownership rate which increases trip rate and decrease road space)
 - Increase vehicle operating cost
 - Expansion of urbanized area, which increases the trip length (1.64 times from 2010 to 2030)

Situation Analysis



PUBLIC TRANSPORTATION SITUATION OF KARACHI

City	Persons Competing For One Bus Seat
KARACHI	45
MUMBAI	12
HONG KONG	08

Karachi Transportation Improvement Plan

The Karachi Transportation Improvement Plan (2030) was developed by the Japan International Cooperation Agency (JICA) in 2012. The plan suggested the following scenario:

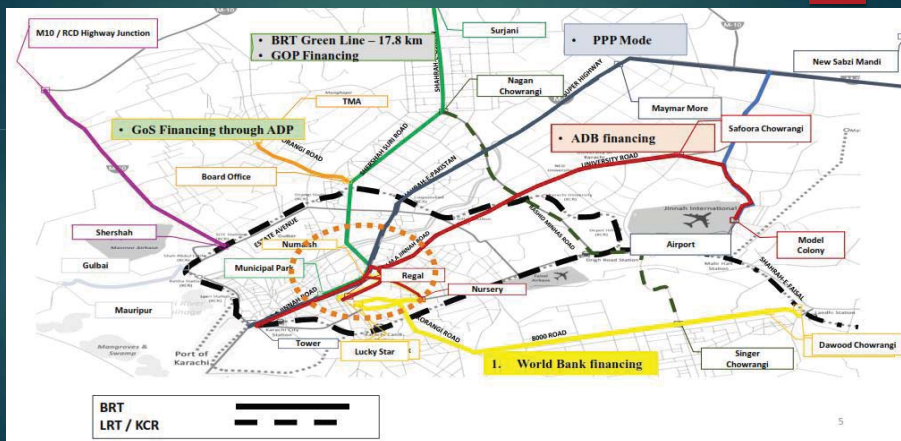
- Revival of Karachi Circular Railway [KCR]
- Two Mass Rapid Transits (MRT) Lines [Blue and Brown]
- 6 Bus Rapid Transit [BRT] Lines [Yellow, Green, Orange, Red, Purple & Aqua]



Technical problems encountered (not limited to ITS)

- Inappropriate Institutional Capacity
- Lack of Planning
- Lack of Inter-department Coordination and Information Sharing
- Absence of Integration with Urban Development Plan i.e Transit Oriented Planning, Traffic Assessment of Land use Plans
- Lack of use of information technology to store information i.e. GIS Mapping of Urban Development and Transport Plans, storage of socio-economic data, travel demand data etc.

Karachi Mass Transit Plan



Technical problems encountered (Related to ITS)

- Lack of knowledge and expertise about ITS Functions
- Lack of information about Technologies in ITS and its Usage
- Limited Usage of ITS in Traffic Management due to lack of coordination between various civic agencies
- Integration of ITS system (particularly automated fare collection system) between mass transit lines and feeder buses or multi-modal services. SMTA is trying to ensure open system that would allow different operators on new lines to encourage competition but facing challenges due limited expertise.

ITS related organizations (both government and private sectors) in Pakistan

Following are the Governmental and private sector working in Pakistan

- IT department, Government of Sindh (Each Province)
- Traffic Police (Each Province)
- National Highway Authority
- Capital Police

- NEC Islamabad
- IBM Pakistan
- Inbox Pakistan
- NIFT Karachi
- Interactive Islamabad
- TeleCard Pakistan
- TPL Karachi
- Red tone Telecommunication Karachi

Existing and Required ITS in Pakistan

There is use of ITS for operations of BUS Rapid Transit Systems in different cities of Pakistan which is based on mix of ITS applications:

1. Fare Collection - Tickets Vending machines installed at stations/ vendors, tickets validation are fixed at stations/ hand held machines .
2. Fleet Management/ Automated Vehicle Locations System is based GPS system which is connected with On-board Unit of Buses and Central Control Center, where position of each bus is displayed on digital screen.
3. Real Time Passenger Information (RTPI): With the help of sensors at entry and exits it, will provide exact number of passengers using the BRT system.

Existing and Required ITS in Pakistan

On Motorways speed cameras are installed, coupled with wireless technologies to check if there is over-speeding by some vehicles. And also to collect the toll fees at every entry points tickets are issued and at exit point fees are charges on the basis of distance traveled by each vehicle.

In Capital City Islamabad Vehicle Number Plate Recognition Cameras are installed , which report vehicles (with number plate) involved in traffic violations to central control center, which subsequently search the vehicle owner's name and address from the database and dispatch fines/tickets to their address directly.

Traffic Signals are installed in major cities but they function independently, there in no central control center. Options of Traffic Congestion Data Collection, processing and Information provision to users are not available

Existing and Required ITS in Pakistan

4. Communication Network / Digital Transmission System: For the connectivity of all components of ITS system, data transfer and storage, fiber optics and wireless communications are being used.

5. Security & Surveillance System : For the security of passenger and BRT system assets cameras are installed at stations and bus corridors, which are monitored in central control center.

6. Business Intelligence & Analysis Software: It is a software package which is used to generate reports about BRT Business.

Existing and Required ITS in Pakistan

- 7. Signal Priority System: These are installed on the junctions where BRT buses operates with the mix traffic.
- 8. Operation Command & Control Centre (OCC): To monitor and control all the BRT operations, a central command and control center has been established. In which activities at stations and buses positions are displayed at the video wall. Computer aided dispatching and all the KPIs of operators are also monitored in OCC.
- At present, there has been no usage of ITS for parking management in any city of Pakistan.

Expectation and the issue regarding ITS

- It is expected to reduce the intensity of traffic problems by use of ITS system for example parking management, traffic congestion.
- My expectation about the course is to know about the type of technologies used in public transit system operations, an overview of network design process of ITS.
- And finally, I am interested to know how new communication wireless technology for-example 5G could help to reduce overall cost of ITS system.

Thank You



METROPOLITAN MANILA DEVELOPMENT AUTHORITY (PHILIPPINES)

“COUNTRY REPORT”

Presented by:
ENGR. RACHEL M. BIRUNG
Traffic Signal Operation and Maintenance Division
Traffic Engineering Center

V. Organizational Function

Metropolitan Manila Development Authority



- In March 1, 1995, the Philippine Congress passed Republic Act No. 7924 creating the Metropolitan Manila Development Authority (MMDA) under the direct supervision of the Office of the President of the Philippines.
- MMDA shall perform planning, monitoring, coordinating, and implementing functions, and exercise regulatory and supervisory authority over delivery of metro-wide services.



Country Report

Metropolitan Manila Development Authority



- I. Name: **Rachel M. Birung**
- II. Country: **Philippines**
- III. Organization: **Metropolitan Manila Development Authority (MMDA)**
- IV. Present Post:
In-charge of the electrical works of our Phase V Project (Traffic Signalization of 50 warranted intersections including integration to the Traffic Signal Control System at the New Command Center)

Scope of Services

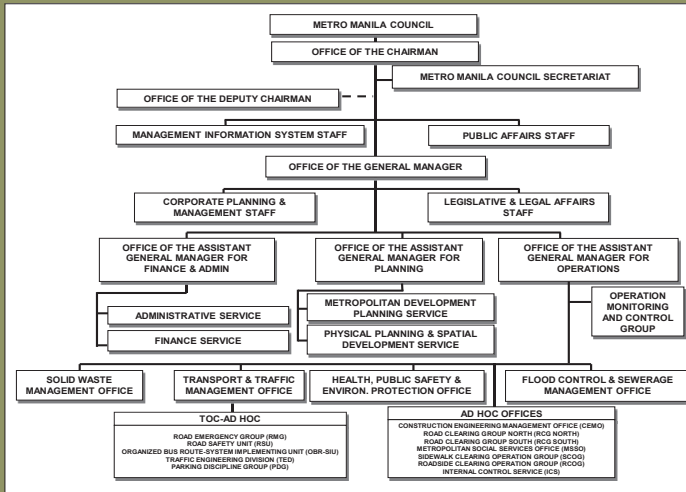
Metropolitan Manila Development Authority



Development Planning	Transport and Traffic Management	Solid Waste Disposal and Management	Flood Control and Sewerage Management	Urban Renewal, Zoning and Land Use Planning, and Shelter Services	Health and Sanitation, Urban Protection and Pollution Control	Public Safety

Organizational Chart

Metropolitan Manila Development Authority



Personnel & Budget

Metropolitan Manila Development Authority



Traffic Signal Operation and Maintenance Division Personnel

• Traffic Signal Operation Section:	37
• Traffic Signal Maintenance Section:	27
• Motorpool and Equipment Section:	22
• Civil Works, Traffic Signal Installation, Fabrication, Painting and Cleaning Section:	14
• Administrative Support Group and Supply Section:	4
	104

MMDA's Total Number of Personnel: **7,880**

MMDA's 2018 Budget: **3.5 BILLION**

Organizational Chart

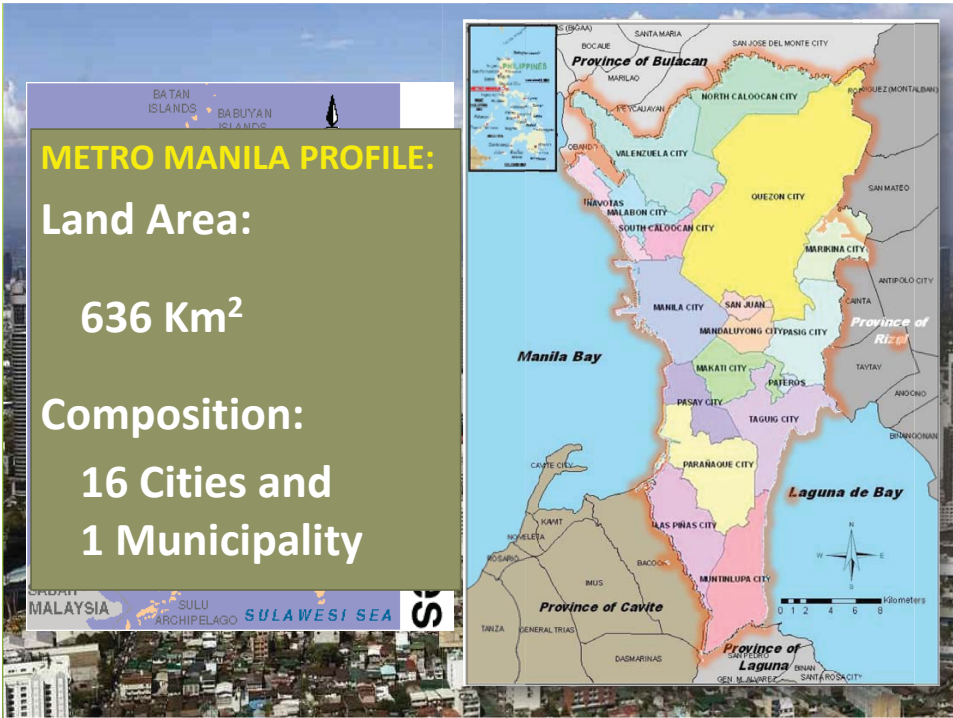
Metropolitan Manila Development Authority



- The Metro Manila Council is the policy making body and the governing board of the Authority also known as Regional Development Council (RDC).
- The RDC serves as the counterpart of the National Economic Development Authority (NEDA) Board at the regional level.
- The council shall be headed by the MMDA Chairman with a cabinet rank, who is appointed by the President and is assisted by the General Manager and Assistant General Managers for Planning, Operations and Finance and Administration, all appointed by the President.

VI. Country's Profile

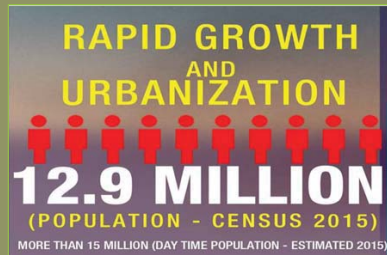
- Philippines is an archipelago comprising of 7,107 islands and islets located in Southeast Asia in the western Pacific Ocean.
- The country is categorized broadly into three main geographical divisions composed of 17 administrative regions namely: Luzon (8 administrative regions); Visayas (3 administrative regions), and Mindanao (6 administrative regions).
- Metro Manila is located on the western section of Luzon Island. It sits on the Valley Fault System, one of the active networks of fault lines in the country, putting the whole area at the risks of earthquakes.
- It is also known as the National Capital Region (NCR), which is the country's primary socio-economic hub where most of the major commercial, financial, institutional and educational establishments are located.



Metro Manila Traffic Issues/Problems

The main problem in Metro Manila is the traffic congestion. It is now causing the Philippines to lose P3.5 billion a day and said losses may go as high as P5.4 billion a day by 2035. (JICA, 2018)

1. High population density of 20,785 persons/square kilometer. Manila's 2019 population is now estimated at 13,698,889.
2. Motorists' undisciplined driving behavior

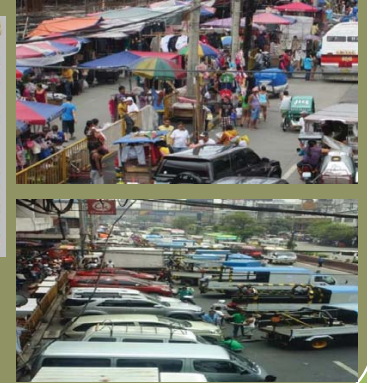


Metro Manila Traffic Issues/Problems

3. High accident rate with a daily average of 321 accident per day
4. Presence of road-right-of-way obstruction such as illegally parked vehicles and illegal vendors

MOTORIST UNDISCIPLINED DRIVING BEHAVIOR	PERCENTAGE OF ACCIDENT OCCURRENCE PER VEHICLE CATEGORY		
	2016	2017	2018
FATAL	1.11	1.16	1.04
NON-FATAL	43.38	42.48	49.01
DAMAGE TO PROPERTY	242.63	257.80	270.22
AVERAGE DAILY	299	302	321

VEHICLE CATEGORY	% OF ACCIDENT		
	2016	2017	2018
CAR	51%	49%	52%
MOTORCYCLE	11%	13%	13%
TAXI	5%	4%	3%
TRUCK	10%	10%	8%
PUJ	5%	6%	4%
BUS	5%	5%	5%
OTHERS	13%	13%	15%



VII. Technical Problems (not limited to ITS)

Vulnerability to Typhoons, Earthquakes and Flooding

- The Philippines experiences various types of hazards due to its physical environment and geographical location along the "Pacific Ring of Fire", an area in the basin of the Pacific Ocean wherein earthquakes and tsunamis occur frequently.
1. Typhoons
 - Among all the calamities and disasters that the country experiences, typhoons and earthquakes are the most common. An average of 20 typhoons enters the Philippine Area of Responsibility (PAR) every year of which around four (4) to seven (7) are destructive.
 - About four (4) to six (6) typhoons passes through the vicinity of Metro Manila.

VII. Technical Problems (not limited to ITS)

2. Earthquakes

- The Eurasian Plate subducts eastward beneath Luzon Island along the Manila Trench, and the Philippine Sea Plate subducts westward along the East Luzon trench. Because of this complex tectonic setting, Luzon Island shows high seismic activity.
- There is also the Valley Fault System that runs north to south along the west and east of the Marikina Valley (West Valley Fault and the East Valley Fault) pose the greatest threat to the metropolis due to its close proximity.
- MMDA came-up with “Oplan Metro Yakal” which is a contingency plan in case an earthquake would hit Metro Manila. The Oplan also provides preparatory activities such as the reorientation and upgrading of disaster response skills and reassessment of MMDA and volunteer rescue teams, in close coordination with the LGUs.

VII. Technical Problems (not limited to ITS)

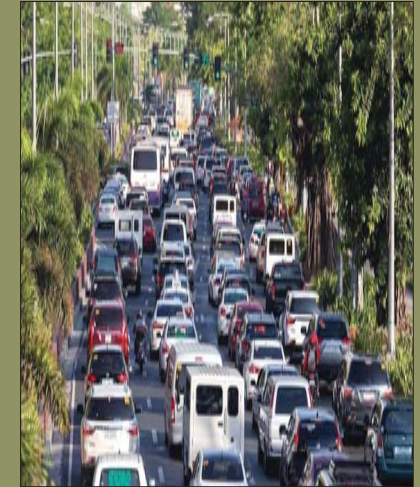
3. Flooding

- Flooding in Metro Manila especially in low-lying areas is caused by high intensity or long duration rainfall, storm waters and overflowing of rivers which render our existing system of ‘esteros’ and modified natural channels and canals inadequate.
- Other major contributory factors aggravating flooding are the constriction of the waterways brought about by the proliferation of the informal settlements, presence of illegal obstructions, and indiscriminate dumping of garbage.
- The MMDA, as mandated by Republic Act No. 7924, undertakes measures to reduce if not totally mitigate flooding incidence in Metro Manila.
- The MMDA, thru its Flood Control and Sewerage Management Office (FCSMO), handles the operation and maintenance of pumping stations and major flood control facilities.

VIII. Technical Problems (related to ITS)

1. Inadequate road network with limited carrying capacity

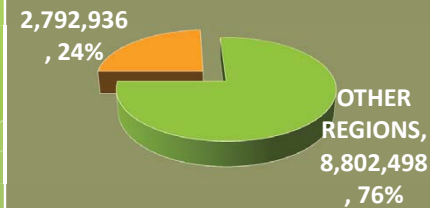
- With Metro Manila’s land area, road network should be around 30% or 8,295.7 kms. But based on DPWH Atlas in 2015, Metro Manila’s road network is at 5,220.726 kms only.



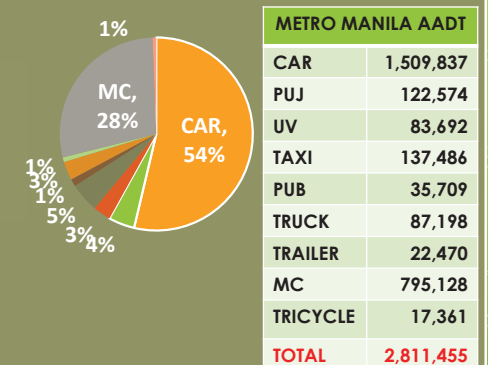
VIII. Technical Problems (related to ITS)

2. High volume of vehicle registration

PERCENTAGE SHARE OF THE NUMBER OF MOTOR VEHICLES REGISTERED IN 2018

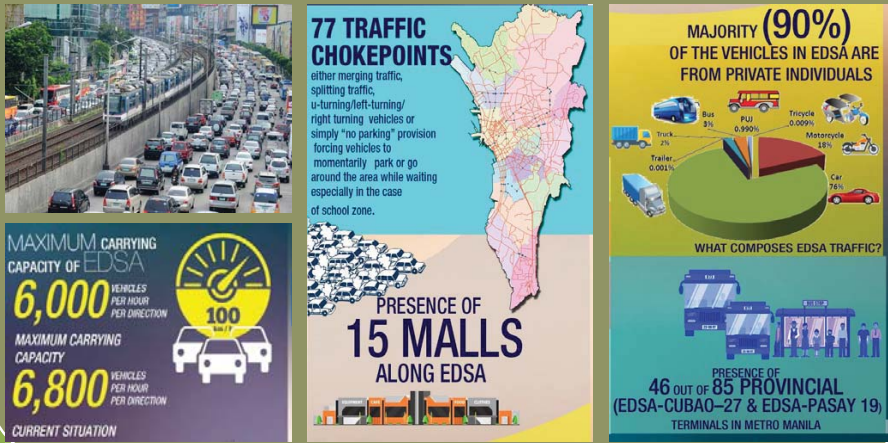


METRO MANILA ANNUAL AVERAGE DAILY TRAFFIC (AADT) 2018



VIII. Technical Problems (related to ITS)

3. Oversupply of vehicles along EDSA beyond its carrying capacity



X. Existing ITS in the Country

Metropolitan Manila Development Authority



1. New Command Center, Control and Communication Center

- It was launched in January 8, 2014.
- It begins with the upgrading of 93 priority intersections (Phase I Project).
- It serves as the central hub of the traffic signal system which includes its software, hardware, communication accessories and facilities.



IX. ITS Related Organizations



X. Existing ITS in the Country

Metropolitan Manila Development Authority



2. Traffic Signal Upgrading and Signalization and Installation of CCTV Cameras



Upgrading of 442
Signalized
Intersections

Signalization of 100
Warranted
Intersections

Installation of 251
CCTV Cameras

X. Existing ITS in the Country

Metropolitan Manila Development Authority



3. LED Traffic Information Boards

- It was placed in strategic points along EDSA to recognize the importance of providing real-time traffic updates to guide, to inform and to educate the road users and to aid traffic management.



4. No Contact Apprehension Program

- It is a policy that utilizes CCTV, digital cameras and/or other gadget or technology to capture videos and images to apprehend vehicles violating traffic laws, rules and regulations.

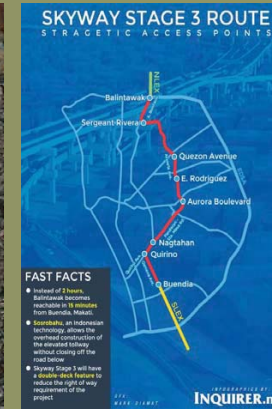


Increasing Road Capacity and Improving Public Transport by the Government's Build Build Build Program

NAIA EXPRESSWAY 2



SKYWAY STAGE 3



NLEX HARBOR LINK



X. Existing ITS in the Country

Metropolitan Manila Development Authority



5. Public Information Efforts

www.mayhuliba.com

I WILL ACT PORTAL

WAZE CONNECTED CITIZENS



- It is used to inform, to report and get connected.

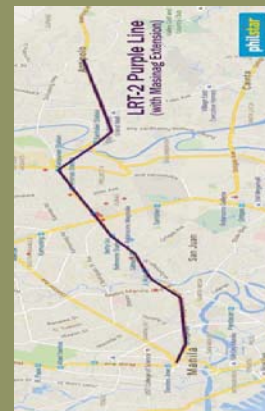
6. Mobile Command Center



- It is called "Agila" and it is used for remote monitoring of events.
- It is equipped with HD cameras, monitoring boards and communication equipment

Increasing Road Capacity and Improving Public Transport by the Government's Build Build Build Program

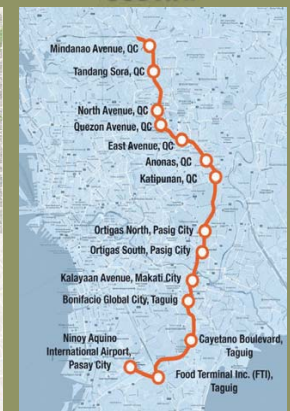
LRT 2 EXTENSION



MRT 7



METRO MANILA SUBWAY



XI. Expectation from ITS

To have an Intelligent Transport System that conforms to international standard that will provide efficient operation and management of transportation and traffic system in Metro Manila.

To help to solve the traffic congestion in Metro Manila and to fulfill its basic idea for its ITS master plan which is to provide latest technology in traffic system, provide user-based traffic service and to provide disaster/crime free city system.

Integration of every ITS application software will be the problem that may be encountered during the early part of implementation

References:

- Engr. Ryan Tacbad (2018). Philippine Country Report
- MMDA's Consultancy Services for the Development of an ITS
- Philippines Statistics Authority (2015). Population Census
- Land Transportation Office Annual Report (2018)
- Metro Manila Annual Average Daily Traffic (2018)
- Metro Manila Accident Recording and Analysis System (2018)
- Department of Public Works and Highways Atlas (2015)
- <http://www.mmda.gov.ph>
- <https://www.imoney.ph/articles/philippines-loses-%E2%82%B13-5-billion-day-due-metro-manila-traffic/>
- <http://worldpopulationreview.com/world-cities/manila-population/>
- <https://www.bworldonline.com/how-many-vehicles-pass-through-edsa-each-day/>
- <https://data.gov.ph/Agencies>
- <http://www.pnr.gov.ph/about-contact-us/who-we-are/corporate-profile>
- <https://www.rappler.com/nation/154745-mmda-2016-online-traffic-applications-websites>
- <https://www.moneymax.ph/government-services/articles/build-build-build-philippines/>
- <https://www.railway-technology.com/projects/metro-manila-subway/>



Thank You!




Country Report

Thailand

Practical Technology on ITS, JICA

Ms. Srungsang Chaikasetsin,
Practitioner Civil Engineer
Department of Highways, THAILAND

Personal and Organization Information




Organization Information:
Department of Highways

- **Established Date:**
April 1, 1912
- **Function:**
Highway Development
 - Planning
 - Survey and Design
 - Land Acquisition
 - Construction
 - Analysis and Research
- Highway Maintenance
 - Maintenance Work
 - Regulation, Inspection and Administration
 - Road Safety

Personal and Organization Information

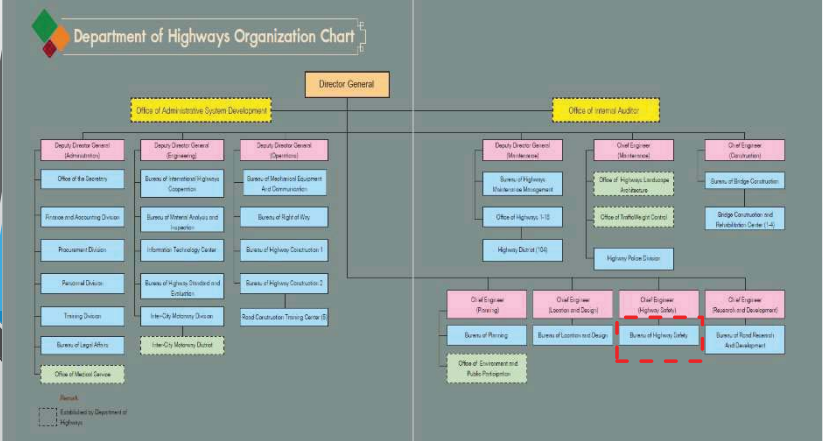
Personal Information

- **Name:** Ms. Srungsang Chaikasetsin
- **Position:** Civil Engineer, Practitioner Level
- **Division:** Traffic and Transportation Survey Group
- **Department:** Bureau of Highway Safety
- **Organization:**
Department of Highways,
Ministry of Transport, THAILAND



Personal and Organization Information

Organization Information: Department of Highways

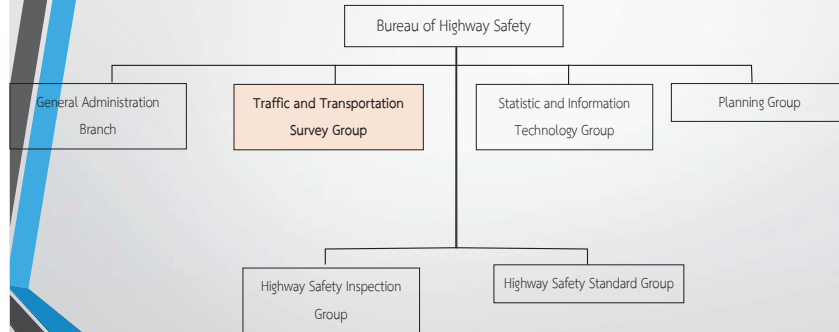


Department of Highways Organization Chart

- Director General
 - Office of Administrative System Development
 - Office of Internal Audit
 - Deputy Director General (Administration)
 - Office of the Secretary
 - Finance and Accounting Division
 - Procurement Division
 - Personnel Division
 - Training Division
 - Bureau of Legal Affairs
 - Office of Medical Service
 - Deputy Director General (Engineering)
 - Bureau of International Highway Cooperation
 - Bureau of Safety Analysis and Inspection
 - Information Technology Center
 - Bureau of Highway Operation and Evaluation
 - Inter-City Highway Division
 - Inter-City Highway Bureau
 - Deputy Director General (Operation)
 - Bureau of Medical and Equipment Air Communication
 - Bureau of Right of Way
 - Bureau of Highway Construction 1
 - Bureau of Highway Construction 2
 - Road Construction Training Center (R)
 - Office of Highway Maintenance Management
 - Bureau of Highway Maintenance Management
 - Office of Highway 110
 - Highway District (SD)
 - Office of Highway Landscaping and Beautification
 - Office of Traffic Light Control
 - Highway Police Division
 - Chief Engineer (Construction)
 - Bureau of Bridge Construction
 - Bridge Construction and Rehabilitation Center (C)
 - Chief Engineer (Planning)
 - Bureau of Planning
 - Chief Engineer (Location and Design)
 - Bureau of Location and Design
 - Chief Engineer (Highway Safety)
 - Bureau of Highway Safety
 - Chief Engineer (Research and Development)
 - Bureau of Road Research and Development
 - Office of Government and Public Participation

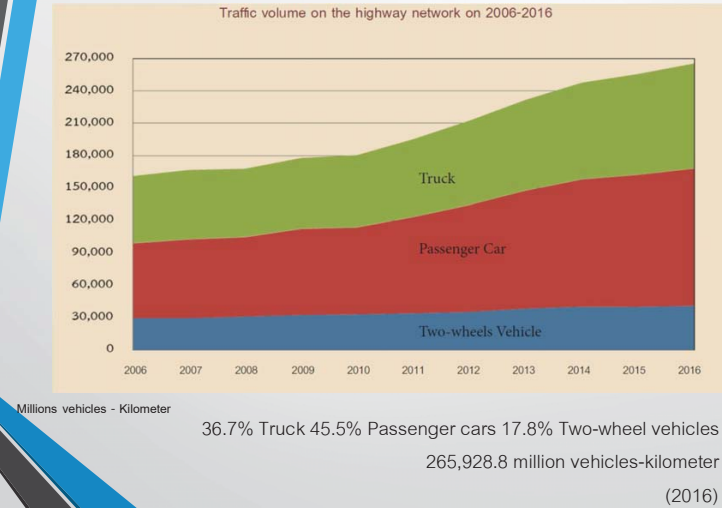
Personal and Organization Information

Organization Information: Bureau of Highway Safety



Staff members: 50

THAILAND Traffic Situation



Organization Information: Traffic and Transportation Survey Group

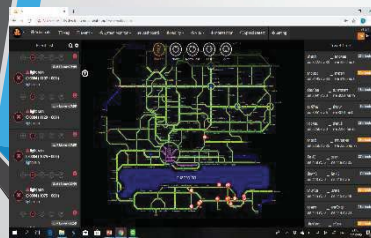


Function:

- Control and survey traffic and transportation.
- Survey for researching.

My Duties:

- To study and apply ITS technology to solve the traffic and accident problem on highways.
- To set up and manage Traffic Operation Center (TOC) for Department of Highways.
- To plan and control the installation of device and system of TOC
- To analyze traffic data for planning and designing the highways.
- To forecast traffic data for managing the traffic during Thai holidays.



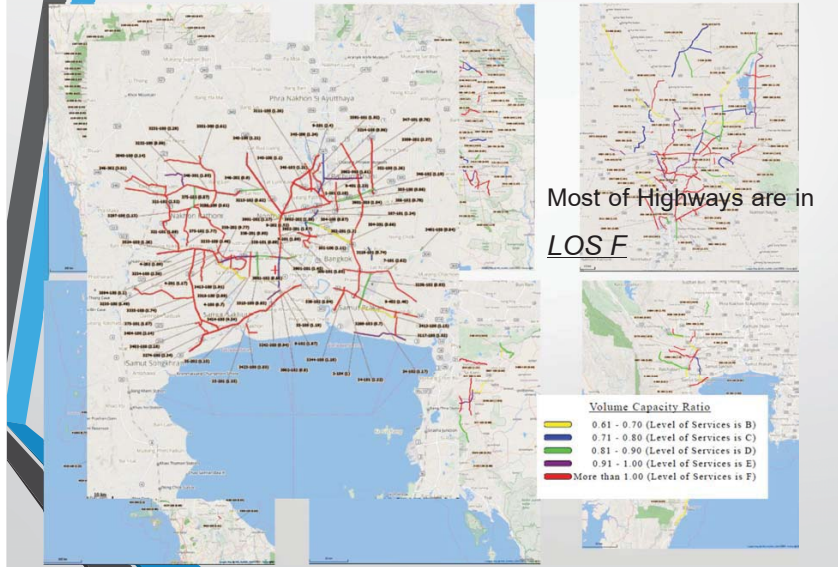
Major Traffic problem in Thailand



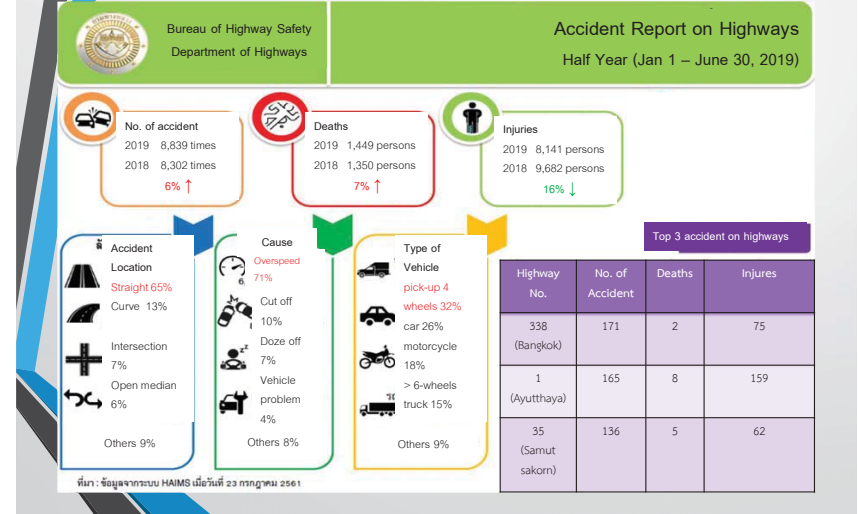
Traffic
Congestion



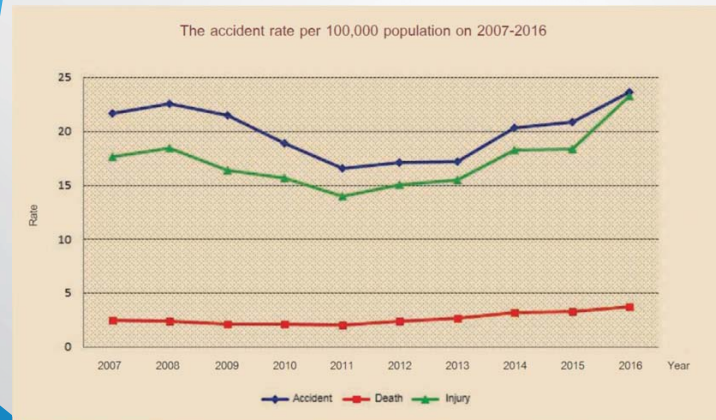
Major Traffic problem in Thailand: Volume/Capacity



Major problems on Highways: Accident



THAILAND major problems on highways



Technical Problems on THAILAND highways

- Many Types of vehicle on the same highways
- Overspeed and undisciplined driver on highways
- Lack of co-operation with the related agency
(5E = Engineering, Enforcement, Education, Emergency, Evaluation)



ITS related organization in Thailand

Ministry of Transport

กรมทางหลวง
DEPARTMENT OF HIGHWAYS

กระทรวงคมนาคม

ITIC
มูลนิธิศูนย์ข้อมูลจราจรอัจฉริยะไทย
Intelligent Traffic Information Center Foundation

สทป
Office of Transport and Traffic Policy and Planning

BOSCH DENSO
metamedia technology
DIGITAL
tomtom
HIKVISION EXAT PSK

ITS Thailand
สมาคมระบบขนส่งและจราจรอัจฉริยะไทย
Thai Intelligent Transport Systems Association

Traffic Data Collection system

Permanent Traffic Data Collection Station

- From 2010 until Now
- Distributed cover Thailand highways. Total Number of Stations = 320



ITS related project in Department of Highways

Traffic Data Collection system

กรมทางหลวง
Department of Highways

Traffic Operation Center

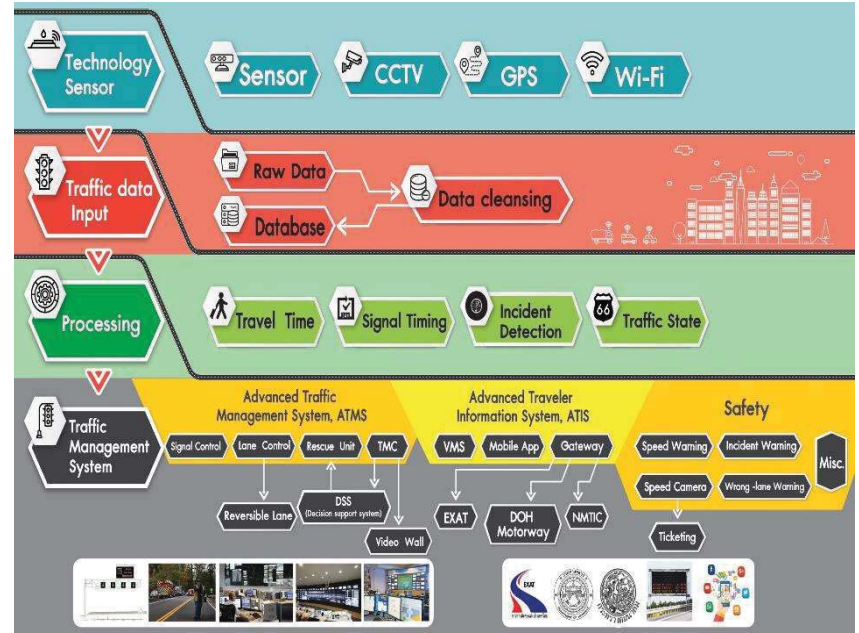



Traffic Data Collection System

www.highwaytraffic.go.th



Traffic Operation Center: TOC





ศูนย์บริหารจัดการจราจรและอุบัติเหตุ

Mission of Traffic Operation Center (TOC)

- Cooperate the mission, data, and command to manage traffic and accident on highways
- Develop the system to support TOC
- To be center of data exchange among the related agency

Lane Management System: LMS



ระบบการจัดการ Reversible Lane



Advance Traveler Information System: ATIS



Travel Time Estimation and Traffic Surveillance

ทางปะหัน

36 นาที

32 นาที

4.6 นาที

3 นาที

1 นาที

ระยะทาง

Origin

Destination

Path AD = AB + BC + CD

Distance

Travel Time

Speed Enforcement

ระบบ Speed Enforcement

ศูนย์ TOC

ใช้ความเร็วเกินกำหนด

ออกใบสั่ง

Over Speed Detection

Over Speed

กวดความเร็วรถ

90

80

60

Intersection Control

Intersection Control

Monitoring

Summary

Maintenance

Control

Light

Signal

Camera



Problems related to ITS

- Stability of Electricity and Communication System
 - Depend on roadside environment and other agency (Provincial Electricity Authority and Communication cooperation)
- Maintenance Strategy Plan
 - Different type of device , different time of installation, different lifetime
 - Limited budget
- Limited resources to optimize the data
 - Expertise, operator, etc.
 - Increasing of Data, slow processing time
 - Tool to analyze

COUNTRY REPORT FOR THE INTELLIGENT TRANSPORT SYSTEMS (ITS) TRAINING

PREPARED BY:

ABUDALLAH SSENYONJO (PARTICIPANT)

COUNTRY TO BE REPRESENTED:

UGANDA

NAME OF THE ORGANIZATION:

KAMPALA CAPITAL CITY AUTHORITY (SINCE APRIL, 2011)

PRESENT POST:

SUPERVISOR ELECTRICAL SERVICES

- On average, each function has about 90 staff members currently and the numbers may hit 100, if the entire organization structure is operationalized.
- The organization has approximately 950 staff under the main stream, where as, approximately 2,000 staff are recruited on a casual basis, as and when need arises.
- The annual budget of Kampala Capital City Authority is 500 Billion Uganda Shillings.

ORGANIZATION FUNCTION

- Kampala Capital City Authority (KCCA) has 10 functions which include 1) Human Resource and Administration, 2) Physical planning, 3) Internal audit, 4) Legal affairs, 5) Revenue collection, 6) Treasury services, 7) Public Health, 8) Engineering and Technical Services, 9) Education services and 10) Gender and Community services.
- I belong to the function of Engineering and Technical Services, which is in charge of management of City Roads, Street lighting and Traffic signals, Transport and Traffic Planning, Drainage, Land surveying and planning, as well as Mechanical services.
- In particular, I am deployed in the Electrical section (In-charge of Street lighting and Traffic signals) and we work closely with the Transport and Traffic Planning.

TRAFFIC SITUATION IN KAMPLA CITY

- Kampala City traffic composed of Pedestrians, vehicles and motor cycles.

A table below shows the composition of each type of traffic to the overall traffic in Uganda.

No.	Type of Traffic	% Composition
1)	Pedestrians/Walkers	46
2)	Motor Cycles/Boda-Bodas	17
3)	Matatu (Taxi)	22
4)	Cars	13
5)	Others	2

- Currently the city is highly congested during peak hours of the day and as a result, the travel duration around the city in these hours are undesirable.
- The current traffic situation in Kampala City is as result of the existing road network, absence of adequate Urban Traffic control, lack of regulations enforcement on public transport systems, behavior of the road users and number of other factors.

ITS IN KAMPALA CITY

- Currently Kampala city has no operational Intelligent Transport systems in place, however, proposals for a number of systems are underway and in the near future, their implementation will be kick started.
- Such proposals include;
 - ✓ Bus Rapid Transit (BRT) systems
 - ✓ Moderato
 - ✓ Traffic Control Centre
- Funding for some of the above proposal has been availed where as others remain unfunded.

Technical problems encountered by KCCA

- Compatibility of the systems required to interface with intelligent equipment. Different equipment from different continents are not compatible. For example, European equipment can not communicate to equipment from Japan.
- Inadequate technical capacity of contractors or service providers in Uganda to maintenance and operate the Intelligent Transport systems. This is because services have not yet envisaged the field of Transport Engineering as lucrative business.
- Inadequate training and exposure of KCCA Technical personnel on recent technologies in Transport system. This is fundamentally as a result of training budgets for KCCA.
- Infrastructure challenges. There is need to upgrade the existing infrastructure such as the road networks, signalization of major intersections, introduction of car navigation systems.
- Jurisdiction problems. Different territories have lack harmonized system standards of transport management systems, yet they pole a big role towards decongesting Kampala city.

ITS RELATED ORGANIZATIONS

- Below are the Organizations that relate to ITS in Uganda;
 - ✓ Uganda National Roads Authority (UNRA)
 - ✓ Ministry of Works and Transport
 - ✓ Uganda Road Fund

Currently Kampala City has no ITS in place

Expectation Regarding ITS

- Implementing ITS in Kampala City shall enable the Traffic Engineer to address Traffic congestion, co-ordinate with other organizations that relate to ITS to address the traffic challenges in the Kampala Metropolitan.

THANK YOU

•-END-

3. 最終成果発表会資料

FINAL REPORT FOR THE INTELLIGENT TRANSPORT SYSTEMS (ITS) TRAINING

PREPARED BY:
ABUDALLAH SSENIONJO (PARTICIPANT)

COUNTRY TO BE REPRESENTED:
UGANDA

NAME OF THE ORGANIZATION:
KAMPALA CAPITAL CITY AUTHORITY (SINCE APRIL, 2011)

PRESENT POST:
SUPERVISOR ELECTRICAL SERVICES

b) Undefined mode of operation of public transport means in Kampala City



TRAFFIC SITUATION IN KAMPLA CITY

a) Congestion case in Kampala due to mixed modes of transport along the same carriage way



➤ A table below shows the composition of each type of traffic to the overall traffic in Uganda.

No.	Type of Traffic	% Composition
1)	Pedestrians/Walkers	46
2)	Motor Cycles/Boda-Bodas	17
3)	Matatu (Taxi)	22
4)	Cars	13
5)	Others	2

➤ Currently the Central Business District of Kampala City is highly congested during peak hours.

➤ The travel duration around the city in these hours is undesirable. On average it takes one and half hours to traverse a distance of 10km.

- The traffic in the city during peak hours is very unsafe due to the sharing of the same carriage way by motor cycles and vehicles.
- Roads don't have lane marking to demarcate the traffic movements, pedestrian crossings are not marked hence obstructed by vehicles.
- Absence of road signages such as NO ENRTY for one way roads and others.
- **The current traffic situation is as a result of the following ;**
 - a) The existing road network is overdue for upgrade.
 - b) 98% of the traffic junctions along the major roads in the City are not signalized.
 - c) The few operational signalized junctions are not coordinated to have a smooth flow of traffic.
 - d) Poor regulations enforcement on road users.
 - e) Poor Geometrical layouts of traffic junctions.
 - f) Absence of prioritized public transport systems and alternative modes of Transport.

PROPOSED ACTION PLAN TO TACKLE SPECIFIC ISSUES

- ▶ Name of chosen technology or Knowledge: **Bus Priority Systems**
- ❖ The use of public buses is desired because they have a higher traffic density than the private cars.
- ❖ If a proper Bus Priority system (Adoption of Ma-As) is implemented, then the traffic situation along this route will improve.
- ❖ For the Bus priority system to be operational, the following are required;
 - a) Intersections along the route should be signalized with traffic controllers that have the Bus priority facility.
 - b) Intersections shall have detectors, a data network system (Optic Fiber)
 - c) Bus control center

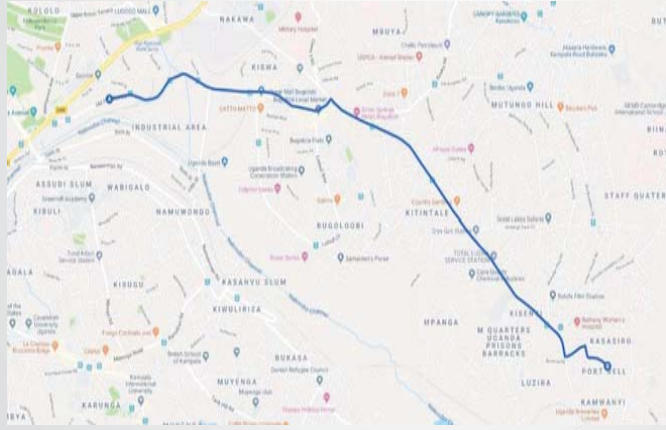
ITS IN KAMPALA CITY

- ▶ Currently Kampala city has no operational Intelligent Transport systems in place, however, proposals for a number of system components pointing in the direction of ITS under implementation.
- ▶ These system components are being installed at the four pilot traffic junctions in Kololo area that were signalized with grant funding from JICA in the year of 2017.
- ▶ These ITS system components currently under installation phase include;
 - ✓ Traffic Control networks (**Optic Fiber networks**)- **Installation Completed**
 - ✓ Traffic information collection components (**Ultra Sonic Detectors**)- **Installation is going**
 - ✓ Traffic Control Centre (**Contractor already procured**)- **Construction to start soon**

Area of Target

- ▶ The proposed route for the implementation of the above action plan is the **Spring Road-Old Port bell-Bugoloobi-Kitintale-Luzira**.
- ❖ The length of this route is approximately 11km.
- ❖ This route connects Kampala to the only port available in the country, it is a residential area for the highest income earners and also has the heavy factories in Kampala.
- ❖ During peak hours, this route is heavily congested due to the busy activities associated with the port, factories and return trips to the homes of residents of along the route.

A SECTION OF MAP OF KAMPALA SHOWING THE ROUTE



SHORTMEDIUM AND LONG TERM PLANS

1) Short term plan:

- ❖ To develop an ITS Masterplan for the city and Road infrastructure improvement for the route (Both to run hand in hand)

➤ Expected benefit:

- ❖ Infrastructure upgrade will help to host the various required ITS components for the Bus priority system
- ❖ It will also help to improve the overall traffic flow and its safety.

2) Medium term plan:

- ❖ To Put in place traffic control systems, acquisition of Buses and management systems.

➤ Expected benefit:

- ❖ These systems will to prioritize movement of buses along the route

3) Long term plan:

- ❖ To Signalize Bus route-Railway line intersections.

➤ Expected benefit:

- ❖ Improved safety at Bus route-Railway line intersections

Why Bus Priority System as an optimal solution to the Traffic Challenges along this route or Area? (Problem-solution approach)

- ❖ Currently all the junctions along this route are not signalized, hence no traffic control at the route intersections. **BRT implementation shall come along with Junction signalization**
- ❖ There is very poor traffic density along this route. This because 95% of vehicles along this route are private cars. **Public Buses can improve the aspect of traffic density.**
- ❖ Currently public transport (Matatu) in Kampala city does not attract road users because of the following reasons;
 - ✓ The unprofessional behavior of the matatu drivers.
 - ✓ lack of defined mode operation.
 - ✓ Delays due to undefined stop over points.
- ❖ **Public buses will have digital platforms with defined mode of operations hence minimizing transit delays.**

IMPLEMENTATION SCHEME

- ▶ Reconstruction of the road along the route to allow for creation of the bus lane, cycle lane and pedestrian walkways.
- ▶ Installation of traffic signals, detectors, Road Traffic information networks and a traffic control center.
- ▶ Procurement of the public buses, their system configuration and actualization of the bus management system.

CONSTRAINTS AND ADMINISTRATIVE ISSUES INVOLVED IN THE IMPLEMENTATION OF ITS

- ▶ Inadequate budgets to fund capital and maintenance costs associated with operating ITS.
- ▶ Inadequate training and exposure of KCCA Technical personnel on recent technologies in ITS.
- ▶ Infrastructure bottlenecks.
- ▶ KCCA has no ITS Masterplan in place.
- ▶ Conflicting roles and responsibilities amongst ITS related Institutions (KCCA and Traffic Police).
- ▶ Jurisdictions issues amongst road infrastructure management organizations.
- ▶ Inadequate technical capacity of local contractors or service providers to install and maintain ITS.
- ▶ Lack of harmonized traffic signal specifications and standards

THANK YOU FOR BEING GOOD LISTENERS

Any questions and suggestions are welcomed

-END-

Final Report Thailand Practical Technology on ITS, JICA

Ms.Sruangsaeng Chaikasetzin
Practitioner Civil Engineer
Department of Highways, THAILAND

Traffic Situation and Issues in THAILAND

Traffic Congestion

- Increasing traffic volume
- Multi-types of vehicle on highways

Traffic Accident

- Law Enforcement
- Lack of Road user discipline

Lack of Cooperation among related agencies : Enforcement (Police), Emergency (Hospital, Rescue), Engineering (DOH)



Examples of Traffic Issues in THAILAND

Street Racing



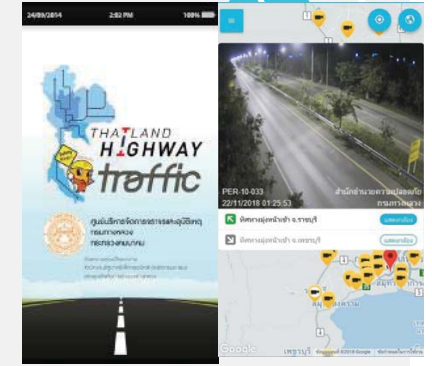
Red-light running



Traffic Data Collection System

Website: www.highwaytraffic.go.th

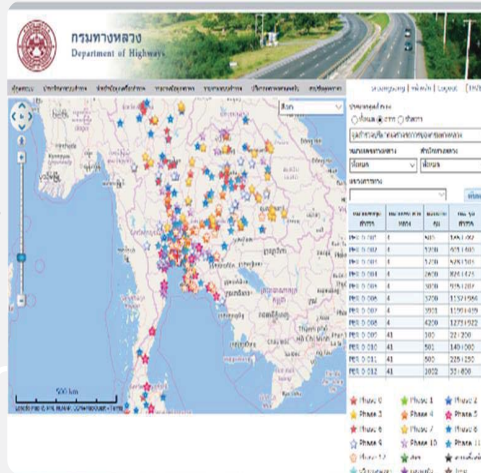
Application: Thailand highway traffic



Current ITS Implementation Situation in THAILAND

1. Traffic Data Collection System

- From 2010 until Now (10 years)
- Distributed cover Thailand highways with total number of stations = 320 (2019)
- Component of station
 1. Microwave Radar
 2. CCTV
 3. Control Unit



Current ITS Implementation Situation in THAILAND (2)

2. Traffic Operation Center (TOC)

- From 2017 until Now (3 years)
- To operate and manage the traffic and accident on highways in THAILAND.
- Installation and development on the highways to the north-east region (No.1-2) as the first phase.



Traffic Operation Center



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Proposal of Action Plan

- **Chosen Technology/ Knowledge:**
Traffic Information Provision, ITS Standard, Communication system for ITS
- **Area of Target:**
Traffic Information Provision from the current data (Traffic Data Collection system) and to integrate with the new data from the Traffic Operation Center.
- **Reason:**
As the problem is mentioned, Traffic database on highways is already collected and large enough to provide the traffic information and to solve the problem. However, all data is not completed because of the instability of electricity and communication system. Moreover, All data type cannot be used as the Big Data concept, so the data is not efficiency usage as the large investment. So, this is the reason to propose the action plan for the traffic information provision of highways in Thailand.

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Problems related to ITS

- **Stability of Electricity and Communication System**
 - Depend on roadside environment and other agency (Provincial Electricity Authority and Communication cooperation)
- **Limited resources to optimize the data**
 - Expertise, operator, etc.
 - Increasing of Data, slow processing time
 - Tool to analyze
- **Maintenance Strategy Plan**
 - Different type of device , different time of installation, different lifetime
 - Limited budget

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Current Usage of Data

Traffic Data Collection System

- Traffic Report (Volume, speed, flow)
- Seasonal Factor
- Forecast Traffic during Thai Holiday

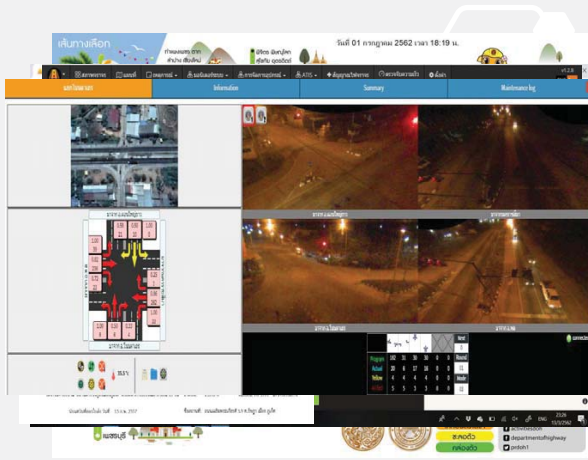


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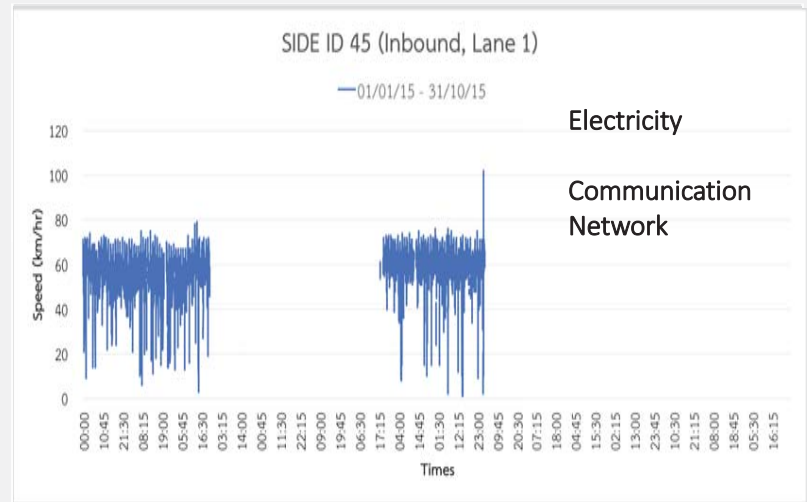
Current Usage of Data

Traffic Operation Center

- Traffic Information (VMS)
- Traffic Surveillance (CCTV & Travel Time)
- Enforcement (Lane & Speed)
- Intersection Control



11

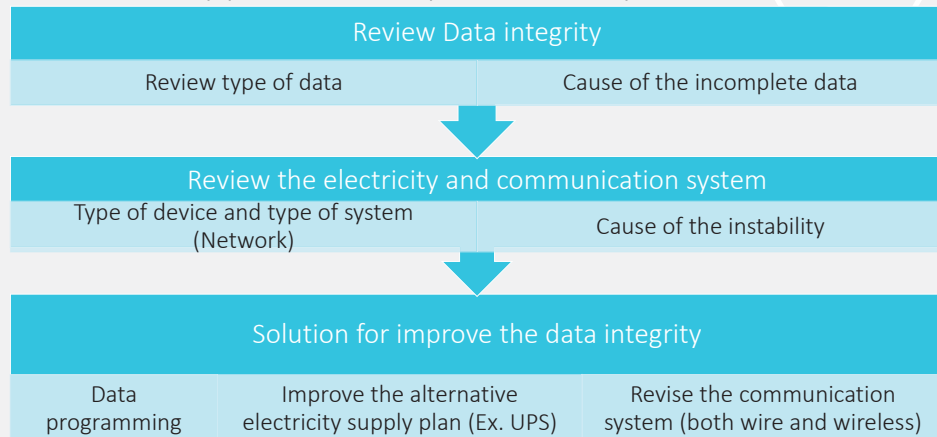


Problem about the data

13

Short-term plan (1 year): The improvement plan of Data and the electricity and communication system

Review and set up plan the instability of the electricity and the communication



12

Possible causes of the data missing



Electricity System

- Provincial Electricity Authority
- State Enterprise
- Large coverage area along highways
- Need of the advanced system support

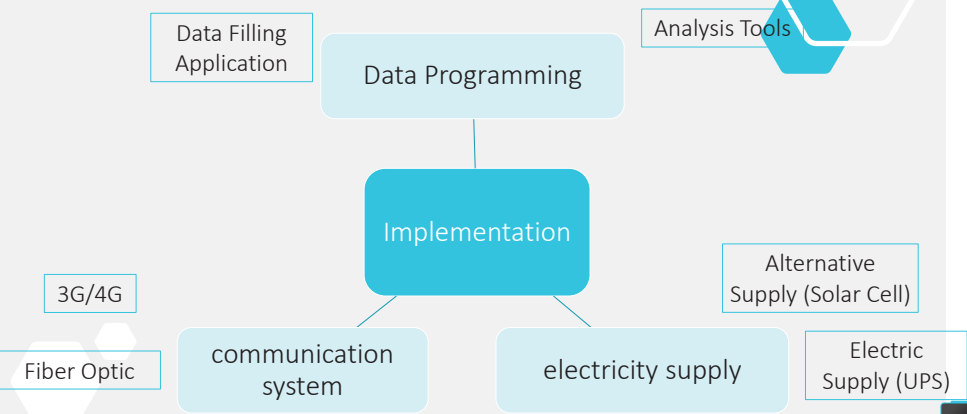


Communication System

- Wire (ADSL, Fiber Optic) and Wireless (3G/4G)
 - Depend on the coverage area
- State Enterprise and Private Company
- Large coverage area along highways
- Need of the advanced system support

14

Medium-term plan (3 year): The implementation of plan of Data and the electricity and communication system



ระบบให้ข้อมูลการเดินทาง

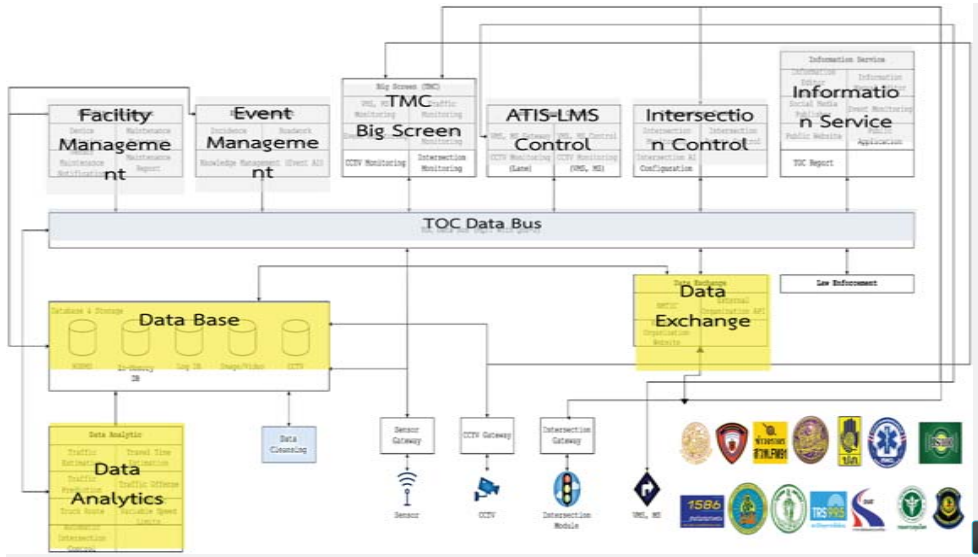
ศูนย์ TOC

ป้าย VMS

Mobile App

Long-term plan (5 year): The traffic information provision

Information Service	Data Exchange	Analytic
<ul style="list-style-type: none"> Roadside (VMS) Website (Dashboard) Social media 	<ul style="list-style-type: none"> Government Database Public Organization 	<ul style="list-style-type: none"> Traffic estimation Travel time estimation Data cleansing & Imputation Big Data Processing



Expected output/benefit

- Improve the stability of the electricity and the communication system
- Prepare the system for the future installation of the system
- Have the good quality and the complete data
- Provide the traffic data for the road user and the related agencies
- Use the data to worth the investment
- Set up the Big Data to further use in the future
- Help to improve the traffic and accident situation

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Constraints, Administrative issues, other problems

- **Human**
Lack of the expertise in data analytic, electrical engineer, mechanical engineer, communication engineer, and the related field. Most of DOH is civil engineer.
- **Electricity and Communication provider**
It is difficult to dedicate the electricity and communication system for ITS system on highways because these provider are state enterprise and the private company, so it need to have the policy from the government.
- **Finances**
As DOH is the government organization, DOH is used the national budget to implement. However, this kind of technology is used a lot of investment in the initial period. It is hard to defend to get the full amount of budget as plan.
- **Data Challenge**
More dataset, complex system

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Implementation Scheme (Short-Medium-Long term plan)

Review and set plan

- Data integrity
- Electricity system
- Communication system

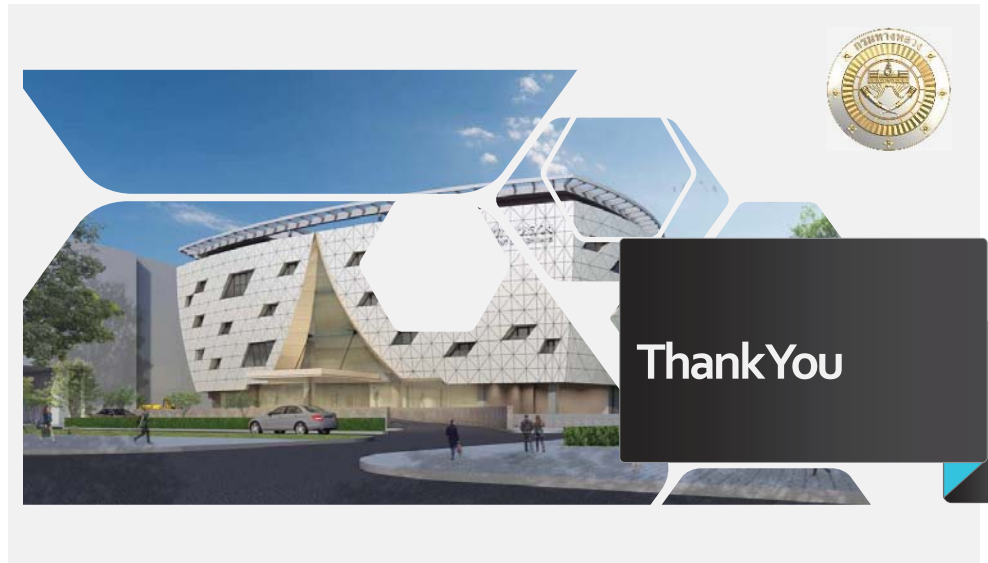
Implementation of plan

- Data programming
- Alternative electricity supply
- Communication network

Traffic information provision

- Information Service
- Data Exchange
- Analytics

20



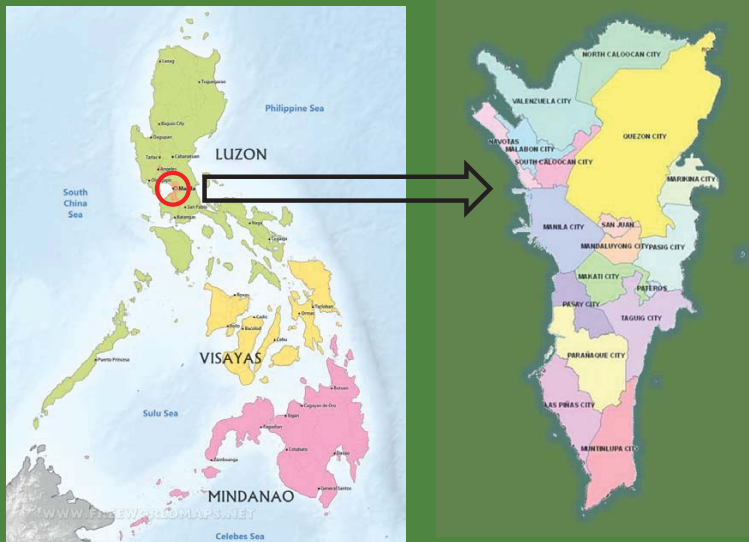


Traffic Situations and Issues

The main problem in Metro Manila right now is the traffic congestion which is caused by the following:

1. High population density.
2. Motorists' undisciplined driving behavior.
3. High volume of vehicle registration.
4. Inefficient traffic facilities.
5. Inefficient public transport.
6. Presence of road-right-of-way obstruction such as illegally parked vehicles and illegal vendors.

Metro Manila (National Capital Region)



Metro Manila ITS

Metropolitan Manila Development Authority

Objectives :

A carefully planned Intelligent Transport System (ITS) could well respond to the transport system needs of Metro Manila. The ITS must:

- respond to problems that are both directly and indirectly related to traffic,
- derive ideas to resolve these issues, and
- apply the materialized means of solution as a formal framework of functions.



Source: Metro Manila ITS Master Plan 2013



Basic Idea for Metro Manila



Metropolitan Manila Development Authority

Provide latest Technology in Traffic System	Provide User-Based Traffic Service	Provide Disaster / Crime Free City System
<ul style="list-style-type: none"> Introduce latest technology based system which meets the need of MMDA Traffic communication is very significant System which allows future expansion and integration 	<ul style="list-style-type: none"> Implement a system which allows information collecting and processing Develop and provide future-base service 	<ul style="list-style-type: none"> Implement monitoring system for prevention Implement crime monitoring system

Source: Metro Manila ITS Master Plan 2013

Metro Manila Control Center



Current ITS Implementation Situations

ITS Implementations by Metropolitan Manila Development Authority (MMDA):

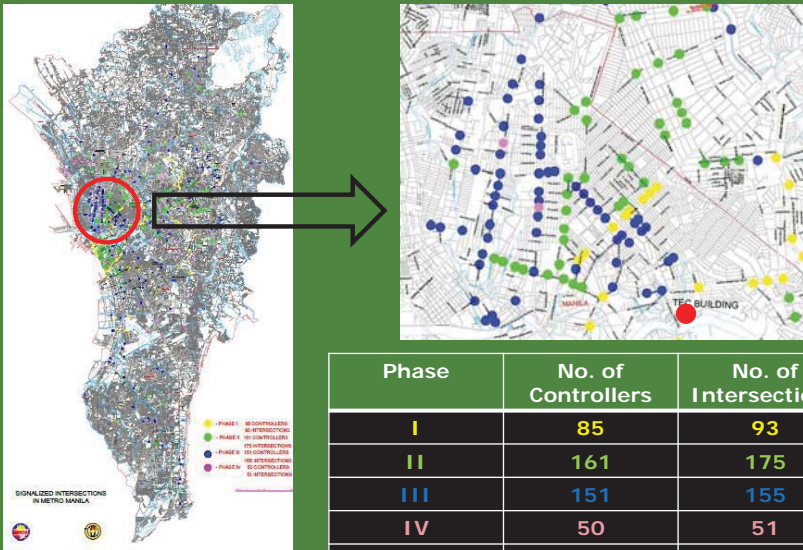
1. New Command Center, Control and Communication Center.
2. Traffic Signal Upgrading and Signalization.
3. Installation of CCTV Cameras.
4. LED Traffic Information Boards.
5. No Contact Apprehension Program (NCAP).
6. Public information efforts.

Current ITS Implementation Situations

ITS Implementations by Metropolitan Manila Development Authority (MMDA):

1. New Command Center, Control and Communication Center.
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6. Public information efforts.

Metro Manila's Signalized Intersections



Phase	No. of Controllers	No. of Intersections
I	85	93
II	161	175
III	151	155
IV	50	51
V	50	50

Metro Manila's Traffic Signal History

Year	Type of Controller	Type of System	Origin
1978	National	MODERATO	Japan
1998	Delta 5	SCATS	Australia
2012 (Phase I)	RSIM	HERMES	Spain
2014 (Phase II)	Costech	COSMOS	Korea
2015 (Phase III)	Costech	COSMOS	Korea
2017 (Phase IV)	Costech	COSMOS	Korea
2018 (Phase V)	Costech	COSMOS	Korea

Current ITS Implementation Situations

ITS Implementations by Metropolitan Manila Development Authority (MMDA):

1. New Command Center, Control and Communication Center.
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Proposal of Action Plan

WHAT WE NEED FOR ITS:

1. To improve data collection and analyzation.
2. To improve traffic flow.
3. To have a systematic management of transportation and traffic demand.
4. To provide real time traffic information.
5. To provide reliable traffic services.
6. To promote and create safe and pleasurable road and traffic environment.

Short Term Plans

- Select priority intersections for the replacement of loop detectors to ultra sonic detectors.
- Prepare plans and estimates for electrical works and civil works for the new road side equipments.
- Coordinate with Department of Public Works and Highways on their road maintenance and drainage improvement projects.

Medium Term Plans

- Installation of ultra sonic detectors in selected intersections.
- Installation of additional sensors like PTZ cameras, speed cameras and vehicle violation detector to selected critical signalized intersections.
- Modify the system on Control Center.
- Expansion of the Control Center building.

Long Term Plans

- Installation of additional Variable Message Signs (VMS) on strategic locations and improvement of Road Side Information Boards.
- Installation of other roadside equipments like optical beacon in preparation for:
 1. Advance Mobile Information System (AMIS)
 2. Public Transportation Priority Systems (PTPS)
 3. Fast Emergency Vehicle Preemption Systems (FAST)
 4. Driving Safety Support Systems (DSSS)



Road Improvement and Drainage Improvement Projects

Implementation Scheme

- Use the existing streetlight post for installation of ultra sonic detectors.
- Asking for permissions to Local Government Unit for using their streetlight posts.
- Training for technicians and personnel for operation and maintenance of the sensors.

Constraints, Issues and Other Problems

- Initial cost for road side equipments.
- Operation and maintenance cost.
- Establishing ITS standards for the sensing equipments.
- Bidding preparations and bidding process.



Thank You!



Practical Technology on ITS (J19-04209)

Presented By:
Niaz Ali

Director Intelligent Transport System (ITS)
Sindh Mass Transit Authority
Government of Sindh
Karachi, Pakistan.

Introduction

Total Area of Pakistan 881,913 km²
Population 212,742,631

Provincial Government of Sindh, established and empowered the Sindh Mass Transit Authority in 2015, for the purpose of, inter alia, planning, coordinating, constructing, developing, operating, maintaining, monitoring and regulating mass transit systems in the Province of Sindh and carrying out all ancillary functions thereto for providing safe, efficient, comfortable, affordable, sustainable and reliable forms of mass transit systems.

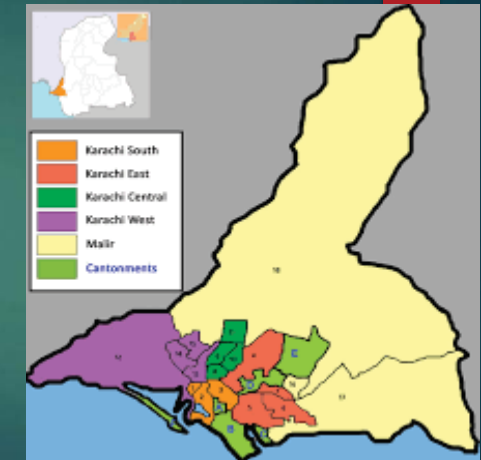


Source: Wikipedia

Contents of Presentation

- ▶ Country, Province and City Profile
- ▶ Traffic Situation (Public Transport)
- ▶ Action Plan and Implementation Status (Public Transport)
- ▶ Traffic Situation (Local Road Traffic)
- ▶ Action Plan (Local Road Traffic)
- ▶ Implementation Scheme (Local Road Traffic)
- ▶ Possible Challenges

Karachi At a Glance	
Administrative Area	3,600 sq. km
Built-up Area	1,200 sq. km
Administrative Structure:	
Districts Municipal Corporations	6
Cantonments	6
Metropolitan Corporation	1
District Council	1
Population as per 1998 Census	9.856 million
Population as per Provisional Census, 2017*	16.051 million
Average Annual Growth Rate as per Census, 2017*	2.60 %
* Source: Pakistan Bureau of Statistics (Census, 2017, Sindh, Table 5)	



Source: Wikipedia

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Existing Situation Of Public Transport In Karachi

- Currently 6,457 buses of various sizes on 192 routes as against the requirement of 10,600 buses
- 2,715 contract carriage (Buses / Coaches)
- 85% (i.e. 5,400 buses) are more than 20 years old
- Poor quality of service, high fuel consumption



PUBLIC TRANSPORTATION SITUATION OF KARACHI

City	Persons Competing For One Bus Seat
KARACHI	45
MUMBAI	12
HONG KONG	08

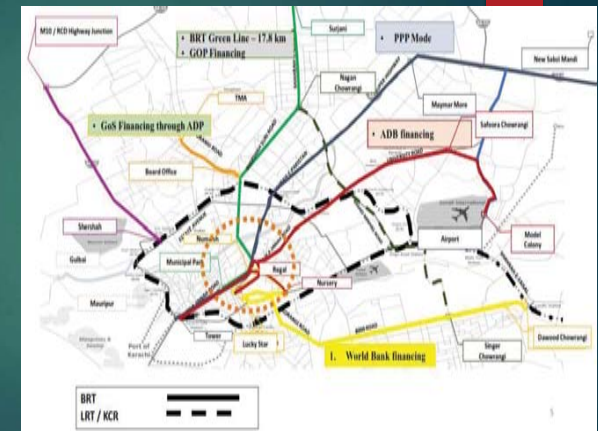
Source: Karachi Transport Improvement Plan 2030

Karachi Public Transportation Improvement Plan

The Karachi Transportation Improvement Plan (2030) was developed by the Japan International Cooperation Agency (JICA) in 2012.

Implementation Status:

- 2 BRT Lines Under Construction
- Civil Works Contractor Hired, IITS Contractor will be hired in next 2 months
- Construction on 2 More BRT Lines will start in December, 2019
- Civil Works and IITS contractor will be hired in next 6 months



Source: Karachi Transport Improvement Plan 2030

Proposals of Action Plan (ITS solutions) in Karachi

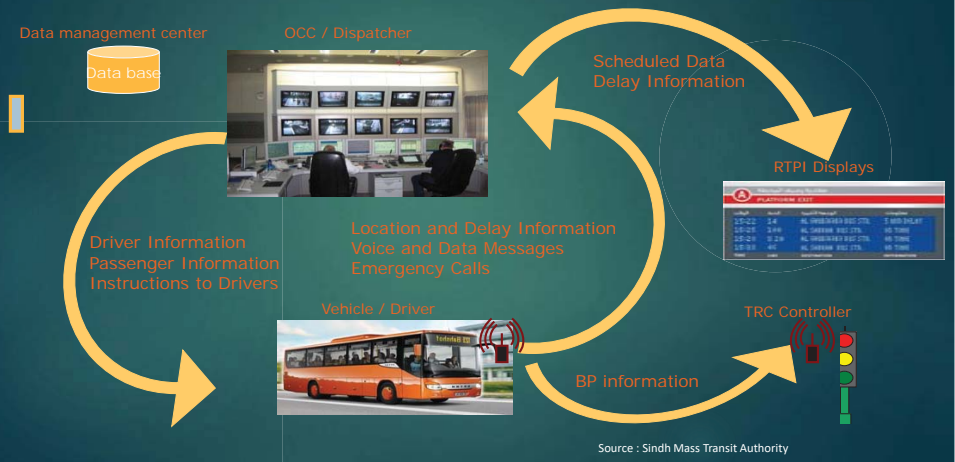
ITS Solutions to assist Operations of Various Bus Rapid Transit System Lines:

- Automated Fare Collection to Control Revenue Leakages
- Fleet Management System for Monitoring
- Automated Vehicle Location for Monitoring and Passenger Information
- Priority Signals for Buses in Mix Traffic Corridors
- Communications and Operational Control Center for Monitoring and Management of Bus Operations



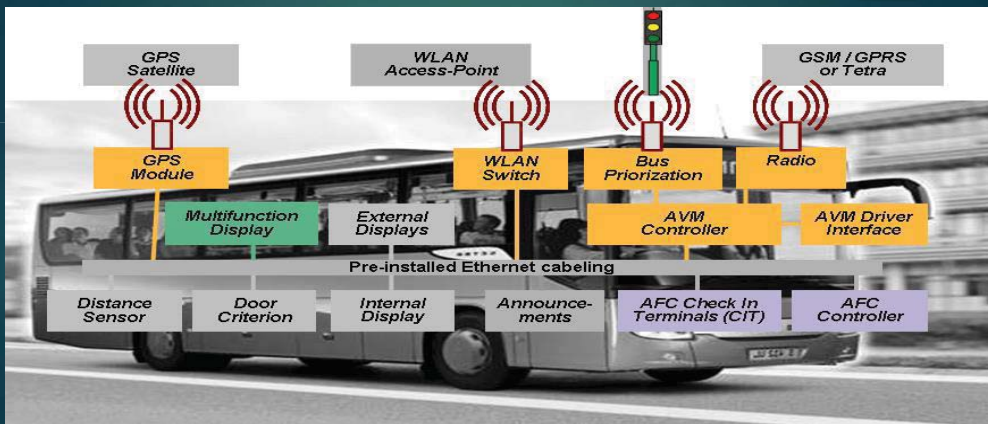
Source: WWW Alibaba.com

Bus Rapid Transit ITS System



Source : Sindh Mass Transit Authority

ITS Equipment already planned on BRT Bus



Source: Sindh Mass Transit Authority

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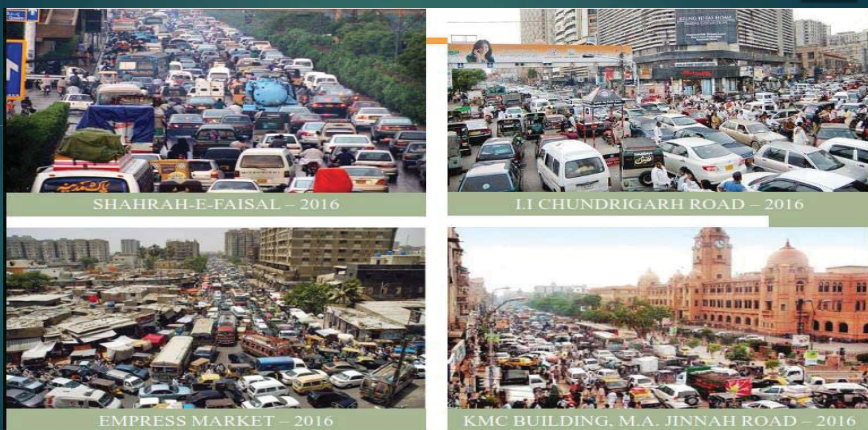
Existing Situation Of Road Traffic In Karachi

- Total Registered Vehicles in Karachi 4.77 Million
- Approximately 7,619 private vehicles and 24,197 Motorcycles are being registered* monthly:
 - Leading to more traffic congestion (Population growth of 1.67 times from 2010 to 2030)
 - Causes more pollution
 - Increase traffic density (Increase in car ownership rate which increases trip rate and decrease road space)
 - Increase vehicle operating cost
 - Expansion of urbanized area, which increases the trip length (1.64 times from 2010 to 2030)

Contents of Presentation

- ▶ Country, Province and City Profile
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- ▶ Action Plan and Implementation Status (Public Transport)
- ▶ Traffic Situation (Local Road Traffic)
- ▶ **Action Plan (Local Road Traffic)**
- ▶ Implementation Scheme (Local Road Traffic)
- ▶ Possible Challenges

Existing Situation Of Road Traffic In Karachi



Source : Sindh Mass Transit Authority

Short, Medium and Long Term Plan For Road Traffic Congestion in Karachi

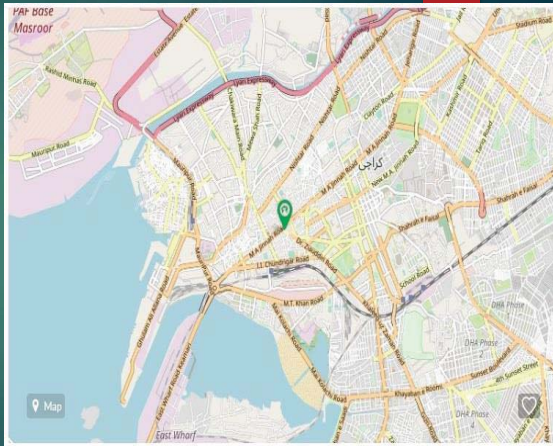
- Line/ Route Traffic Control on M. A Jinnah Road (Short Term)
 - Signals Control Customization with moderato to control traffic flow
 - Use of Ultrasonic Sensors
- Area Traffic Control System in Central Business District (Medium Term)
 - Signals Control Customization with moderato
 - Use of Ultrasonic Sensors
 - Use of Video Cameras to measure traffic congestion
 - Use of Traffic Information Boards/ Variable Messaging Services (VMS)
 - Communication network establishment with wireless / fiber optics
 - Establishment of traffic Control Center
- Expansion of Area Traffic Control System in different parts of City- ITS Master Plan (Long Term)
 - Re-arrangement of Institutional Setup
 - Journey Planner Mobile Apps, Map Digital Mapping, Navigation and Traffic Information System

Reasons for Choosing M.A Jinnah Road

Due to BRT Construction on this road, private traffic lanes will be reduced from 4 to 3 on each side.



Source: <http://www.irhal.com>

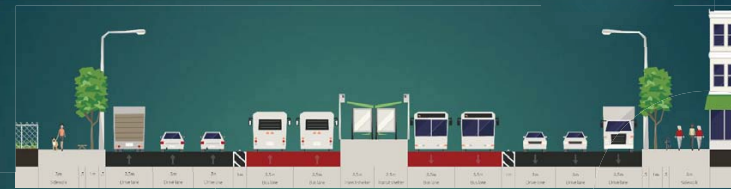


Source: www.maps.google.com

Contents of Presentation

- ▶ Country, Province and City Profile
- ▶ Traffic Situation (Public Transport)
- ▶ Action Plan and Implementation Status (Public Transport)
- ▶ Traffic Situation (Local Road Traffic)
- ▶ Action Plan (Local Road Traffic)
- ▶ Implementation Scheme (Local Road Traffic)
- ▶ Possible Challenges

Typical Cross Sections



At Station



At Off-Station

Source : Sindh Mass Transit Authority

Implementation of Line/ Route Traffic Control on M. A Jinnah Road as a Pilot Project

Scope of Work

Signals Customization with moderate for integrated traffic flow control
Use of Ultrasonic sensors

Stake Holders

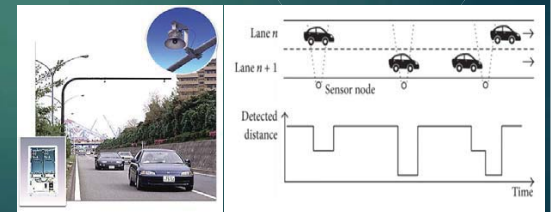
Traffic Engineering Bureau (City Government/KMC)
Sindh Mass Transit Authority (Provincial Government)
Traffic Police

Mode of Financing

Through Annual Development Plan as development scheme

Approval Process

Approval of Development Scheme from Planning and Development Department of Provincial Government



Source : Tokyo Metropolitan Police

Contents of Presentation

- ▶ Country, Province and City Profile
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- ▶ Action Plan and Implementation Status (Public Transport)
- ▶ Traffic Situation (Private Road Traffic)
- ▶ Action Plan (Private Road Traffic)
- ▶ Implementation Scheme (Local Road Traffic)
- ▶ Possible Challenges

Security Situation

International Companies and Institutions Financing and Working on our BRT Projects

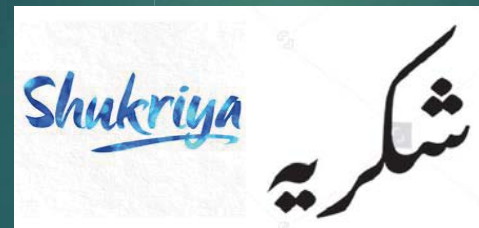
- Logit Inc. USA
- REBEL , Netherland
- Mott McDonald (MM-UK)
- Various Chinese Companies
- Asian Development Banks
- World Bank
- Agence Française de Développement (AFD)
- Asian Infrastructure Investment Bank (AIIB)

Japanese Companies are welcome to apply the for the ITS and Civil Works Contracts.

Possible Challenges

- Lack of knowledge and expertise about ITS Installations
- Absence of ITS Standards
- Limited Usage of ITS in Traffic Management due to lack of coordination between various civic agencies
- Legislation for Institutional Re-arrangement to address the Capacity and Inter-department Coordination and Information Sharing

Thank You



ACTION PLAN LAGOS, NIGERIA

PRACTICAL TECHNOLOGY ON INTELLIGENT TRANSPORT SYSTEMS (ITS)

BY

NNEKA MARTHA ACHI

LAMATA /2003

ITS OFFICER

Annual Budget: N 22.9 Billion (\$ 63.6 Million)

CONTENTS

- Traffic situation in Lagos
- Current ITS Issues
- Challenges with current ITS implementation
- Proposal
- Constraint
- Benefits

URBAN AND TRAFFIC SITUATION IN LAGOS- THE MEGA CITY

- Most populous city in Africa - Over 20 million inhabitants
- Lagos State is bigger in population than 23 countries in Africa - Benin Rep, Mali, Botswana etc.
- Contributes 25% of Nigeria's GDP
- Metropolitan Lagos generates about 20m trips per day.
- The urban transport sector is a major source of air and noise pollution in Metropolitan Lagos
- 45% of nation's skilled manpower reside in the city

CURRENT TRAFFIC SITUATION

- LAMATA operates only one dedicated corridor
- Lagos State has over 3,000,000 vehicles on the road per day with insufficient road network
- Limited alternate route (need for ring roads)
- Not all intersections along arterial roads have traffic lights

One BRT Corridor

TRAFFIC SITUATION IN LAGOS STATE



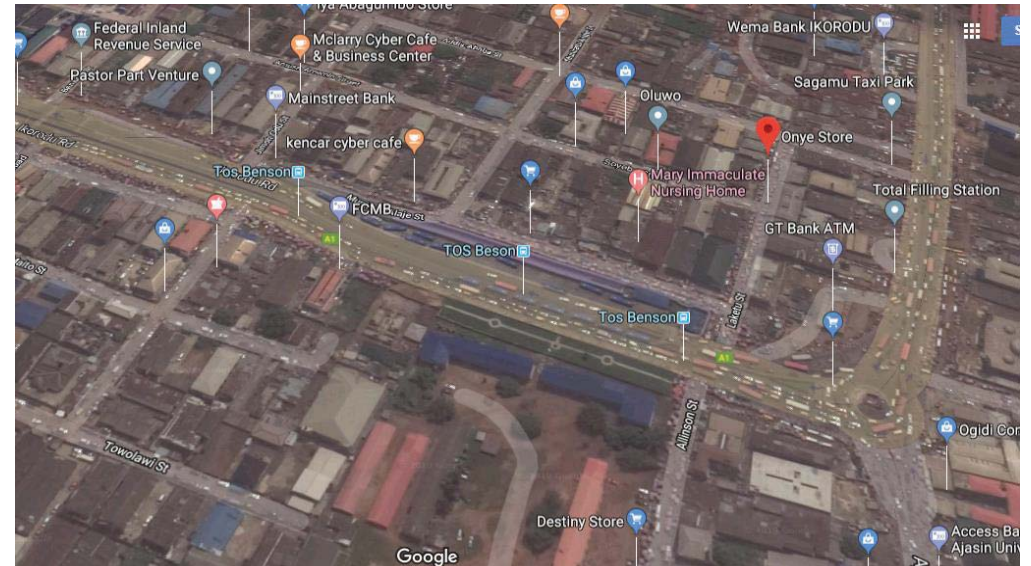
MAP SHOWING THE BRT CORRIDOR



2019年度卷末資料一72



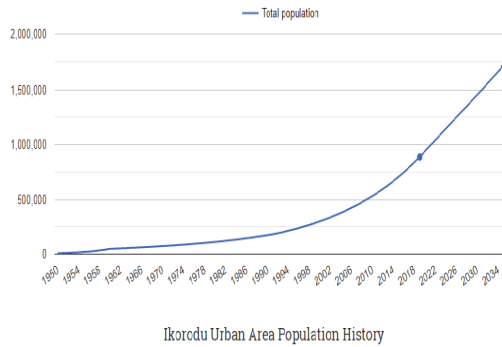
Traffic congestion
 BRT corridor is 60% segregated
 Law enforcement
 Bad road infrastructure



Population in Urban Area, now
889,200

Population in City Area, 2016-01-30
535,619

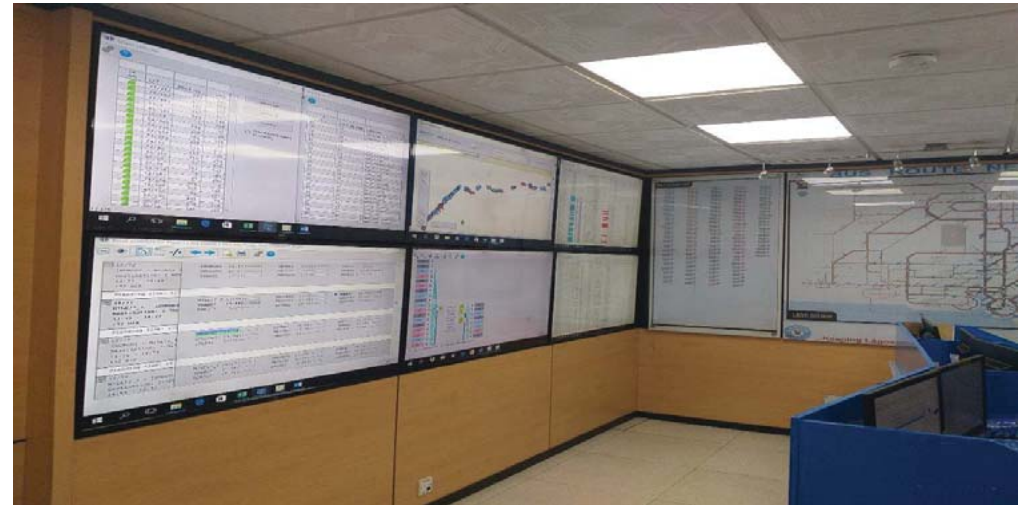
Ikorodu Urban Area Population Graph



Map of Ikorodu, Nigeria



ITS CONTROL CENTER



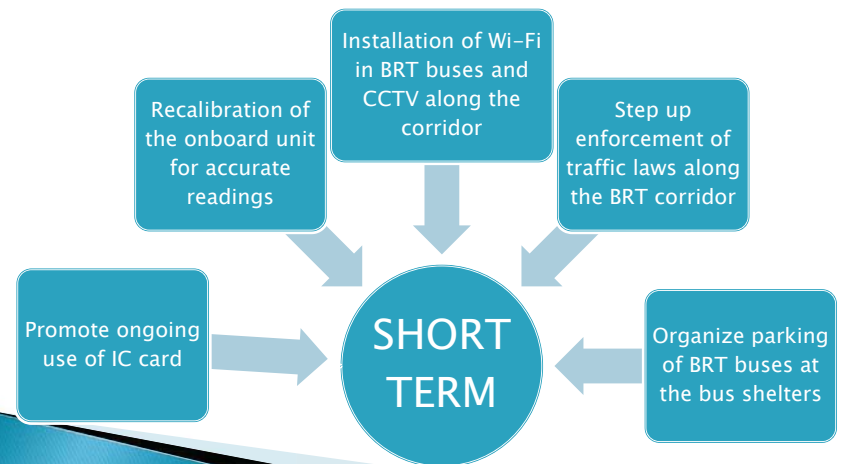
CURRENT ITS ISSUES

- Communication network instability
- Operational hours are limited due to power outage
- Capacity building to manage the software at the control centre
 - Over speeding
 - Kilometre distance covered
 - Fuel consumption

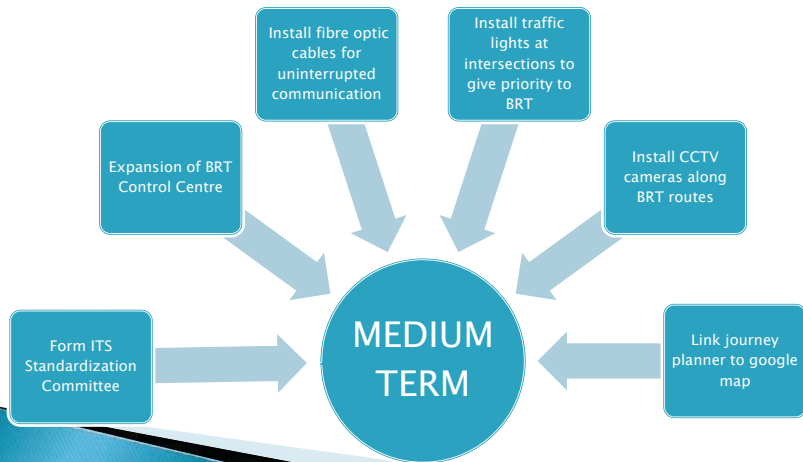


E-Ticketing system not functioning

ITS STRATEGIES



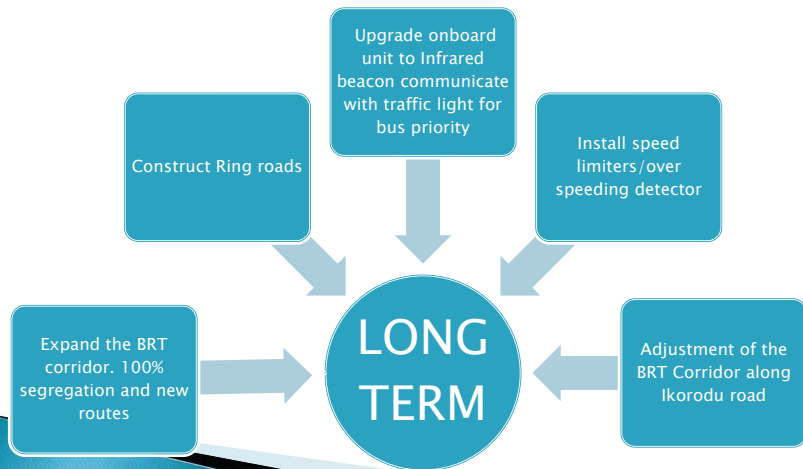
ITS STRATEGIES



CONSTRAINT

- Lack of coordination between ministries, departments & agencies.
- Lack of adequate funds
- Law enforcement
- Possible delay in obtaining response from decision makers.
- Insufficient policy declarations.

ITS STRATEGIES



BENEFITS

- Reliable BRT services
- Reduction in delay
- Short travel time
- Increase in revenue
- Reduction in air pollution
- Violators will be easily identified via CCTV and sanctioned

OUR DREAM OF LAGOS STATE



2019年度卷末資料一75

THANK you !



ITS ACTION PLAN FOR MOMBASA

Ali Shariff

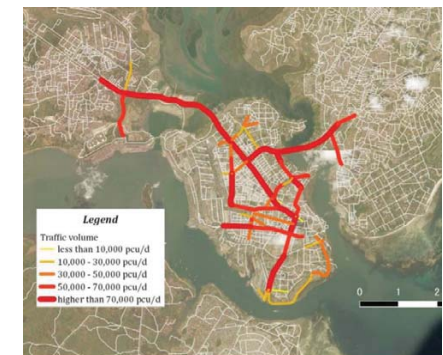
Director – Operations and Services

Department of Transport, Infrastructure and Public Works

Developed at TIC, Tokyo Japan

PROBLEM STATEMENT

- Mombasa City is around 294 sq kms in size
- Surrounded by water
- An influx of automobiles in last 10 years and small taxis(TUKTUK)- around 8000 within cbd.
- No road extensions or diversions done as an intervention to the traffic congestion.
- Lack of clear visible road marking eg stop line, pedestrian sidewalk, zebra crossing etc on Roads and highways hence accident risk is high.
- City has around 17 intersections within cbd. Only three have traffic signals in working condition.
- Recent survey shows traffic congestion levels higher that 70000 pcu/d



$\frac{\text{Num. of Heavy Vehicles}}{\text{Total Num. of Vehicles}}$



RATIO OF HEAVY VEHICLES

- Most Heavy Vehicles use the western corridor to ferry load to the express highway to Nairobi hence congesting the Sabasaba and Makupa intersections



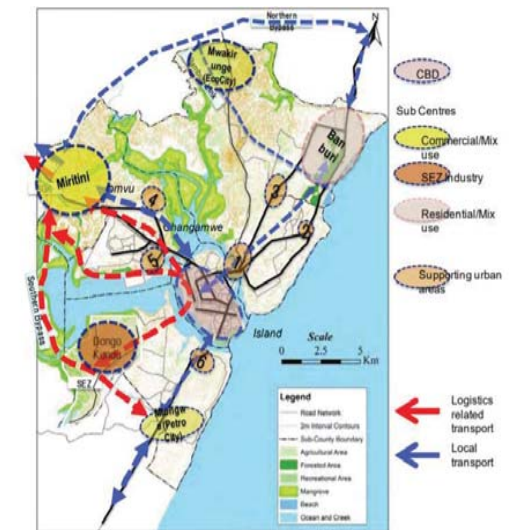
EXAMPLES OF THE FOUR MAJOR INFRASTRUCTURE PROJECTS TO BE UNDERTAKEN

How to combat the growing traffic congestion???

- High traffic congestion leads to Economic losses through fuel consumption, air pollution and also social problems like stress to drivers and increase in road accidents.
- The Mombasa County Govt sought the help of the Japanese Govt in the formulation of the Mombasa Gatecity Masterplan that will allow for construction of;
 - A ring road (Southern Bypass project)
 - Likoni Gate Bridge – Link between southern Mainland and CBD.
 - A special economic zone in a sub-urban area away from the CBD
 - Creation of other alternate mass public transport systems. BRT MAIN FOCUS
- This would all pave way for efficient traffic management within the CBD
- An agreement signed in 2016 by PM Abbey and President Kenyatta to allow for ODA loan to finance the projects in Mombasa

Expected Outcome

- Image shows location of the new industrial areas
- New housing estates
- Formation of ring-road once road construction is complete.



Source: JICA Expert Team

Figure 8.2.10: Structure Plan and Supporting Urban Areas

PROPOSED INTERVENTIONS FOR TRAFFIC MANAGEMENT AND ROAD SAFETY

Grouped into two categories

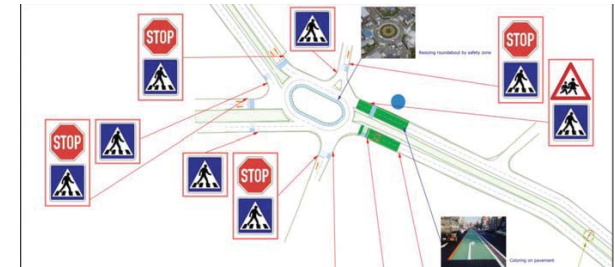
Short term

- Road marking of all intersections (immediately)
- Public participation meetings to encourage safe driving, pedestrian safety etc. (Immediately)
- Installation of Traffic Lights in four key intersections (2019-2020) To Apply for Technical Cooperation from JICA
- Link of signal controllers to backend system for line control (2019-2020)

Long term

- Increase fine on road offenders – Amend Traffic Act (1 year)
- Replace some roundabouts with intersections after conducting feasibility study and simulation tests. (2 years)
- Install traffic signals- Remaining Junctions (2 years)
- Area control of all intersections in CBD using available vision sensors and installed fiber cable and Backend system (2 years)
- Introduce BRT as final step use priority signal to allow smooth operations instead of dedicated lane. (By 2021)

MAKUPA ROUND ABOUT ROAD MARKING PROPOSAL



Busiest round about in the city

Volume of traffic very high as it connects the CBD to the airport and class A highway to Nairobi.

For safety Road marking it very urgent and important

Design done by KOEI AFRICA-Nrb Office

Short Term (Non-ITS)



A. To improve on safety of road users including pedestrians road marking is very important. (Low Budget needed)

Road Marking to control Traffic Flow

- 1) Resizing the intersection to avoid traffic confusion @ Sabasaba intersection
- 2) Lane marking of Mombasa Road to direct traffic flow
- 3) All Intersections to be done in the FY year 2019-2020

CURRENT ITS SITUATION



We have 44 cameras installed in all intersections and round about junctions within the centre of business district









All cameras are linked to Shimanzi Traffic Office with a **dedicated fibre optic cable**.



A large LCD available for display of footage. (Used for monitoring traffic offenses and security purposes)

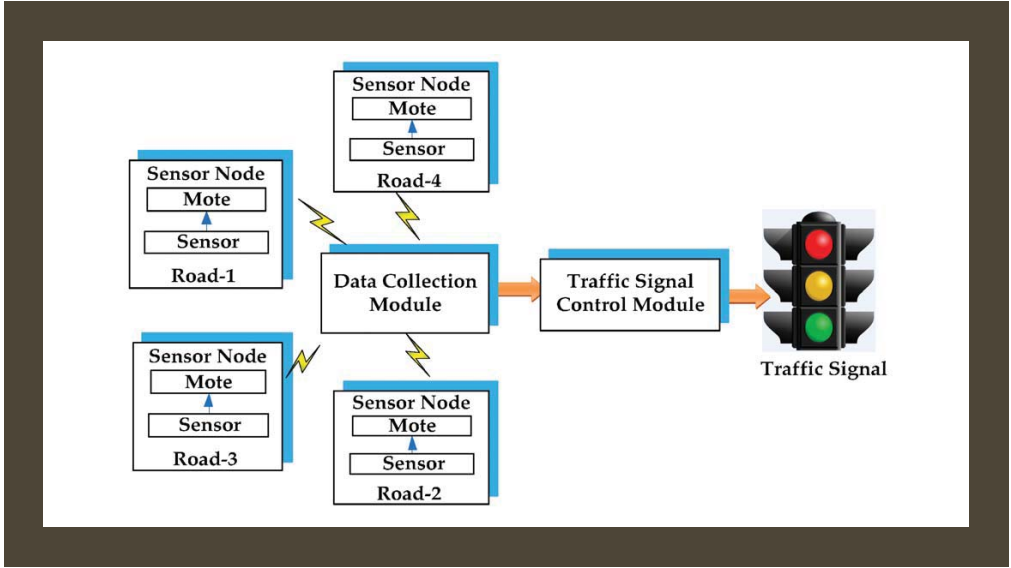
SHORT TERM-ITS RELATED INSTALLATION OF TRAFFIC SIGNALS (LINE CONTROL)

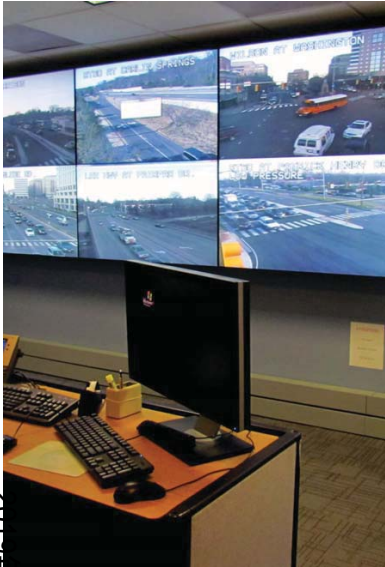
 Reliable Traffic Signal Operation is key to Traffic Operation	 17 Key intersections to be installed traffic signals by 2021	 Four to be done as pilot phase. Link Saba Saba Intersection , Kingorani , Buxton and Kengeleni
 To seek cooperation of Japanese Signal Vendor company eg Sumitomo Electrical or Nippon Signal or panasonic to secure ODA grant for this.	 Once results are seen to show good progress, CGM to finance remaining 13 intersections through special budget allocation/PPP.	 Japanese vendor to be contracted for phase two as well.

LONG TERM ITS SOLUTION

AREA CONTROL SIGNALLING	CURRENTLY WE HAVE ALL 17 JUNCTIONS WITH CCTV CAMERAS	MOST PTZ SOME ANPR	TO INSTALL REMAINING 13 INTERSECTIONS WITH TRAFFIC SIGNALS
TO LOOP THE 17 SIGNAL CONTROLLERS TO CONTROL SYSTEM	CONTROL SYSTEM TO RELAY INFORMATION TO DRIVERS THROUGH ANDROID/IOS MOBILE APP (CELLULAR)	TO USE VMS TO DISPLAY CONGESTION/ROAD INCIDENTS	REVENUE FROM ADVERTISEMENT USING MOBILE APP AND VMS AND BUDGET ALLOCATION

PROPOSED INTERSECTIONS





SET UP OF THE MOMBASA ITS CENTER

- Have a Traffic Monitoring and Control Centre located in Shimanzi (Traffic Headquarters in Mombasa)
- Office Space, LCD, Furniture, computers, internet connection, backup generator Fibre Connection and DVR + Server already exist.
- The centre will be on a 24 hours 7 day Operation
- **Need Assistance for Setting up AI tools to analyse the incoming data from sensors to perform the following;**
 - Signal Jumping Enforcement System
 - ✓ ANPR cameras to capture number plate of offender and send image of offense and fine to driver (MPESA FOR PAYMENT) Mitsubishi Heavy Industries had something similar
 - Area Control of 17 intersections – Use of MODERATO to control traffic flow
 - Congestion and road incident information sent to road users by downloadable mobile app and/or VMS. (Income generation through app sale and advertisement)

DESIRED OUTPUT

- Link National Transport and Safety Authority Database to ours for crosschecking of Vehicle owners
- Message sent to violator to pay fine or face prosecution

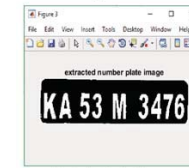


Figure 11. Extracted number plate image.
 Figure 12. Segmentation of characters.
 Segmentation is one of the processes in the number plate recognition, here we introduce segmentation based on sum of area values. Segmentation procedure is shown Figure 12.

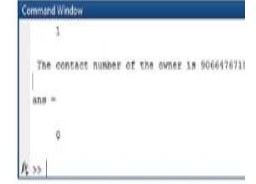


Figure 13. Simulation result of mapping registration number to number

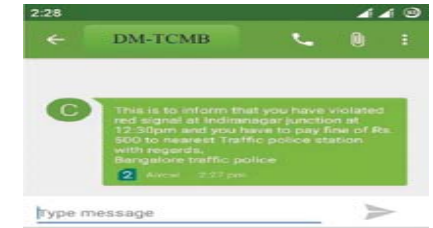


Figure 16. Final output of sending SMS

SIGNAL JUMPING ENFORCEMENT USING ANPR

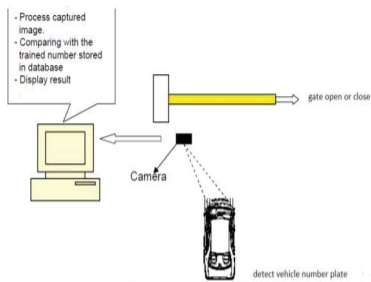
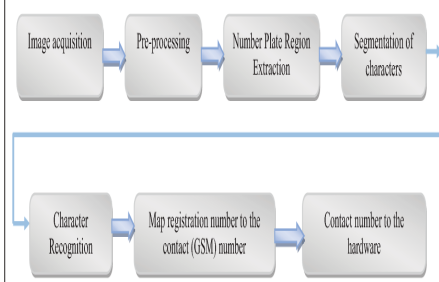


Fig. 2: Block Diagram of ANPR System



INTRODUCTION OF BRT

- The Governor of Mombasa wants to deliver BRT before he leaves office in 2022.
- I believe it can be a good mass transit system for Mombasa. (Average capacity and velocity)
- Once Area control of intersection is effectively working, BRT can operate with priority control of signals from the Traffic Control Centre.
- To enact law that will control the movement of tuktuks within cbd to pave way for BRT. Increase the license fee for operation within cbd
- Negotiate with private operators of public transport to operate at outskirts of the town.



BRT RECOMENDATION



CONCLUSION

- As per the Mombasa Gate City Master Plan document -Traffic demand Management is essential as Traffic density is high in the City
- Agreement between Japanese and Kenyan Governments has paved way for construction of the southern and northern bypass Roads.
- Agreement also supports the SEZ in Dongo Kundu hence need for efficient traffic flow.
- Road marking project to support road safety efforts.(Short term)
- Need for control of intersections and round about using ITS by 2021(Cameras already installed). To be done in two phases
- Model to be used for ITS implementation is PPP where first phase is to be financed by Technical Cooperation then the CGM to finance the second phase.
- Traffic control centre to generate revenue from advertisements and sell of mobile app to road users as well as collection of fines for road offenders.
- Introduction of BRT in 2021 to use priority signal method instead of dedicated lane.

	Land Availability	Bus Terminal	Demand of Passengers	Remarks
Org	<i>NG</i> ① Shelkh Abdulla Rd	<i>NG</i>	<i>Good</i> Looping of residential area	
Opt-1	<i>Good</i>	<i>Good</i> ② Treasury Square	<i>Good</i> Linkage between admin- district and North of island	⑤ Sharp curve at Makupa Roundabout ⑥ Intervention of Gate Bridge
Opt-2	<i>Good</i>	◎ ③ Old Mombasa Sta.	<i>Average</i> ④ Low demand of western part	⑦ Access point to Mombasa Road

OPTIONS



KARIBUNI MOMBASA

ARIGATOU GOZAIMASU
WELCOME TO MOMBASA

PRACTICAL TECHNOLOGY ON INTELLIGENT TRANSPORT SYSTEM - 2019

FINAL REPORT PRESENTATION
(GHANA)

KOBINA ENNIM
DEPARTMENT OF URBAN ROADS
(PRINCIPAL ENGINEER, PLANNING AND DEVELOPMENT SECTION)

CONTENTS OF PRESENTATION

- ITS Implementation strategy
- Challenges in implementing ITS
- Selected traffic issues to address
- ITS action plan
- Benefits of ITS plan

2

ITS IMPLEMENTATION STRATEGY

SHORT TERM STRATEGY

- Implement ITS that are low in cost of setting up, low in operational cost and maintenance (No on board units in the short term)
- Capacity building (train personnel to manage the ITS infrastructure)
- Operationalize the Accra Traffic Control Centre
- Identify ITS related organisations

3

ITS IMPLEMENTATION STRATEGY

MEDIUM TERM STRATEGY

- Continue with Capacity building (continuous training of personnel to manage the ITS infrastructure)
- Expand ITS infrastructure started under short term strategy across the entire country
- Form ITS Ghana and institute regular meetings to plan ITS implementation
- Set up Traffic Control Centres in Kumasi, Sekondi-Takoradi, Sunyani, and other big cities)
- Formulate legislation to support ITS implementation
- Embark on ITS education across the country

4

ITS IMPLEMENTATION STRATEGY

LONG TERM STRATEGY

- Start implementation of ITS that depend on OBU (VICS, ETC 2.0, Automated Driving, etc)
- Continue with Capacity building (continuous training of personnel to manage ITS infrastructure)
- Continue with ITS education
- Enforce ITS related legislation (eg. mandatory installation of On Board Units)

5

IDENTIFIED TRAFFIC ISSUES

URGENT ISSUES TO TACKLE

- Congestion and Delay At Toll Plazas
- Stand Alone/Fixed Time Traffic Signals within the Central Business Districts

7

ITS IMPLEMENTATION STRATEGY

CHALLENGES

- Financial constraints for the state to fully implement ITS (building Traffic Control Centres, installing road side infrastructure)
- Financial constraints for individuals to acquire on board units and vehicle navigation system
- Lack of technical experts to manage ITS technology
- Legal reforms of the Road Traffic Act
- Law enforcement

6

CONGESTION & DELAY AT TOLL PLAZA&

MANUAL TOLL COLLECTION

- Driver gives money to operator
- Driver waits for operator to issue ticket and change
- Operator issues ticket and change
- Driver drives through
- Some drivers do not stop to pay but just speeds through the gates

8

CONGESTION & DELAY AT TOLL PLAZA&

➤The process of receiving money, issuing tickets and change delays and causes traffic congestion

ISSUES WITH MANUAL TOLL COLLECTION

➤Delay increases fuel cost, environmental pollution from vehicles and causes stress to drivers and can contribute to accident

➤The process leaves room for the operator to steal money

➤Drivers who refuse to pay are not identified and punished

9

CONGESTION & DELAY AT TOLL PLAZA&

➤RFID tags

➤RFID tag readers

ITS DEVICES TO DEPLOY

➤Vehicle number plate detection cameras (to identify non compliant vehicles)

➤Data storage servers

➤Solar panels and power back up batteries

11

CONGESTION & DELAY AT TOLL PLAZA&

➤Introduction of RFID based ETC System

SOLUTION IS ELECTRONIC TOLL COLLECTION

➤At toll plaza create more RFID gates than manual gates

➤Give discount to vehicles using RFID tags to encourage other vehicles to purchase the tags

➤Install vehicle number plate detectors to identify and punish drivers who drive through without paying

10

CONGESTION & DELAY AT TOLL PLAZA&

➤Easy to install

BENEFITS OF RFID TAGS AND VEHICLE NUMBER PLATE DETECTION

➤Minimal maintenance

➤Cost of implementation is not high compared to using on board units

➤No delay at toll plaza, less pollution, saves fuel, blocks loophole for stealing by operators and offending drivers are identified and punished

12

STAND ALONE/FIXED TIME TRAFFIC SIGNALS

PRESENT SITUATION

- Traffic signals within the Central Business Districts are fixed time
- Traffic signals are not coordinated/synchronised
- Frequent power cuts (can remain for 24 hours)
- Police takes over control of traffic but inefficient

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STAND ALONE/FIXED TIME TRAFFIC SIGNALS

SOLUTION IS DEMAND ACTIVATED & SYNCHRONISED TRAFFIC SIGNALS

- Install vehicle detectors to detect traffic volume, speeds and queue lengths at intersections
- Install demand activated traffic signals
- Synchronise traffic lights (offset) for route control and area control
- Benefit of this solution includes, less congestion, less delay, no need for police to direct traffic, pedestrian safety, etc.

15

STAND ALONE/FIXED TIME TRAFFIC SIGNALS

NEGATIVE EFFECT

- Traffic congestion and delay at the intersections
- Long queues
- Pedestrians are not protected in crossing the roads
- Total chaos when police is not present
Frequent bumper to rear collisions
- Increased air pollution, fuel wastage, increased stress, etc

14

STAND ALONE/FIXED TIME TRAFFIC SIGNALS

ITS DEVICES TO DEPLOY

- Image sensors to determine traffic volume and velocity.
- LED Traffic lights for vehicles and pedestrians
- Traffic signal controllers
- Power back up to run for 24 hrs minimum

16

STAND ALONE/FIXED TIME TRAFFIC SIGNALS

BENEFITS OF DEMAND ACTIVATED & SYNCHRONISED TRAFFIC SIGNALS

- Cost effective, easy to installation and maintain
- Less congestion, less delay and less air pollution
- No need for police to direct traffic
- Improved pedestrian safety, etc.

17

2019年度卷末資料—85



Ministry of Transport

General Authority for Roads, Bridges and Land Transport (GARBLT)

Eng. Mohamed Refat

Road Safety Department & ITS project Team member



Practical Technology on Intelligent Transport Systems (ITS)

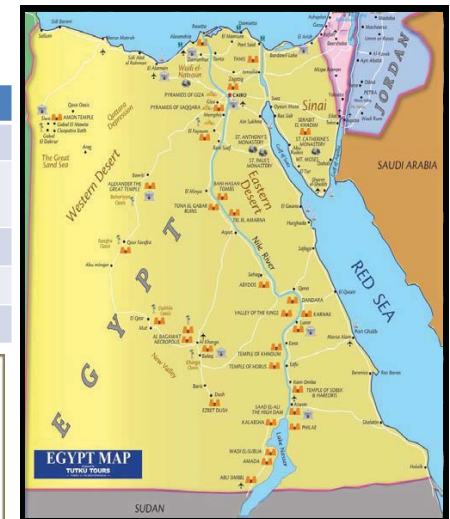
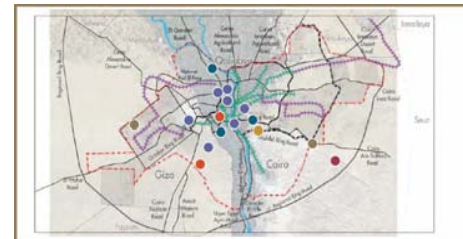
Final Report



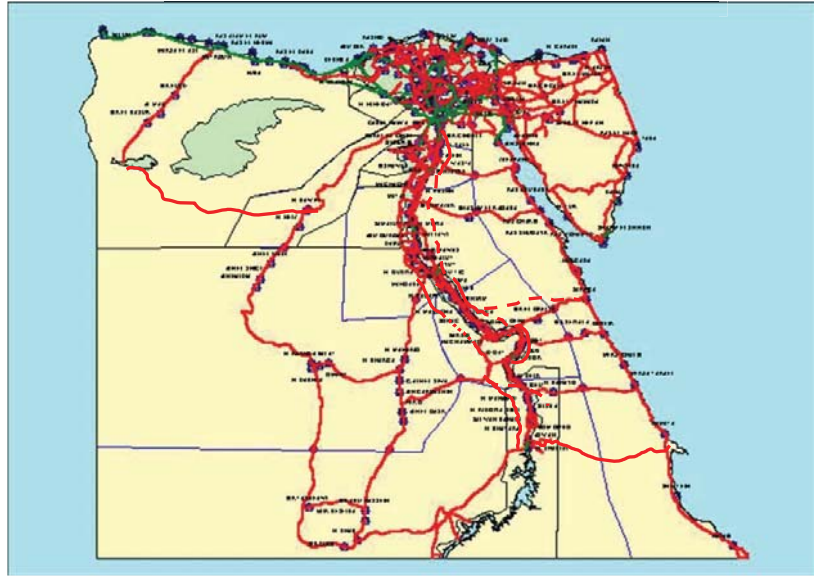
Arab Republic of Egypt

Area and land borders

Egypt Area	1 million Km2
Population	100 million
G. Cairo Population	Around 20 million
Governorates	28
G.Cairo Governorates	3
Car ownership rate	41.2/1000 person



GARBLT Current Road network



3

Current Situation



- **Traffic Congestion**
According to The World Bank Group, over \$US 8 billion are wasted every year on traffic congestion, which is four percent of Egypt's total GDP

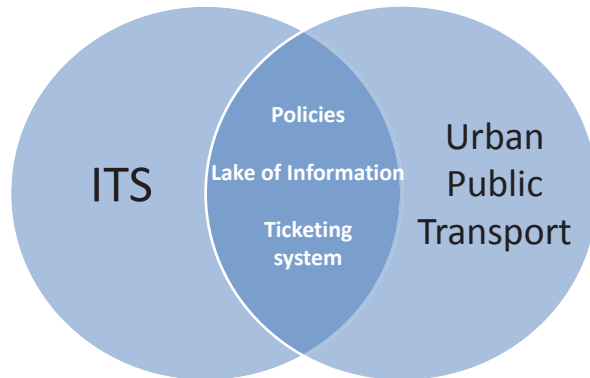


- **Accidents**
According to WHO Egypt loses about 12,000 lives due to road traffic crashes every year which is a huge number



- **Manual Tolling**
Tolling in Egypt is manual . Toll roads cannot be built unless drivers have a reasonable free option.

5



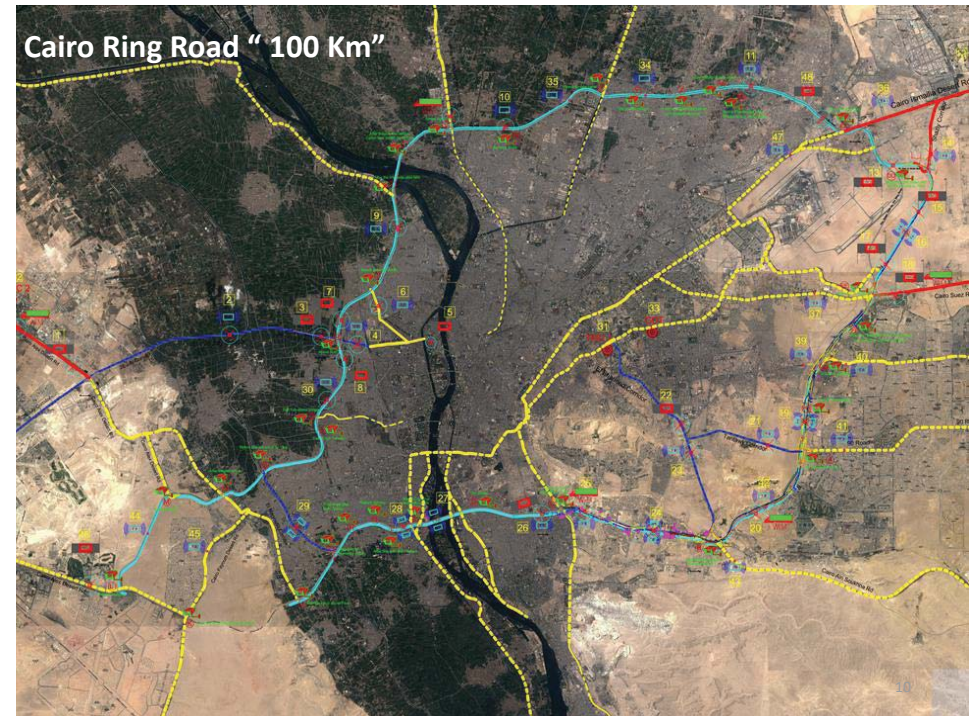
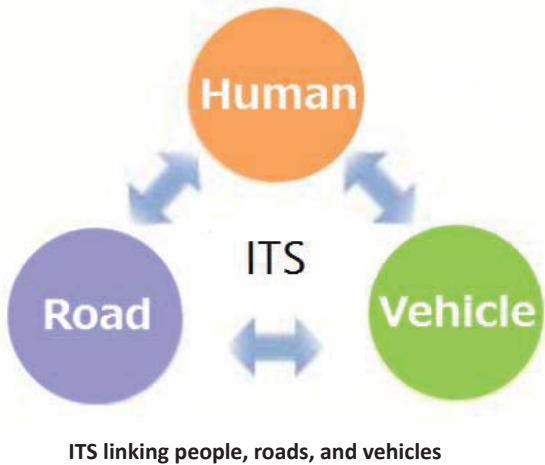
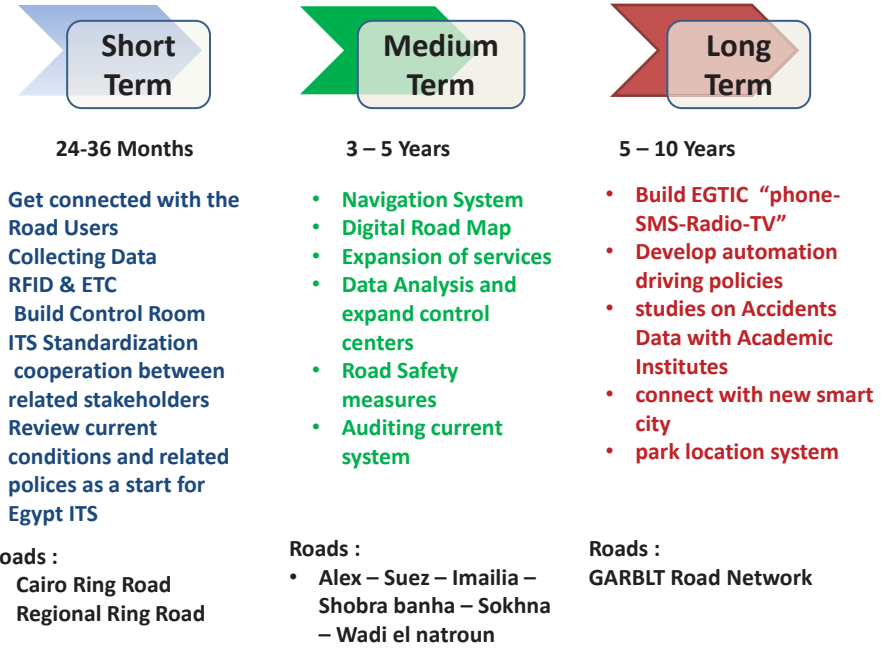
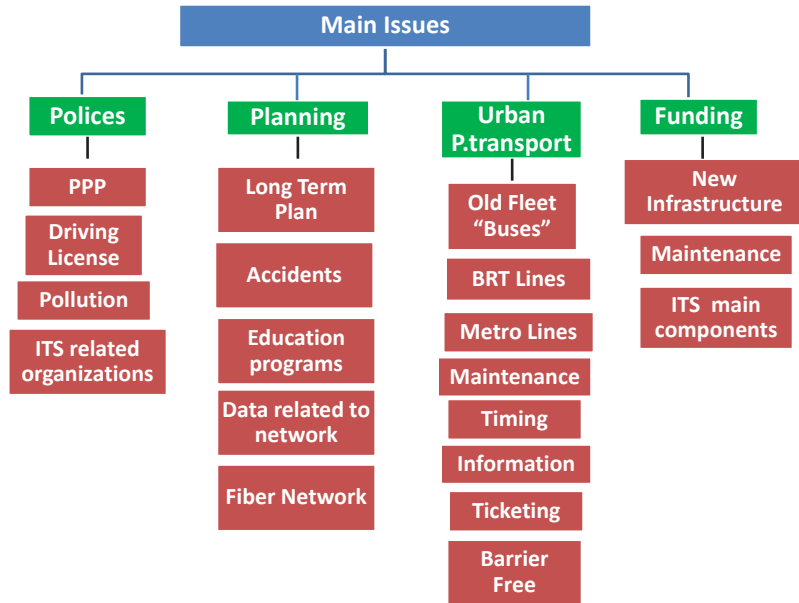
Main Common Issues between ITS & Urban public Transport



- **Pollution**
Cairo has been ranked one of the most polluted large city in the world, according to a report issued by the World Health Organization (WHO)

4

6





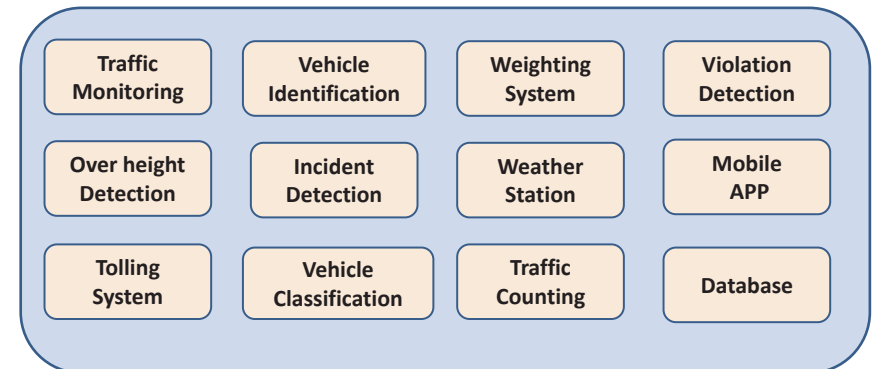
Recent highway roads

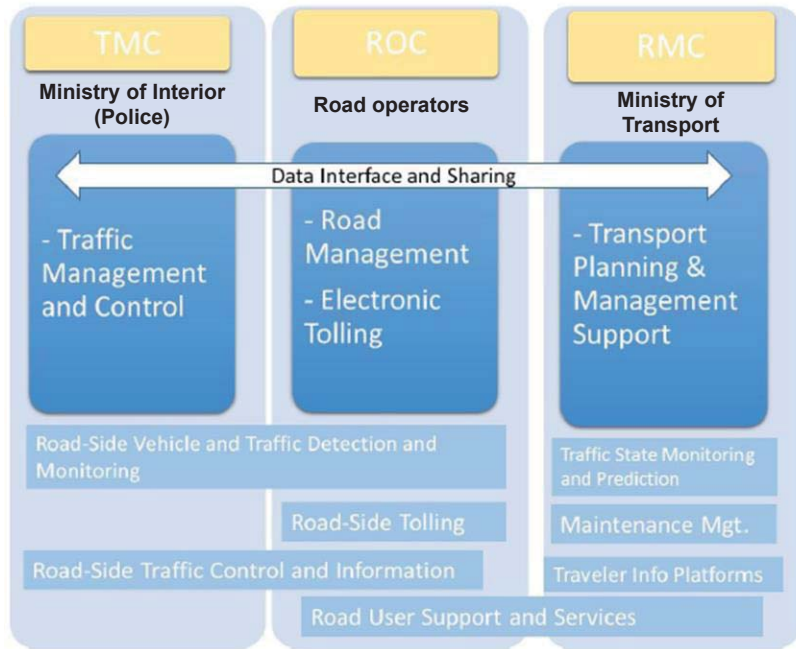


Road name	Length
Cairo-Alexandria Desert Road	220
Ain El-Sokhna Rd (cairo/katamya)	110
Cairo / Ismailia	195
Cairo / Suez desert Rd	134
Shubra / Banha	40
Regional Ring Rd	380
Total	1079

Short & medium term plan include around 1180 km length road network including CRR

ITS Suggested System





15

Road Equipment

- **RFID Reader**

A radio frequency identification reader (RFID reader) is a device used to gather information from an RFID tag.

- **Traffic Counting Devices**

- must be above ground detection units sited on overhead gantries to cover the road lanes.
- It shall provide the following data to the ITS platform:
 - I. Traffic flow volumes
 - II. Traffic flow speed
 - III. Traffic lane occupancy times
 - IV. Traffic lane classification
 - V. Stopped Traffic

- **ANPR Camera**

-Automatic number plate recognition is a mass surveillance method that performs on images to read the on vehicles.

- **CCTV Camera**

A CCTV (closed-circuit television) system allows the use of videos cameras to monitor the Roads, transmitting the signal to monitors.



- **Automatic Incident Detection (AID)**

- An Automatic Incident detection (AID) system shall detect incidents and memorizes those incidents.

- **Roadside Weather Information System**

The required parameters from the RWIS system are:

- Visibility sensor
- Wind speed sensor
- Detection of Rains percentage and times



- **Solar Cell**

Solar System to work as a backup Power Source for the exi doesn't connected to electrical source

- **Emergency Call Box**

an end-to-end solution for road-side assistance in case of emergency events. It is a robust communication system that comprises of telephone boxes installed at the highway and connected to a control center for swift emergency response.

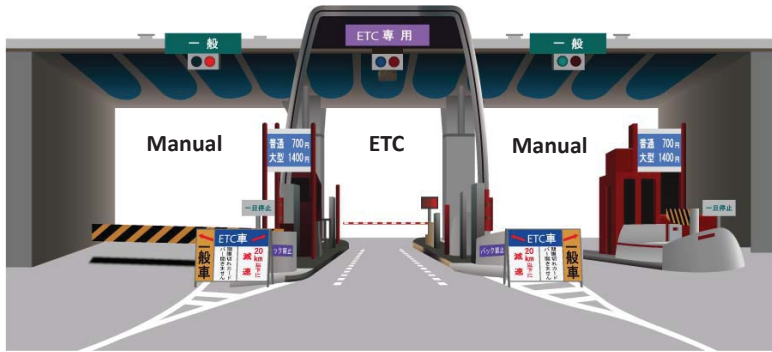
- **Variable Message Sign (VMS)**

- Variable Message Sign (VMS) is intended to provide highway users with road and traffic condition information.



Expected Gantries along the highway including VMS & other Equipment

- **Tolling Collection System (TCS) and e-wallet.**
 - Each Vehicle will have an electronic account (e-Wallet).
 - Payment Methods:
 - I. Automatic Vehicle identification at the gate using RFID & License plate recognition.
 - II. Mobile Application using QR-Code Reader at the gate.
 - III. Prepaid Card using relevant reader at the gate.



Expected Tolling Gate including ETC & Manual tolling collection

19

Implementation issues

Communication

- our network is not fully covered with Fiber until now

Funding

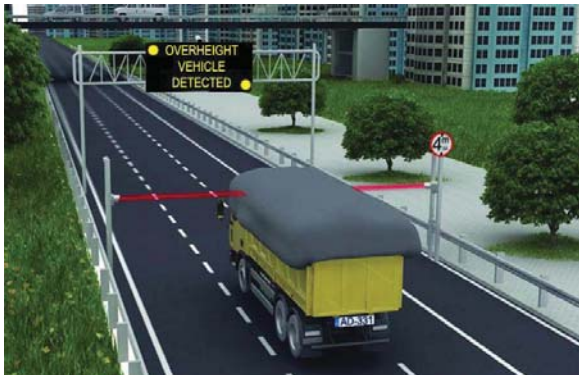
- Lack of sufficient experience to provide revenue for the project

ITS Standard

- The establishment of ITS standards is not easy, especially as the field of intelligent transport systems in Egypt is a new field and lacks experience

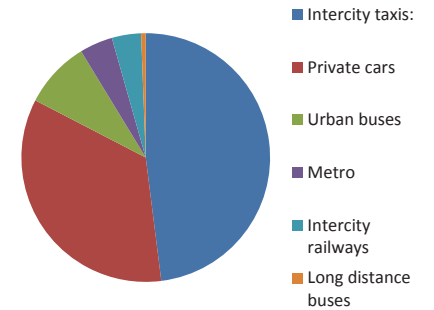
21

- **Trucks Weighing (At Gates/in Motion).**
 - WIM Stations will be installed on all truck lanes at each toll plaza in addition to weighing stations to check the excessive loads .
- **Over height vehicle detection (OHVD)** system detects overheight vehicles moving toward obstacles such as bridges, tunnels and other overhead structures and individually warns drivers. An audible alarm and/or sign is activated when an overheight vehicle is detected by the system.



Over height vehicle detection

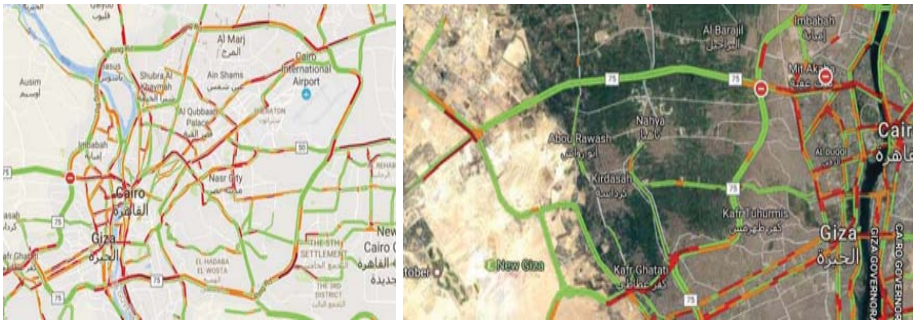
According to statistics 8.7% of passengers using buses through Great Cairo roads . In comparison with private car users 34.6% prefer this mode due to some issues with affect Cairo roads with congestion during peak hours . Around 14 private companies in addition to governmental buses fleet working in G.Cairo roads using minibuses (28-33 seats) .



22

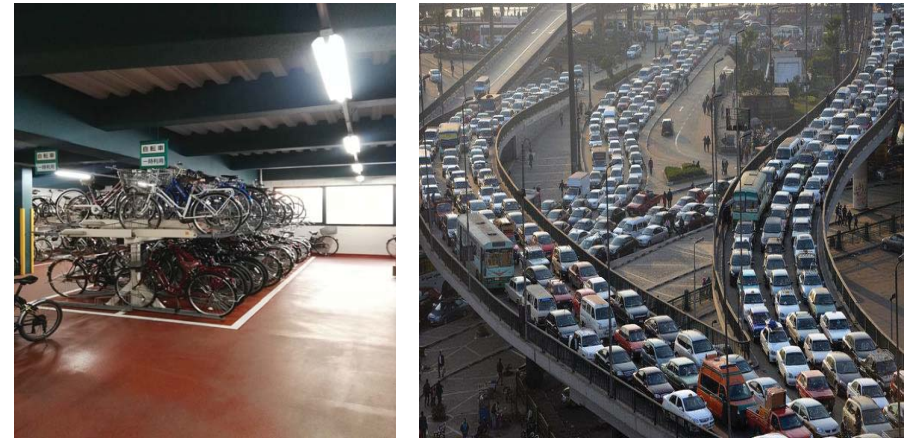
And there are several important Corridors that need to implement BRT system as :

Road	length
1- Salah Saleh Street (Airport corridor)	24 Km
2- 26 July corridor .	25 km



Slah Salem and 26 July corridors congestion at Peak hour

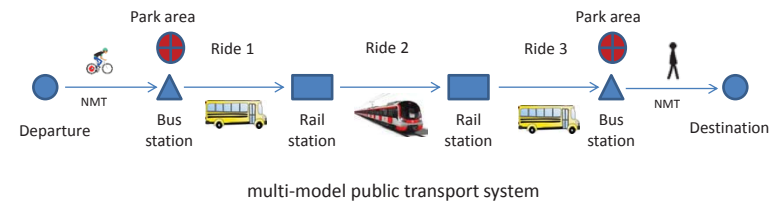
Cairo streets suffers from congestion and lack of car parking spaces at the same time city of Tokyo saving spaces for parking bicycles which reflects the behavior of passengers in both cities as a result of current situation.



Tokyo bicycles parking & Cairo streets congestion



BRT Lines in Nagoya and information of next station and line written



Integration between different modes of transport is one of the important factors for passengers attract them to use urban public transport modes. Greater Cairo has many important areas linking several different areas . For example :

Area	Nearest bus station	Nearest metro station
Tahrir Square	Abdelmonim riad station	Al – Sadat (Line 1-2)
Giza Square	Giza bus station	Giza (Line 2)
Ramsis square	Ramsis Station	Al-Shohadaa station (Line 1-2)
Abboud	Abboud Station	Al Mazallat (Line2)

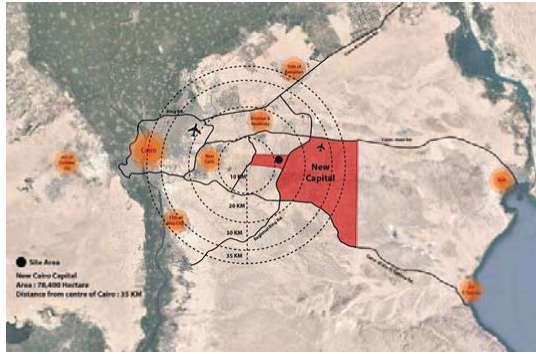
Smart City

45 km east of Cairo New Administrative Capital is coming up and will expand to cover more than 700 sq km when fully completed.

The new capital city will help to strengthen and diversify the country's economic potential by creating new places to live, work and visit.

In order to draw people to this new capital city, a series of key catalyst developments will be established at its core. This will include a new government administrative district, a cultural district and a wide variety of urban neighborhoods.

The new capital is developed with the strategic vision for a smart city integrating its smart infrastructure to provide many services to citizens.



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Smart Traffic

Well designed streets with smart monitoring of traffic congestions and accidents.



Smart Utilities

Management and operation of electricity, gas and water to reduce consumption and cost.



Safe City

Covering all parts of the city with CCTV cameras and control sensors integrated to the city control center.



Smart Buildings

Buildings automatically identify the most effective ways to save resources and provide healthy environment



Smart Energy Management

Focusing on renewable energy for a green environment, while using IoT to save power consumption.



Connected city

Building optical fiber infrastructure connecting every building using FTTX technology.

Japan investment in Egypt

- Nissan

Nissan is one of the world's truly global automakers & has operated in Egypt since December 1997 through a local privately owned company.



- Toshiba

Al Arabi Group is the Japanese company's first partner in the North African nation, which have caused a technological leap in the Egyptian market & has become the main sponsor for transferring the Japanese and international technologies in the electronic field to Egypt.



- Mitsubishi

Mitsubishi Corporation has contracted with The National Authority for Tunnels, Ministry of Transport (NAT) many years ago for supplying cars for the Cairo Metro and it's systems.





Thank You



4. 研修員選考表

ITS(高度道路交通システム) 実務選考表

研修コース番号： 201984545J002

来日： 2019/6/23

離日： 2019/7/20 パスポートと照合・確認済は パスポートと違う

割当国： 8ヶ国8名

エジプト(1)、ガーナ (1)、ケニア(1)、ナイジェリア(1)、パキスタン(1)、フィリピン(1)、タイ(1)、ウガンダ(1)

応募書類接到： 8ヶ国15名

エジプト(3)、ガーナ (1)、ケニア(2)、ナイジェリア(2)、パキスタン(2)、フィリピン(2)、タイ(2)、ウガンダ(1)

資格要件

- (1)理工系分野の大学卒業もしくはそれと同等の資格を有する者
- (2)ITS導入の実務に携わる政府職員
- (3)道路交通分野で5年以上の経験を有する者
- (4)研修参加後10年間、同分野での勤務が予定されている者
- (5)英語での会話・作文に十分精通している者
- (6)心身共に健康で支障なく研修生活を送ることができる者
- (7)50歳以下の者

L:Listening

S:Speaking

R:Reading

W:Writing

	国名	D番号	氏名	性別	生年月日	年齢	現職	職務経験年数	最終学歴	JICA研修履歴	言語能力 (GI記載言語)	健康	JICA事務所 優先順位	JICA東京 選考案	JICA現地事務所 審査コメント	JICA 審査コメント	受託機 関 選考案
1	エジプト	D1951405	Ms.MOHAMED Mona Abdallah Hanafy	女	1990/10/8	28歳	Teaching / Research Assistant, Transportation Planning, Egyptian National Institute of Transport (ENIT)	5年8ヶ月	Master Degree in Roads Department - Transport Planning / Cairo University ('12/2014 - 'till present)	無	L:Good S:Good R:Good W:Good	○	1	△	Highly recommendable ・She is relevant than other nominee to the course and can spread the gained experiences among all students of ENIT	現組織での勤務は、3年5か月だが、2013年からTIBA,2014年からEngineering Consultant Groupでの勤務経験有。研究や省庁のプロジェクトのコンサルテーションを行った経験がある。2位の応募者の方がITS実務者だが、応募書類からは熱意が感じられる。	
2	エジプト	D1951406	Mr.ABOUELNOUR Mohamed Refat Hosnni	男	1987/6/10	32歳	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads. Bridges and Land Transport (GARBLT)	9年1ヶ月	B.Sc. in Mechanical Engineering / Higher Technological Institute ('9/2004 - '8/2009)	無	L:Good S:Good R:Good W:Good	○	2	○	Recommendable	国内の都市間の交通計画に参画しており、国内道路ネットワークのTISプロジェクトのチームメンバー。優先順位1位の応募者よりは実務に携わっているので適格では？※2017,2018年度とGARBLTからの研修員を受け入れている。	
3	エジプト	D1951408	Mr.AMIN Mohamed Senosy Abdallah	男	1980/8/17	38歳	Manager of Maintenance Department on the ring road, Ring Road Department, General Authority for Roads. Bridges and Land Transport (GARBLT)	13年0ヶ月	Master of Engineering in (ITS) ('2008 - '2010)	2010年11月~12月 JICA 道路行政研修に参加	記載なし。確認中。	○	3	×	Not recommendable	在外事務所が推薦していない応募者であり、他の2名の応募者の中から選ぶこととし、不合格とする。	
4	ガーナ	D1950462	Mr.ENNIM Kobina Bortsie	男	1976/11/9	42歳	Principal Engineer, Planning and Development - Accra, Department of Urban Roads	14年6ヶ月	BSc in Civil Engineering/Kwame Nkrumah University of Science & Technology ('97-'01)/Executive Masters in Business Administration ('11-'13)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	1	○	DUR is the organization responsible for the design, construction and maintenance of urban roads and bridges in the urban areas. JICA currently has an impending project(Kumasi Outer Ring Project)with DUA.It's timely to rekindle our cordial relationship as well as improve the skills of staff of the department for future implementation.	コンサルタントが提出した道路交通管理策や道路設計、報告書の見直し、プロジェクトの監理等が担当業務。十分な経験を有しており、現地で実施中のプロジェクトの関係者でもあることから、合格とする。	
5	ケニア	D1951522	Mr.SHARIFF ALI ABDULRAHMAN	男	1988/8/29	30歳	Director of Operations, Transport. Infrastructure and Public Works, County Government of Mombasa	3年10ヶ月	Msc. Mobile Telecommunications in Software Engineering / Strathmore University ('13 - '15)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	1	○	Highly recommendable 1. We had two dilemmas: Shariff lacks more than 5 years' experience while Mr. Moturi is about 45yrs (expected years in service – shorter than Sharif). 2. We called Director to agree on the priority – Shariff tops (he is young and involved in ongoing signals projects – expected to provide longer and effective service to the county government. 3. We agreed Sharif to be top	市内の信号の保守・導入・デザイン、市内の街路照明ネットワークの管理、燃料の効果的な利用と車の安全監理を含めた交通セクションの業務等を担当。JICAとモンバサ政府のパートナーシップで行われたITS交通調査に参加した経験がある。職務経験が5年以上という条件を満たしていないが、現地で実施している信号のプロジェクトにも関与していること、若いDirectorでもあり今後の組織内での活躍を考慮し、合格としたい。	
6	ケニア	D1951525	Mr.MOTURI Kennedy Asati	男	1973/12/23	45歳	Engineer 1, Transport Infrastructure and Public Works, County Government of Mombasa	19年9ヶ月	B.Eng in Civil and Structural Engineering / Moi University ('07 - '13)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	2	△	Highly recommendable	国道建設の監督やデザイン、国道の維持管理等が主な業務。	
7	ナイジェリア	D1951289	Ms.ACHI Nneka Martha	女	1986/1/19	33歳	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority	6年2ヶ月	BSc in Biological Technology / Delta State University ('06-'10)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	1	○	Highly recommendable	バスの往來の激しい道路の状況監視、BRTシステムのパフォーマンスの分析及び報告等が主な業務。	
8	ナイジェリア	D1951291	Ms.AKERELE Odunayo Foluke	女	1990/12/13	28歳	ITS Systems Control Center Officer, Bus Services, Lagos Metropolitan Area Transport Authority	4年0ヶ月	PGD in Information Technology / National Open University of Nigeria ('14-'16)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	2	△	Highly recommendable	バスの状況を監視、検出、検証するトラッキングシステムを用いた制御室(ITSコントロールセンター)での業務。	

ITS(高度道路交通システム) 実務選考表

研修コース番号： 201984545J002

来日： 2019/6/23

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9	パキスタン	D1951238	Mr.ALI Niaz	男	1984/2/1	35歳	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transport Authority	2年5ヶ月	Masters / University of Stuttgart. Germany (2011-2014)	無	L:Excellent S:Excellent R:Excellent W:Excellent	○	1	○	Highly recommendable ・Mr. Niaz Ali is working as Director ITS from Jan, 2017. On the other hand, Mr. Nafay Idrees, the other candidate, does not have relevant experience.	現在の組織での職務経験は、2年5か月だが、UN開発プログラムでの交通スペシャリストの経験が7か月、ZULFKIARABAD開発庁でマスタープラン開発等に従事していた経験が2年10か月、大学での研究（都市開発計画等）が1年等の経験がある。	
10	パキスタン	D1951240	Mr.IDREES Nafay	男	1983/9/6	35歳	Research Officer, Communication, National Transport Research Centre	9年8ヶ月	BS / International Islamic University. Islamabad (2002-2007)	無	L:Excellent S:Good R:Good W:Good	○	2	△	Recommendable ・Mr. Nafay Idrees, the other candidate, does not have relevant experience.	ITS構築タスクを担当しており、道路情報のデータバンク、軸重研究、交通量等道路交通統計の維持、収集されたデータ分析等が業務。	
11	フィリピン	D1951315	Ms.CLEMENTE Edana Olaguer	女	1976/11/10	42歳	Senior Transportation Development Officer, Road Transportation Planning Division, Department of Transportation	21年9ヶ月	BS in transportation Management / Polytechnic Univ. of the Phil.('93-'97)	2011.9- JICA大阪所管 "Countermeasures against automobile pollution in urban areas" 2013.10- JICA東京所管 "Comprehensive urban transportation planning and project" 2015.5- JICA東京所管 "Country focused training in traffic control	L:Good S:Good R:Good W:Good	糖尿病2型。薬服用有。薬持参で受入可。(JICA顧問医)	1	○	DOTr has several on-going projects with JICA especially on rail and subway. There has been no trainee accepted from DOTr in the previous year since ITS has offered as a course in Japan. She fits the target profile of the participants. However, I'm a bit unsure on whether to prioritize her over the other nominees since Ms.Clemente has already 3	公共交通システムの監理、効率的で安全で信頼でき、観光不可の少ないサービスや規制のガイドライン、政策形成等の補助等が主な業務。過去のJICA研修経験が3回あるが、ITS研修の参加経験はなく、業務内容から鑑みると、2位の応募者よりは適格だと思われる。	
12	フィリピン	D1951347	Ms.BIRUNG Rachel Malupeng	女	1986/5/18	33歳	Engineer II, Traffice Engineering Center - Traffice Signal Operation & Mgt Division, Metropolitan Manila Development Authority	10年0ヶ月	BS in Electrical engineering / Univ of Saint Louis Tuguegarao ('02-'08)	無	L:Good S:Good R:Good W:Good	○	2	△	with JICA.It plays a major role in addressing/solving the traffic congestion problems of Metro Manila.This course will help in the capacity development of the organization in addressing the gaps of there skills and knowledge. She fits the profile of participants as she holds double engineering degree.She is also involved in surface road transportation related work	交通信号の保守、操作、試運転、テスト、導入の監督が主な業務。道路での輸送関連業務にも従事しているが、信号に特化した業務であるため、1位の応募者の方が適格か。	
13	タイ	D1951420	Ms.CHAIKASETSIN Sruangsaeng	女	1989/9/16	29歳	Civil Engineer. Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways	6年10ヶ月	MSc in Civil and Environmental Engineering/University of Illinois at Urbana-Champaign ('14-'16)	無	L:Good S:Good R:Good W:Good	○	1	○	Highly recommendable	幹線道路の交通や事故等の課題を解決するためのITS技術の導入・研究、交通データの分析や予測等が主な業務。2位の応募者に比べ業務経験が豊富である。	
14	タイ	D1951421	Ms.PUNYIM Puntipa	女	1986/12/7	32歳	Engineer, Research and Development Division, Expressway Authority of Thailand	1年8ヶ月	Ph.D (candidate) in Civil Engineering/KMUTT ('15-'18)	2015.7-8月 北海道大学 Internship Program in Laboratory of Transportation Intelligence	L:Good S:Good R:Good W:Good	薬アレルギー有。受入可。(JICA顧問医)	2	△	Recommendable	交通工学、特に交通渋滞軽減のための微視的シミュレーションモデルを用いた交通インバクトの評価の開発、研究、実施や高速道路にITSを導入するための通行料徴収システムの研究等が主な業務。現職での業務経験が1年6か月と若干浅い。	
15	ウガンダ	D1900582	Mr.SSENYONJO Abudallah	男	1986/1/26	33歳	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)	7年7ヶ月	Masters Degree in Project Planning and Management /Uganda Technology and Management Institute ('17-'17)	2012.4月 JICA "Operation maintenance and troubleshooting of traffic signals"	L:Excellent S:Good R:Good W:Good	○	1	△		電気関連のサービスの監督、交通信号の保守、設置の監督等が主な業務。所属先のKCCAは信号技プロ・無償協力の実施機関であるため、研修実施効果は見込まれるが、研修内容についていけるか要協議。	

5. アクティブラーニング 研修員フィードバック

アクティブラーニング 研修員フィードバック

	sharing timeは学習上有効か	feedback sheetは学習上有効か	today's leaderは運営上有効か	他者へのサポートをしたか？どんなことをしたか？	クラスの知識共創への貢献をしたか	他者から新たな視点を得たか	討議を通じてアクションプランについてアイデア得られたか	他の参加者によってモチベーション上がったか	その他
ウガンダ	Totally Agree	Totally Agree	Agree	Yes (他国にはない事例を共有MODERATO)	Yes (より深いテクニカルな質問を投げかけた)	Yes (民営化のアイデア)	Yes (カンバラにおける交通の改善策)	Yes (技術的に先行している国々から参加している知的な仲間から刺激を受けた)	
ケニア	Agree (違う視点を学べた)	Agree	Totally Agree (責任を分かち合い、また、全員に平等な発言機会がある)	Yes (講義外でも課題について仲間と話し合った)	Yes (質問をすることで貢献)	Yes (他国も同様の課題に直面しているとわかった)	Yes (共通課題を有している他国がどのように課題に取り組んでいるか)	Yes (全員から学びを得た。いつかこのチームで働いてみたい)	アクティブラーニング大歓迎。帰国後に関連するリンクを送ってもらえるとありがたい
パキスタン	Totally Agree	Agree	Totally Agree	Yes (知見を共有した)	Yes (質問をしたり、課題について討議したり)	Yes (信号の重要性。実施体制の在り方)	Yes (意思決定者にsingle institutional arrangementの有用性を伝えたい)	Yes (同じ途上国の仲間からのアイデアでモチベーションが上がった)	
ナイジェリア	Totally Agree	Totally Agree	Totally Agree	Yes	Yes (母国の取り組みを事例として共有)	Yes (歩道橋のための空間の活用について)	Yes (渋滞緩和のために代替となるルート建設について助言もらった)	Yes	
フィリピン	Totally Agree	Totally Agree	Totally Agree	Yes (アイデアを共有)	Yes (成功事例を共有)	Yes (BRTシステム)	Yes (ビデオ検知器の活用)	Yes (他の仲間がいるんな制約の中で頑張っている。母国での技術導入のため、自分ももっとITS学びたい。)	
エジプト	Agree	Totally Agree	Agree	Yes (他者がまだ取り組んでいないような事柄について語り合った)	Yes (事例を共有)	Yes (タイの料金徴収システムやマッピングのシステム等)	Yes (公共交通の有用性)	Yes (他者からの知見の共有で自身の経験値が上がった。)	
ガーナ	Totally Agree (学びの整理に)	Totally Agree (学びを復習するきっかけになった)	Totally Agree (責任感を学んだ)	Yes (解決策を導き出せない仲間に事例を共有)	Yes (自国の事例を引用)	No	Yes (グループディスカッションでISTの有用性についてメンバー全員が合意)	Yes (他国で行われていることは母国でもできそう。失敗例も参考になった。)	
タイ	Agree	Agree	Totally Agree (リーダーになる訓練になった)	Yes (課題について話し合った)	No	Yes (多様な人々が参加していたので)	No	No	他の人達に参加を勧めたい。学びを業務に必ず活かしたい。

6. 研修員フィードバック

Feedback Sheet **Period: Jun. 24-Jun.28**
Date of Submission: Morning on Jul.1

Name: **Mr.Refat Hosnni (Egypt)**

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	<i>Breifing Session</i>	<i>a briefing about jica Tokyo system and how to manage your stay during the course</i>
	PM	<i>Program orientation</i> <i>introduction of Jica cooperation on ITS</i>	<i>Orientation about our course , consultant team & ITS center</i> <i>Objective of the course & expected output</i> <i>Course schedule</i> <i>-ITS development</i> <i>-ITS is different according to country needs as in egypt</i> <i>implementation within the budget</i> <i>-model path of deployment</i> <i>"Masterplan-Proactive application-Expansion of services"</i> <i>-expressway traffic control system</i> <i>"for egypt we can implement" VMS</i> <i>- cctv – traffic analysis – mobile vms</i>
Tue	AM	<i>Stakeholders surrounding ITS</i>	<i>-ITS stakeholders & Relevant polices and ministries.</i> <i>-NPA activities</i> <i>- Road bureau activities "ETC-Support for driving Safety"</i> <i>-Structure to promote ITS "NPA-MIC-METI-MLIT"</i> <i>-Digital road map</i> <i>-ISO classification "14813-1"</i>

		<i>Introduction to ITS</i>	<i>-how to identify your its system</i> <i>"Identify problems – services and analyze "</i> <i>-panning & Deployment</i>
	PM	<i>Introduction to ITS</i> <i>ITS Master plan</i>	<i>-Electronic road pricing</i> <i>-country GDP and road length relation.</i> <i>- traffic management sys overview.</i> <i>-physical architecture.</i> <i>-General flow for its planning & implementation</i> <i>-Review current conditions and related polices as a start for egypt ITS</i> <i>-Identify ITS menues</i> <i>-cost estimation and analysis</i> <i>-important considerations toward implementation of ITS</i> <i>- Key factor for project "Design phase"</i>
Wed	AM	<i>Country report</i>	-
Wed	PM	<i>ITS world congress</i> <i>Road Asset Management</i>	<i>-ITS organizations and last congress in Copenhagen – next one in Singapore</i> <i>-Future vision</i> <i>-condition of road infrastructure in japan.</i> <i>-Road maintenance issues "Budget – Technology – Human resources"</i> <i>-promotion of comprehensive activities for road asset management</i>

			<ul style="list-style-type: none"> -infrastructure maintenance and renovation & advanced technologies -platform for road asset management and activities
Thu	AM	Mechanical Engineering	<ul style="list-style-type: none"> -automation driving levels -Lane keep assist & Adaptive cruise control most common in Japanese market "needs road marking to be upgraded in egypt " -Needs some polices change in egypt to be implemented - Safety issues -Automatic platooning of trucks "important and help as high number of trucks accidents in egypt" -traffic signal prediction and cooperative with it -smart shuttle
	PM	<p>Frequencies</p> <p>Measures to alleviate Traffic congestion using ICT</p>	
Fri	AM	JARTIC	<ul style="list-style-type: none"> -JARTIC organization and collection of information -media used to deliver information "TV-Radio-Internet and mobile application" -over the phone information service "high number of calls" -53 centers in japan 4 centers 24/7 -backup in Osaka 500 km away from Tokyo

	PM	Informations and communications	
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Could you describe your comments on this week ?

- polices are very important to start ITS as a sustainable system without any obstacles in the future
- ITS differ from one country to another so we have to implement a system which suite our needs and issues
- Digital mapping is a need in EGYPT.
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Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Mr. Mohamed Refat (Egypt)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	National Land Planning	<ul style="list-style-type: none"> -Theory of traffic in towns - Edge city & it's issues - TOD - Relation between travel speed and Co2 emissions "important in ring roads in egypt" - ETC "economic & environmental effect" - Ring roads in Tokyo and its importance in comparison with cairo -Smart city "new capital in cairo" - management of heavy vehicle using ITS
	PM	VICS Center Visit	<ul style="list-style-type: none"> -mechanism of VICS "collecting information-processing and editing-providing information" - social effect of VICS "un congested route-drive safety – reduce trip time" -Traffic signal prediction system TSPS
Tue	AM	Funding & Maintaining ITS	<ul style="list-style-type: none"> -Issues on funding & maintaining its facilities. -categories of fund "government – PPP" -government fund "income tax-corporate tax – local tax" -innovative fund raise mechanism "traffic big data is strong tool for marketing & business development increase revenue by selling data" - congestion charge measures of traffic demand management "cairo ring road" - system renew 5-10 years

	PM	Initiatives of the METI related to automated driving	<ul style="list-style-type: none"> -significance of automated driving "safer and smoother traffic –society with comfortable mobility – improved industry competitiveness and related industries" -SAE levels "level 1 & 2 in japan market" - automated service cars
Wed	AM	Traffic Management	<ul style="list-style-type: none"> -3 ring roads around Tokyo - improvement of road function "traffic safety – mitigation of traffic congestion-disaster prevention – environmental measure – improvement of road landscape" - Importance of accident database created for black spots to provide prevention measures. -counter measures against traffic congestion "ride shari – car sharing – cooperative transport" - environmental measures " tree planting on slope faces – noise barrier"
		Signal control	<ul style="list-style-type: none"> -Directional flow sensor -low cost solution for vehicle signal control - incident detection motion based
Wed	PM	Group work	<ul style="list-style-type: none"> -Challenges "infrastructure – major policy issues – Funding – Lake of cooperation between ITS stakeholders" - Solutions " Infrastructure planning including ITS accessories, Fiber , ... etc" - develop ITS polices - Education programs

Thu	AM	<p><i>Public transportation</i></p> <p><i>National police Agency – Traffic Safety</i></p>	<ul style="list-style-type: none"> -Needs for bus operators “ avoid traffic congestion – manage bus operation – supervise bus drivers” - solution for bus operators “ bus priority system – bus operation management system – check of drivers skill & Fuel consumption” - probe data definition “ data generated by vehicles “light transit & freight vehicles” - bus location system “ need to implement in egypt- journey planner” - IC Card “ same in future in great cairo” -UTMS “safe, comfortable , environmentally friendly motorization” -DSSS system
	PM	<p><i>Traffic control center visit</i></p>	<ul style="list-style-type: none"> -public transportation priority system -collecting , analyzing traffic information around Tokyo to control flow & volume - distribute data to drivers to realize safe and comfortable traffic environment. - provide the data by various media “radio – JARTIC- telephone – navigation” - traffic accident reduction .
Fri	AM	<p><i>Traffic Engineering</i></p>	<ul style="list-style-type: none"> - traffic congestion & bottleneck -Time mean speed - other definitions.

	PM	<p><i>Parking lots</i></p> <p><i>OBU observation</i></p>	<ul style="list-style-type: none"> -classification of parking lots -navigation system for drivers. -we have to reconsider parking lots as important function in design Navigation system provide the driver with live information about the traffic reducing traffic congestion , save time , reduce fuel consumption and accidents
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Could you describe your comments on this week ?

<ul style="list-style-type: none"> -Navigation system high price but save time & fuel cost - ITS Stakeholders should cooperate to change the polices - Traffic control center should provide live data for road users with various ways “radio-VMS-mobile application – telephone” - Ring road congestion should be managed with ITS system and connect 3 ring roads -accidents statistics and vehicle data helps the decision maker in planning .

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Mr. Mohamed Refat (Egypt)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Sensor Technology	<ul style="list-style-type: none"> -sensor classification - radar fundamentals - onboard applications - Incident detection motion based.
	PM	<p>Nexico – East visit</p> <p>Nippon Signal Factory visit</p>	<ul style="list-style-type: none"> -One of 4 express way companies under Japan highway which manage around 4000 km “1400 km under kanto head branch” - monitoring traffic flow & monitoring equipment status and facility failure” - interacting with road users in case of accidents by phone and SOS emergency “each 2 km and in tunnels each 200 m” - Revenue from rest areas along the road built by nexico and rent to cafes and restaurants in addition to parking spaces . - Using helicopter – cars to following up status of the road . - large control center in cooperation with “police – JARTIC” - revenue around 7.61 billion USD/ year – around 100 Million USD/year from rest areas -700 employees 90% engineers 90 years’ experience -alternative system using solar energy -moderato management by origin – destination related adaptation for traffic optimization “car detector

			collects traffic information – traffic control system determines busy direction from its information – the traffic control system allocates more green time for its direction”
Tue	AM	ITARDA	<p>Research & Analysis</p> <p>Creating Database for accidents in egypt is very important.</p> <p>Analysis of ages and reasons for accidents.</p> <p>Automated vehicles is a good option for elder people</p> <p>Accidents in japan usually fixed by insurance companies “very important to use insurance companies in egypt” as this will help to have accurate database for the accidents.</p>
	PM		
Wed	AM	Mitsubishi heavy industries group	<p>ETC system until now in japan they have manual payment with a machine</p> <p>ERP system is applicable in downtown and cairo ring road</p> <p>Train</p>
Wed	PM		

Thu	AM	Hanshin expressway	Japanese road operators 6 companies Customer service improvement & environmental impact reduction is important Indirect traffic control “impact on driver’s decision making and route choice “ Moving light guide system can be used in the uphill in highways
	PM		
Fri	AM	Nagoya Electric	-mobile VMS is a good choice to provide information in the events “we can add RFID Reader to the car” - Speed recovery assistant system - using networks in india for data storage “can use in egypt in some points without Fiber”
	PM		

Could you describe your comments on this week ?

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Mr. Kobina Bortsie Ennim (Ghana)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Briefing Session	The briefing was straight forward and issues were clarified to my understanding.
	PM	Introduction to JICA's cooperation on ITS	<ol style="list-style-type: none"> 1. I had a clear understanding of JICA's assistance to developing countries as “Technical Cooperation”, “ODA loans” and “Grant Aid”. 2. I understood the model path of ITS Deployment as Master Plan, Proactive Application and Expansion of Services. 3. I had the understanding of the diversity of ITS development and each country should identify the traffic issues confronting them and the form of ITS they would deploy to solve those issues. 4. I appreciated the technical support and ITS projects Japan/Japanese Companies are undertaking in other countries like Philippines, Vietnam, India, Kingdom of Cambodia, Singapore, Turkey, etc.

Tue	AM	Stakeholders Surrounding ITS	<ol style="list-style-type: none"> 1. I had the understanding that ITS stakeholders are cross sectorial, cross ministerial, the private sector and the academia. 2. I appreciated why the stakeholders for ITS implementation are diverse and the role each organization plays using Japan as a case study. 3. I appreciated the need for International Standardization for ITS.
		Introduction to ITS (Intelligent Transport Systems Overview)	<ol style="list-style-type: none"> 1. I understood the physical architecture of ITS as comprising Information collection using various devices, processing, storing and analysing the information, and the provision of information to the end users.
	PM	Introduction to ITS (Intelligent Transport Systems Overview)	<ol style="list-style-type: none"> 1. I understood the classification defined in ISO 14813-1 2. That these classification falls under Service Domain, Service Groups and Services. 3. To implement ITS for the various countries we need to identify the problems on road transport and choose the appropriate ITS services from the menus as defined in ISO 14813-1 4. I also learnt that ITS is supported by Engineering, Education and

			Enforcement.
		ITS Master Plan (ITS Planning and Important Consideration Toward Implementation)	<ol style="list-style-type: none"> 1. I understood the need for having ITS master plan 2. I appreciated the preferable steps for successful introduction of ITS 3. I also appreciated the practical scenarios shared by the lecturer.
Wed	AM	Country Report Presentation	<ol style="list-style-type: none"> 1. I had a fair understanding of the challenges being faced by countries of the other participants. 2. I appreciated some of the interventions they have implemented which are working and which are not working. 3. I will consider the lessons learnt from the other countries when I am contributing to ITS implementation in my country.
Wed	PM	ITS World Congress and ITS Japan/ITS Asia Pacific	<ol style="list-style-type: none"> 1. I appreciated the history, structure and workings of ITS World Congress and other ITS organizations such as ITS Japan, ITS Asia Pacific, ITS America and ITS ERTICO 2. I understood that ITS World Congress is a conference of the ITS organizations in furthering the benefits of ITS in the world. 3. I appreciate the benefit my country will derive in setting up a similar organization and being represented at these world congresses.

		Explanation of Ongoing Road Asset Projects (Road Asset Management)	<ol style="list-style-type: none"> 1. I appreciated the need for timely preventive maintenance as being a cost saving intervention than reconstruction of road assets after breakdown. 2. I appreciated JICA's collaboration with the Strategic Innovation Promotion Program (SIP) in developing advanced technology and road asset management Systems in developing countries. 3. I also appreciated the examples of advanced technologies for maintenance management that was presented. 4. I will encourage my government to take advantage of this offer of technical assistance and educational scholarships from JICA to better our development.

Thu	AM	Vehicle Technologies in Intelligent Transport System	<ol style="list-style-type: none"> 1. I understood the six levels of driving automation systems and the various research and development being done by the automobile industry to develop systems for the highest level. 2. I appreciated the benefits of higher level of automation and the physical infrastructure needed for its realization.
	PM	Ministry of Internal Affairs and Communication (MIC)	<ol style="list-style-type: none"> 1. I appreciated the role being played by MIC in the allocation of radio frequencies for use by the various communication devices in ITS.
		Ministry of Land, Infrastructure, Transport and Tourism (MLIT)	<ol style="list-style-type: none"> 1. I understood the stages through which ITS has developed in Japan. The implementation of car navigation systems, VICS, ETC and its upgrade into ETC2.0 system. 2. I appreciated the benefits of ETC 2.0 as being able to send and receive larger quantity of data than ETC. 3. I appreciated the variety of measurements that is derived from data collected by ETC 2.0.
Fri	AM	Observation: Japan Road Traffic Information Center (JARTIC)	<ol style="list-style-type: none"> 1. The visit to JARTIC was revealing as it brought to the fore the need for sharing road traffic information promptly and accurately. 2. I observed physically the infrastructure (the hardware and software) in the setup of JARTIC for receiving data, processing, storing and sharing

			information
			3. I appreciated the live broadcast made from JARTIC to the various radio stations and television station. The information they pass to VICS for onward transmission to drivers.
	PM	Wireless Communication Systems for ITS	<p>1. The lecture brought to the fore the various wireless communication systems for ITS.</p> <p>2. I appreciated the workings of Vehicle Information and Communications Systems VICS, Electronic Toll Collection (ETC), Dedicated Short Range Communication (DSRC), infrared beacon, radio beacon, vehicle to vehicle communication etc.</p> <p>3. I also appreciated that wireless communication systems are governed by standards such as the various ARIB standards.</p>

Could you describe your comments on this week?

The week was eventful and exciting as we did not just receive lectures, but we also presented our country reports and the visit to JARTIC was revealing. I have learnt so many new things and I look up to an even more exciting weeks ahead.

Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Mr. Kobina Bortsie Ennim (Ghana)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	National Land Planning and ITS No. 1	1. The lecture dealt with the history of land use with regard to industrialization and housing. The evolution of urban settlement and its attendant transportation needs. My take from this lecture is that the problems that confronted humanity during the early days of industrialization still persist in many other forms and we need to apply lessons learnt in the past to shape our future.
		National Land Planning and ITS No. 2	<p>1. The lecture centered on the challenges (environment, congestion, accidents, sustainable development, etc) facing people and how ITS is being deployed to solve these challenges.</p> <p>2. I understood that the base technologies of ITS is made up of sensors, positioning, mapping, communication and network.</p> <p>3. I understood the introduction of ETC 2.0 as a big data collection system and its application for congestion mitigation, safe driving, probe data,</p> <p>4. I understood the MaaS Packages and the effort to expand it to include more service providers.</p>

	PM	Observation: VICS (Vehicle Information and Communication Systems) Centre	<ol style="list-style-type: none"> 1. We were warmly welcomed to the VICS Centre. The presentation about their operations was comprehensive. 2. I understood that VICS is made up of four functions: Collecting Information, Processing and Editing Information, Providing Information and Utilizing Information. 3. I understood that VICS receive information from Prefectural Police Headquarters, JARTIC and the Road Administrators. 4. I understood the three media of VICS: FM multiplex broadcasting, Radio wave beacon and Infrared beacon. 5. I understood the benefits and social effects of VICS
Tue	AM	Funding and Maintaining ITS (Utilization of Financial Resources, Private Funds and Knowhow)	<ol style="list-style-type: none"> 1. I understood the different funding sources for road improvement and ITS implementation as coming from Government, Private Organisation or as PPP. 2. I appreciated the case study of funding source for roads, as pertains in Japan, USA, UK, France and China. 3. The section under innovative fund-raising mechanism has exposed me to other non-conventional ways of raising funds and I hope to share the knowledge with my organisation for possible implementation. 4. Maintenance and operation of ITS infrastructure is critical to successful implementation. I understood the

			various maintenance activities required for ITS and how it should be conducted. The need for technical knowledge and personnel to undertake operations and maintenance were discussed and lessons learnt.
	PM	Ministry of Economy, Trade and Industries (METI) – Support for Enterprises (Related to Automated Driving)	<ol style="list-style-type: none"> 1. I understood the benefits of automated driving as including reducing road accidents, traffic congestion, improving driving comfort, support for the elderly and persons with disability, efficient transport/logistics business and reduce labour (truck drivers) shortages in the logistics business. 2. I understood the different levels of automated driving. 3. I understood that automated driving requires vehicle-to-vehicle and vehicle-to-infrastructure communications 4. I appreciated the efforts necessary for the realization of automated driving as deepening technology development, system development and social acceptability. 5. I appreciated the effort and collaboration between the Government of Japan and industry for the realization of this goal.

Wed	AM	Road Management 1 (Overview of Road Improvement, Management and Maintenance in Japan)	<ol style="list-style-type: none"> 1. I understood the hierarchical road classification of roads in Japan and the road accessories of the various road classes. 2. I understood that it is a shared responsibility of national government and local government to develop roads. 3. I appreciated the various measures made by the road administrators and the police to ensure traffic safety. Measures such as construction of bypass, overpass or underpass, junction improvement, etc. 4. I understood the countermeasures to against traffic congestion. Some of which are grade separation of intersections, the construction of the metropolitan inner city expressway, the ongoing construction of ring road, improvement in transport hubs, etc. 5. I appreciated the disaster prevention and mitigation measures against earthquakes, heavy rains and snow. 6. The routine and periodic inspection and maintenance of road infrastructure. 7. The use of ITS in road management such as probe data, use of cctv cameras, ETC tollgates etc.
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		Signal Control	<ol style="list-style-type: none"> 1. The workings of the various traffic control systems were discussed. SCATS, SCOOT and MODERATO. 2. I understood the application of directional flow sensors for optimization of traffic signal.
		Introduction of Traffic Management	<ol style="list-style-type: none"> 1. I understood the three types of traffic signal control systems. The single intersection control, route control and area control. 2. I appreciated the various standard drawings of intersection equipment and cable. 3. I understood the image sensor based on video analytics technology as being cost effective and will minimise the number of ultrasonic detectors
Wed	PM	Group Work 1	<ol style="list-style-type: none"> 1. We shared ideas and brainstormed on how to solve traffic management challenges we face in our various countries. The contribution from the consultants were valuable and I learnt a lot from the interactions.
Thu	AM	Public Transportation and ITS	<ol style="list-style-type: none"> 1. I appreciated the various modes of road transport. 2. The expectation of bus operators, bus passengers and bus managers. 3. I understood the application of ITS for bus priority system, managing bus operations and supervising bus drivers. 4. I appreciated the journey planner and MaaS (Mobility-as-a-Service).

		National Police Agency (NPA) – ITS Deployment by the Japanese Police	<ol style="list-style-type: none"> 1. I understood Universal Traffic Management System (UTMS) as being an integral part of the ITS. 2. I understood the working of the Integrated Traffic Control System as comprising the collection of information (via vehicle detectors, monitoring cameras, infrared beacons) to the Road Traffic Control Centre of the Police Department for analysis and control of the traffic signals and the sending of information to vehicles, traffic information boards, JARTIC, etc.
	PM	Observation: Traffic Control Centre of Metropolitan Police Department	<ol style="list-style-type: none"> 1. We visited the Traffic Control Centre of the Metropolitan Police Department. The Japanese hospitality was exhibited as we were warmly received by the officers. 2. A comprehensive presentation about the workings of the Traffic Control Centre was presented. 3. I understood that information is collected from vehicle detectors, CCTV cameras, helicopter, patrol car, police motorcycle and adjacent Prefectural Traffic Control Centres around Tokyo to the Tokyo Traffic Control Centre. 4. The information is analysed and used to control traffic signals, sent to traffic information boards, JARTIC, radio broadcast, telephone service information and other nearby

			<p>Prefectural Traffic Control Centres.</p> <ol style="list-style-type: none"> 5. I appreciated the benefits of the Traffic Control Centre as including traffic congestion relief, traffic accident reduction, reduction of pollution from cars, energy conservation and environmental conservation.
Fri	AM	Traffic Engineering 1 (Traffic Flow Fundamentals)	<ol style="list-style-type: none"> 1. I understood the mathematical analysis in obtaining relevant physical quantities and variables (flow rate, density, average speed, time mean speed, space mean speed, etc) to tackle the issues of traffic congestion, capacity and bottleneck
		Traffic Engineering 2 (Traffic Congestion Analysis and Advanced Management)	<ol style="list-style-type: none"> 1. I understood the shock wave theory, congestion analysis, signal control design, signal parameter setting, signal coordination (offset). 2. I understood the functions of car navigation system. 3. The flow of traffic information from Road Administrators, Traffic Control Centres, through JARTIC to VICS and to vehicles through the car navigation system.

PM	Traffic Engineering 3 (Parking Space Management)	<ol style="list-style-type: none"> 1. I appreciated that lack of parking lots results in illegal on-road parking and traffic congestion gets worse. 2. I appreciated the passing of the Parking Act requiring owners of businesses to provide adequate parking spaces for staff and clients.
	Observation: On-board ITS System (Car Navigation System)	<ol style="list-style-type: none"> 1. We had a round trip through the streets where we observed various information received and transmitted by the car navigation system. 2. I observed the digital map and the precise location of the vehicle on the map. 3. I observed the display of the various speed limits and road signs as we entered a new road. 4. I observed the different colouring of the roads indicating the level of congestion on those roads. 5. I observed the optical beacon display of traffic situation ahead of our vehicle, etc.

Could you describe your comments on this week ?

Another exciting week. The Professors delivered their lectures excellently and the presentation materials were comprehensive and self-explanatory. The observation visits to VICS, the Traffic Control Centre of the Metropolitan Police and the observation of the Car Navigation System has demystified ITS and made it so tangible (I can literally see and touch it). I now have a better understanding of ITS and I can confidently explain the components and benefits of ITS. I look forward to learning more in the weeks ahead.

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Mr. Kobina Bortsie Ennim (Ghana)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Sensor Technology	I can identify the various sensors and their uses.
	PM	Observation: Kanto Regional Head Branch of NEXCO	I observed the operations of NEXCO – East. I understood the management of the electronic toll collection, Road Patrol Car, Road emergency dial, operations and maintenance of facilities etc.
		Observation: Nippon Signal	I observed the various traffic management (ITS) products Nippon Signal produces. Such as the vehicle detectors, traffic signal controllers, power back up, traffic signal heads for pedestrian and vehicles, etc.
Tue	AM	Institute for Traffic Accident Research and Data Analysis (ITARDA)	<ol style="list-style-type: none"> 1. I understood the need for keeping accident data and probing the cause of accidents to put in place measures to reduce traffic accidents. 2. I appreciated the workings of ITARDA in sharing research

			findings with the police and the general public for policy implementation.
	PM	<p><Please answer following Questions;> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p><u>Toshiba Infrastructure Systems & Solutions Corporation</u> Q1: Yes Q2: Traffic Control Centre, electronic toll collection Q3: Yes.</p> <p><u>Sumitomo Electric Industries, Ltd.</u> Q1: Yes Q2: Traffic signal controllers Q3: Yes</p> <p><u>Nippon Signal Co., Ltd.</u> Q1: Yes Q2: signal controllers, traffic signal heads, vehicle detectors Q3: Yes</p> <p><u>Tokyo Aircraft Instrument Co., Ltd.</u> Q1: Yes Q2: Speed Cameras Q3: Yes</p> <p><u>One for All Labs Co., Ltd.</u> Q1: Q2: Q3:</p> <p><u>Nippon Electric Co., Ltd.</u> Q1: Yes Q2: Smart Card Solutions Q3: Yes</p> <p><u>Hitachi, Ltd.</u> Q1: Yes Q2: Smartphone application for vehicle route management Q3: Yes</p>

Wed	AM	Transit to Kobe	
Wed	PM	<p><Please answer following Questions;> <u>Mitsubishi Heavy Industries:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Ans. 1 Yes Ans. 2 Electronic Toll Collection Ans. Yes</p>
Thu	AM	Morning Tour	We visited the Nijo-jo Castle, Kinkakuji Temple and Kyoto Imperial Palace.
	PM	Observation: Hanshin Expressway (HEX)	I appreciated the operations of HEX. I understood the concept of the moving light guide system. We visited the site where the road passes through a building.
Fri	AM	<p>Moved from Kyoto to Nagoya. Visited the Nagoya Castle</p>	
	PM	<p><Please answer following Questions;> <u>Nagoya Electric Works:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact</p>	<p>Ans. 1 Yes Ans. 2 The variable message sign, mobile VMS, traffic control centre, Ans. 3 Yes</p>

		with them?	
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Could you describe your comments on this week ?

This week has been the most eventful and most enjoyable week. It has been a mix of learning, field observation, travelling on the shinkansen, visiting and staying at different cities, visiting tourist sites and learning more about Japanese culture. It's a week to remember always. Thanks for such arrangement.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Mr. ALI SHARIFF (KENYA)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Briefing Session	The session was highly informative and helpful. Received id card, meal card and general information about TIC
	PM	Introduction of JICAS cooperation on ITS	Introduction and understanding of the Knowledge co-creation program, ODA partnership etc
Tue	AM	Stakeholders surrounding ITS	A case scenario of Japan was given and how the four Ministries involved in ITS work together. Also coordination with ITS japan and the Standardization committee. There is need for similar approach in my country. Also need for establishment of a standardization body for ITS technology.
	PM	ITS Planning and considerations towards implementation	Excellent lecture by Totani san from Nippon KOIE. I got clear understanding on the steps to be undertaken during the planning phase of ITS eg land use, road asset considerations and the equipment required.
Wed	AM	Country Report	I learnt the ITS status of the fellow Participants

Wed	PM	ITS japan World Congress Explanation of ongoing Road Asset projects	Great insights on ITS Japan as an organization and the role it plays in bringing together the private companies and academia towards developing and improving ITS. It's important for developing countries like mine to participate in the ITS world congress to get ideas and share experience. Got an understanding of the construction of highways, ring roads and expressways in Japan and the significance towards ITS implementation and traffic management. My country is still struggling with road construction hence hindering ITS.
Thu	AM	Mechanical Engineering	Received an understanding of autonomous vehicles. And the efforts Japan is making towards a connected car society. In Kenya we are mostly at level 0 and a few at level 1 in terms of autonomous vehicles.
	PM	MLIT : Measures to alleviate traffic congestion using ICT	Explanation of RSE's AND Use of on board units in vehicles to foster V2I. We still need to implement road side antenna in my country and utilize RFID technology for electronic toll and traffic management.
Fri	AM	JARTIC Visit	Great experience of the center. Glimpse of the radio broadcasting booths and TV broadcast station.
	PM	ICT	An understanding of DSRC and some of the communication protocol used in Japan to communicate between drivers, the cars and the road infrastructure. Use of RFID technology would be more applicable in my country. Japanese consultants to assist me with design of the same if possible.

Could you describe your comments on this week ?

The week was very fruitful and highly productive. I got to learn a lot of new information and also got to appreciate a lot of Japanese hospitality. I hope to gain more from the program.

Arigato gozaimus

Feedback Sheet **Period: Jul.1 -Jul.5**
Date of Submission: Morning on Jul.8

Name: **Mr Ali Shariff (KENYA)**

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	<i>National Land Planning by Dr Makino</i>	<i>Stages in Land planning were explained. The importance of land planning in ITS deployment clearly came out. First development of the rail, then came the automobiles hence road requirements increased. Then issues of safety, congestion and pollution came about. Control measures had to be put in place. Hence need for ICT to be used in transportation from the 80's in what is referred to as the fifth wave. In Mombasa ITS has been partially deployed however land and infrastructure planning is key, it should be done in parallel to the ITS.</i>
	PM	<i>Visit to VICS</i>	<i>Demonstration of how VICS receives information mainly from JARTIC analyses it and sends to vehicles through the VICS OBU.</i>
Tue	AM	<i>Utilization of Financial Resources –Road related tax revenue</i>	<i>How the ETC works. How effective it is in ensuring traffic demand management and also Road maintenance. The toll tax has been put to great use here. In Mombasa we don't have any toll road yet. However the first Nyali bridge constructed by the Japanese contractors was done through toll collection.</i>

	PM	<i>Lecture by METI</i>	<i>Highly involved in the promotion of ITS technologies eg automated driving technologies etc. Also bring about collaboration of vendors of ITS equipment, govt and citizens.</i>
Wed	AM	<i>Road/Traffic Management</i>	<i>Operation of the Traffic signals in Japan. The three operations of SCATS, SCOOTs AND MODERATO explained. Types of sensors used to implement the MODERATO operation used here in Japan. In Mombasa the operation used is stills SCATS where the timer is preset and the offset time determined. However we have intentions to deploy the use of loop sensor to measure the traffic volume then send a signal to the timer contained in the signal controller to adjust the time accordingly. Also we have a big problem of having more unsignalized round about that signalized intersections.</i>
Wed	PM	<i>Group Discussion</i>	<i>We had a good interaction. Looked at the collective challenges faced by developing countries in traffic management and then looked at the possible solutions and mitigating factors. A major challenge that clearly came out is lack of proper road infrastructure in most cities in developing countries. For instance it is important to have ring like road structures for efficient traffic flow, however in Mombasa the same has not been achieved. However two major bypass road that will link the</i>

			<p>northern and southern main land have begun construction.</p> <p>Another major challenge is lack of resources to fund proper ITS deployment eg our cities face challenges of power outages and fluctuations, the cost of implementing networking is still high and high speed internet is still not available.</p> <p>Also lack of policy direction on ITS introduction and management by the ministry of ICT.</p> <p>Possible solutions include of fast-tracking highway and other important road constructions in order for traffic users to have route alternatives.</p> <p>Our government should also enact laws that shall allocate funds and other ITS enablers to the Police and Ministries of Land and Transport to implement ITS.</p> <p>User education is also important as for ITS to work there is need for the three E'S to work in tandem.</p>
Thu	AM	<i>Public Transportation</i>	<p>The importance of having a good transport system is key to traffic decongestion. Having a mass transit system like the metro or the bus rapid transit is essential. However land planning issues are important when setting up a mass transit system. For instance in Mombasa, Public transport exists but is highly disorganized and hence contributes heavily to the congestion and road safety of the public. A gradual implementation of the urban</p>

		<i>Lecture by National Police Service</i>	<p>planning masterplan developed by Nippon KOEI should be able to assist.</p> <p>Functions of the Traffic police clearly explained.</p> <p>We learnt that the police employ traffic engineers in Japan contrary to my country.</p> <p>Also traffic owns the sensors and traffic signals in Japan and is responsible for analysis the traffic flow. This is a big lesson to take back home.</p>
	PM	<i>Visit to Tokyo Metropolitan Traffic Control center</i>	<p>The center has a large video wall for monitoring traffic congestion in the Tokyo metropolitan areas. The Department has installed around 16000 RSE (Sensors etc) and has networked around 8000 of these devices to the Traffic control center. Information from the TCC is broadcasted through radio or is passed to JARTIC for further analysis and sent to road users through the on board unit.</p>
Fri	AM	<i>Traffic Engineering</i>	<p>Great lecture by Sensei Oguchi. Issues of traffic demand management. How to calculate the saturation levels of roads. This shall in turn inform the decision to perform capacity improvement or demand management through deployment of ITS.</p>
	PM	<i>On Board ITS Moving Vehicle</i>	<p>Practical demonstration of how the on-board unit of the vehicle interacts with the Road side equipment especially the infrared beacons.</p>

		<p>Prof Oguchi was present in the car giving the explanation. I was able to observe three locations where the OBU linked with the RSE. However the last location a communication error occurred. Sensei Oguchi explained that it was a very rare case.</p>
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Could you describe your comments on this week ?

<p>The week was highly fruitful. Personally I enjoyed all the lectures and especially the site visits and group work. Great thanks to Sasaki San and Mini San for the great organization. Arigato</p>

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Mr. Ali Shariff (Kenya)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Sensor technologies	Different types of sensors were explained those found in cars eg LIDAR and those found on roads eg infrared beacons and image sensors such as ANPR cameras. The importance of sensors is data collection that can later be analyzed to allow for informed decision making processes.
	PM	Visit to NEXCO EAST Visit to Nippon Signal	Expressway company responsible for highways in Japan. An elaborate explanation given on how they monitor the conditions of the road from their control center. Also they use ETC for toll collection. Further they broadcast traffic information on their highways from radio and through vics. Vendor of traffic light equipment. Great explanation given. They are currently doing a project in kampala of installing traffic signals through JICA funding. As Mombasa we are equally interested in a similar project. I have indicated in my action plan that I would like to work with either Sumitomo or Nippon signal in the installation of traffic signals in 5 key junctions in Mombasa.
Tue	AM	ITARDA Visit	Appreciating of efforts done by Japan to promote road safety. A great learning experience worth introducing back home. Organization is majorly funded from selling of road accident data collected and analyzed. In Kenya we have the National Transport and Safety Authority, however

			they are not research based and hence they mainly concentrate on enforcement of road safety. There is need for research on possible causes of road accidents in order to apply measures to mitigate the same. Need for Traffic Accident Database
	PM	Presentation by Japanese Enterprises	<ol style="list-style-type: none"> 1. Toshiba – Have done several traffic control centers. 2. Sumitomo- Design the Tokyo metropolitan traffic control center. Experts in traffic signal equipment. I have a lot of interest in engaging them for my ITS project. 3. Nippon Signal – Working on great Traffic signal installation project in Kampala. Great equipment high quality. Are also of interest to me. 4. Tokyo Aircraft – Not quite relevant to what I intend to implement. Area of scope a bit different. Presentation done was not very clear as well. 5. One for All Labs – Mostly analytics. Interesting algorithm they used in collecting data from road users in Istanbul Turkey. I loved the idea- less cost highly effective. Has privacy issues. However it can be used to replace road side sensors where data from cell phones is sent to traffic control center and decision sent to signal controller. 6. Hitachi – Smart city proposal with focus on ICT.

Wed	AM	Travelled To Kobe City	GREAT SHINKANSEN RIDE.
Wed	PM	Mitsubishi Heavy Industries	Manufactures of highway equipment. Main supplier of expressway company's equipment. Roadside sensors, billing machines etc. They manufacture ultrasonic sensors for detection of traffic congestion.
Thu	AM	Kyoto Morning Tour	Visit of Kyoto imperial palace and the shoguns castle. Golden temple
	PM	Hanshin Expressway	Manage urban highways around kobe, Osaka and Kyoto. Like Nexco east they have a control center but was under renovation. They use different techniques like the light guide system to accelerate vehicle during uphill in order to prevent congestion. They are part of the consultant team involved in the southern bypass Construction in Mombasa. I would like to get more information from then concerning the project.
Fri	AM	Nagoya castle visit	

	PM	Nagoya Electric Works	Dealers in VMS technology. Have done for several highway companies in Japan. They are now looking for market abroad. Good project they did in Ahmedabad through JICA ODA.
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Could you describe your comments on this week ?

This was the most interesting week of all. The most impactful according to my assessment. We got firsthand information from the implementing agencies of the ITS like Hanshin and Nexco East. In addition, we got a chance to interact with the companies manufacturing the equipment like Nippon Signal, Toshiba and Mitsubishi Heavy Industries. A lot of knowledge was learnt from the exchanges through questions, observations and presentations. To sum it up we got the opportunity to visit other cities in Japan and enjoy the culture and history. Kyoto was great as we learnt about the history of the Shogun, Samurai and the Japanese Emperor.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Ms. Achi Nneka Martha (Nigeria)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon 24th	AM	<i>Program Orientation</i>	<ul style="list-style-type: none"> ➤ <i>About JICA and how they have been of support to other countries.</i>
	PM	<i>Introduction of JICA's cooperation on ITS</i>	<ul style="list-style-type: none"> ➤ <i>JICA helps to develop other countries using the three (3) major schemes.</i> <ul style="list-style-type: none"> ○ <i>The Technical cooperation</i> ○ <i>ODA Loan</i> ○ <i>Grant Aid</i> ▪ <i>Insight on when ITS started (1990's), how JICA has been conducting different types of ITS projects and surveys in the world.</i> ▪ <i>Insight on traffic is been managed using the traffic control system.</i>
	AM	<i>Stakeholders surrounding ITS</i>	<ul style="list-style-type: none"> ➤ <i>The Japan ITS has different stakeholders from the Government, Industry and the Academia with defined roles and policies surrounding the ITS</i> <ul style="list-style-type: none"> ○ <i>It is good to know that the National Police agency is responsible for traffic law establishment to prevent dangers on the road and ensure safe and smooth transport.</i> ○ <i>The introduction of ETC (Electric Toll Collection system) has made payment at the tolls easy and this can be done monthly.</i> ○ <i>It is interesting to know that the</i>

		Introduction to ITS	<p>National Police Agency go to schools to people on how to use the road.</p> <ul style="list-style-type: none"> ➤ An overview on how to use the Intelligent Transport system as a supporting tool to collect, process and provide data on <ul style="list-style-type: none"> ○ Traffic conditions, congestion level, Drivers destination, road closures etc. ▪ Insight on steps to take when planning and deploying ITS ▪ The E's of road transport support system <ul style="list-style-type: none"> ○ Engineering ○ Education ○ Enforcement ▪ Sustainable use of ITS <ul style="list-style-type: none"> ○ System maintenance ○ Operational Capacity Development
Wed 26th	AM	Country Report Presentation (organized by Ms. Sasaki)	<ul style="list-style-type: none"> ➤ Insight on the operations in different countries, traffic situations, implementation of the Intelligent Transport System and how it has been applied in different operations and the problems faced.
	PM	ITS World Congress Report (Mr. Barata):	<ul style="list-style-type: none"> ➤ An insight on what ITS world congress is and how ITS came about and the ITS organizations that have hosted the World Congress in their various countries. ▪ The Congress is about achieving a higher quality of life in every city <ul style="list-style-type: none"> ○ Ensuring integrated mobility services ○ Cyber security ○ Data access management ○ Automated mobility

		Road Asset Projects (Mr. Kanenawa):	<ul style="list-style-type: none"> ○ Address environmental issues before deploying automated vehicles. ○ Using technology to deliver the best transportation in the world <ul style="list-style-type: none"> ➤ Applying the Excel patch method for pothole repairs and it is good to know that this method can work in any weather condition ▪ Pressing issues in our country that needs to be looked into are <ul style="list-style-type: none"> ○ lack of budget ○ lack of technology and ○ human resource
Thu 27th	AM	Vehicle Technologies in Intelligent Transport System (Kimihiro Nakano)	<ul style="list-style-type: none"> ➤ Automated system on the vehicle can sometimes assist the human driver conduct some part of the driving task. The real time operational function of this vehicle is on road. There is an onboard unit which is used to measure the gap between vehicles called the Wave Radar function. ▪ There is a camera that is used to detect the markers ahead and allows drivers remain on track. ▪ GPS is mostly used (because it is cost efficient) to detect the actual position of a vehicle ▪ There are ranges of Range Sensors <ul style="list-style-type: none"> ○ Long and Short Range Lidar: used to measure distance by illuminating a target with a laser light ○ The Millimeter Wave Radar: used for short range precise

			<p>detection</p> <ul style="list-style-type: none"> ▪ Japan is developing an automated vehicle bus mobility soon and a driver has to meet the level of automation before allowing to drive. The license has been designed to be used anywhere for the automated kind of driving.
	PM	Recent Activities Toward Connected Car Society (Koji Hara)	<ul style="list-style-type: none"> ➢ ITS related systems and frequency allocation <ul style="list-style-type: none"> ○ Roadside broadcasting: Using the road system, road users are updated on traffic situations. Information on traffic is updated every 5minute in Japan. ○ Electronic Toll Collection System(ETC) ○ Vehicle information and Communication System (VICS): Traffic situations are distributed to car navigation system ○ Dedicated short range communication ○ Driving Safety support system ○ We were made to understand that the 5G means of communication is currently in trial stage in Japan ➢ Different Organizations with different defined roles work hand in hand to make the ITS a success. The Police Agency (in charge of traffic management), Internal affairs & communication (frequency distributors) and Economic Trade Industry meet on monthly basis to
		ITS Effort In Japan	

			<p>promote automated driving. The private sector too play an important role in the ITS.</p> <ul style="list-style-type: none"> ▪ Introduction of the car navigation system: VICS, ETC. 98% of vehicles are equipped with the ETC. The use of ETC has helped eliminate traffic congestions at toll gates and other heavy traffic routes. Data collected by this device are been sent to bus terminals to update commuters on traffic situations. The Japanese have been able to locate areas where there are traffic congestions and with funds they were able to create extra lanes to ease the flow of traffic. The Japanese have a lot of privately owned vehicles on the road so they are working towards reducing the fare so as to encourage people to use the public transportation.
Fri 28th	AM	JARTIC	<ul style="list-style-type: none"> ➢ The visitation to the Japan Road Traffic Information Center was an eye opener. We saw how information is been provided using the television, radio and telephone means of communication. JARTIC provide traffic related information to private organizations then the organization then sends it out to the tv & radio stations. This is a source of revenue for JICA. ▪ There are different shifts in a day. Work terminals are installed in all 47 headquarters & provinces. The data gathered from these stations are sent to the central system located in the computer room. ▪ The information provision center which uses telephones receives up

			<p>to 200-300 calls a day while at weekends / festivals/ holidays they receive 200-500 calls in a day. Traffic situation calls are been recorded every 30minutes once all telephones are busy.</p> <ul style="list-style-type: none"> ▪ The radio broadcast section has 3shifts, 11 stations and an average of 62 live broadcasts in a day that ranges from 30-120 minutes. ▪ The television broadcast section has 5 staffs (Monday – Saturday). Broadcast time is usually determined before going on air. Sticky notes are used on the clocks to avoid mistakes. ▪ In the computer room, there are servers installed that sends signals to the screens. Asides from information received on digital map, information are converted into text messages and transferred to phones. Information received are either 1 or 5minute cycle and these information are processed immediatly they are sent. Up to 5million information are received daily. ▪ On the monitoring screens, there are different colors indicating travels. JARTIC has a duplicated system, they get their power source from Tokyo electrical Company, they have UPS that can power up to 2hrs for back up.
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PM	Wireless Communication Systems in Japan	<p>VICS: Vehicle information & communication system (radio beacon, infrared beacon and FM multiplex broad crossing.</p> <p>ETC: Electronic Toll Collection (collects payments at tolls using wireless)</p> <p>DSSS: Driving Safety Support System</p> <p>HSRS: High Solution Radar Sensor</p>

Could you describe your comments on this week ?

Insight and fresh ideas on how to go about solving some of our ITS related problems in my country. An eye opener.

Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Ms. Nneka Achi (Nigeria)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	A M	National Land Planning and ITS	<i>This teaches about how lands are been improved around cities, massive opening of space reservations to help improve transportation and free flow of traffic.</i>
	P M	VICS Center	<p><i>The visit to the Vehicle Information and Communication System Center opened our eyes to how information are been passed on to road users via the OBU (on Board Unit).</i></p> <p><i>The VICS center systematically collects road and traffic information, processes and edits the Traffic diversion information collected and provides information to road users Via infrared beacons, FM multiplex broadcasting and radio wave beacons.</i></p> <p><i>Information processed is transmitted to the car navigation unit. Information such as</i></p> <ul style="list-style-type: none"> ○ Traffic congestion ○ Weather conditions ○ Display of areas with heavy rainfall on the OBU ○ Parking availability ○ Travel information <p><i>Benefits of VICS are</i></p> <ul style="list-style-type: none"> ○ An uncongested route can be selected based on traffic

			<p><i>information (smoother traffic)</i></p> <ul style="list-style-type: none"> ○ Accurate understanding of circumstances. ○ Stabilized driving mentality(enhanced safety) ○ Smooth parking
Tue	A M	Funding and Maintaining ITS	<p><i>This talks about the roles both Local and General government play in funding road projects and some other developmental projects. Both Local and General Government share funds when it comes to fixing of roads.</i></p> <p><i>As regards ITS, operators raise funds by selling data to private companies in need of data.</i></p>
	P M	ITS and Automobile Driving Promotion Office, Automobile Division, Manufacturing Industries Bureau, Ministry of Economy, Trade and Industry	<p><i>Significance of automated driving</i></p> <ul style="list-style-type: none"> ○ Safer and smother traffic reduces road accidents, alleviates traffic congestion and reduces environmental burden. ○ Society with comfortable mobility for many to improve driving comfort and support , mobility of elderly. ○ Efficiency of related industries enhances international competitiveness of automotive-related industries <p><i>Development of Automated Driving: There are different six(6) levels of automated driving. Level 3 allows the driver to leave the stirring while the system performs the driving task. For Level 5, the system performs all the driving task.</i></p> <p><i>Right now the Japanese are trying to improve both commercial</i></p>

			<i>and private community so they can be best in the world.</i>
Wed	A M	Road Management	<p>Road is a fundamental infrastructure and is indispensable for life and economic activities. Functions and roles are to be considered when conducting road development.</p> <ul style="list-style-type: none"> ➢ Roads in Japan are classified into two(2) parts: <ul style="list-style-type: none"> ○ Arterial: this is the express way, it has a high structure and its maximum speed is 60-100km/h ○ Residential roads: these are assessable roads with short trips and the speed limit is 40km/h. <p>To improve on road functions, some measures need to be in check:</p> <ul style="list-style-type: none"> ➢ Traffic Safety Measures which is: <ul style="list-style-type: none"> ○ Situation of traffic accidents ○ Trend of traffic volume ○ Number of fatalities ○ Improvement of the environment for bicycle path, installation of sidewalks, humps at intersections ➢ Counter measures against traffic congestions <ul style="list-style-type: none"> ○ Situation of traffic congestion ○ Average speed limit

			<ul style="list-style-type: none"> ○ Police to expand traffic capacity ○ Road networks(alternative routes) ○ Traffic demand management policy ➢ Inspection and repairs of road facilities <ul style="list-style-type: none"> ○ Periodical inspection of bridges, tunnels, gutters, ○ Daily maintenance to remove objects on the roads, repairing holes and conducting traffic control
Wed	P M	Brain Storming session	A session to air our country issues and what solutions we have been able to gather from the training so far. The session was a nice one. With the help of JICA officials, we able to gather more information on how to go about some of the issues.
Thu	A M	Public Transportation and ITS	<p>The Bus priority system: Buses have the onboard unit and it is in sync with the traffic control system. I was made to understand that priority is being given to buses because of their schedule which is very inspiring.</p> <p>There is also a bus system classified under the train system. This bus does not use stirring on the dedicated lane.</p>
	P M	Visit to Police Department Traffic Control Center	The visit to the Metropolitan police department traffic control center was indeed an insightful one. The metropolitan police are in

		<p>charge of traffic monitoring in the country. They collect, analyze traffic information in and around Tokyo. They have been able to manage traffic from the control center with the use of the installed road side detectors including the CCTV.</p> <p>Analyzed data gathered from the roadside vehicle detectors are then distributed via various media</p> <ul style="list-style-type: none"> ○ Traffic Information Board ○ Traffic Signals ○ Radio Broadcast ○ Telephone service information ○ JARTIC center <p>The control center gives priority to buses and other emergency vehicles (ambulance, fire fighter etc) by controlling the LED traffic light form the control center. The control center.</p> <p>Traffic information is collected by</p> <ul style="list-style-type: none"> ○ Roadside Traffic Detector ○ Emergency phone calls ○ Helicopters, patrol cars, police motorcycles ○ CCTV cameras
Fri	A M	<p>Traffic Flow Management</p> <p>This is a process in which flow of traffic is been managed. The traffic control center helps to solve traffic congestions by giving more green signal to lanes with heavy traffic and then regulates the other lane so as to balance traffic. We were taught that the head of the traffic congestion is called a Bottleneck.</p>

	P M	<p>Parking Lots Improvement Policy</p> <p>In Japan, there are on-road facilities provided for public use by specifying certain space for parking. There is also a ticket machine that allows parking for a short time.</p> <p>In Japan it is a law for every building to have a parking space to avoid people parking on the road.</p> <p>There is the off-road parking facility where by the operators report information on the size of the land and revenue generated to the provincial Governors. The people of Japan are encouraged to use the Mass Transit because of parking space.</p>
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Could you describe your comments on this week ?

The Japanese government have been able to use technology to develop the country. They are working effortlessly to make sure citizens of this country travel with ease. More grease JAPAN.

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Ms. Nneka Achi (Nigeria)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Sensor Technology for ITS	<p>Insight on different types of sensors and their functions. In Tokyo, vehicle detectors are found at intersections from ultrasonic detector to Microwave to CCTV cameras.</p> <p>Doppler effect is a microwave detector and can detect speed of a vehicle. ITV cameras are easy to maintain and measures traffic volume simultaneously for multiple lane.</p> <p>There is a flow of camera diaphragm control ranging from Video input which has both day and night judgment to vehicle detection, tail lamp detection and then the Vehicle tracking system. The auto exposure control detects vehicles at night via the tail lamp.</p> <p>The video sensor is termed best because of cost efficiency and maintenance.</p>
	PM	Visit to NEXO	<p>We had an overview of NEXO traffic control center.</p> <ul style="list-style-type: none"> ➤ The NEXO Traffic Control Department monitors traffic jam, traffic flow objects on roads etc. ➤ The Facility Control Department monitors fire alarm system, equipment operating status and facility failure. NEXO handles plays an important role in traffic disaster and they handle 260 events per day. ➤ The control center is designed in a

		Visit to NIPPON SIGNALS	<p>way that enables the control center staff monitor events with ease. They have an elevated flow that allows members of staff to stare directly at the screen with causing fatigue. The floor is laid with rug to prevent distraction. Floor color defines each role.</p> <ul style="list-style-type: none"> ➤ NEXOS displays Information on road closure or accident occurrence and diversion of routes via display boards on the high way while same information is sent to JARTIC for broadcast. NEXOS monitors events on highways <p>Nippon signals are manufacture transportation signal systems. Through safety and reliability, they want to contribute to solve traffic issues in various countries.</p> <p>It is good to note that without traffic lights, congestions cannot be solved</p> <p>They supply traffic lights and other sensor monitors to other countries. They do a test-run on the traffic accessories before sending them out.</p> <p>We were taken to the factory, we were shown a video on what they do, how they have contributed in solving traffic congestions. We were shown some demonstration on how they receive alarm signals when there is violation in traffic rules especially with the rail. Installed equipments, sensors, LED traffic lights, UPS at the NIPPON center was shown to us.</p> <p>A demonstration was made on how the UPS takes over when there is power outage. Excellent.</p>
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Tue	AM	Institute Of Traffic Accident and Data Analysis (ITARDA)	<p>ITARDA is known to carry out research and analysis on traffic accidents. Data gathered by other agencies and road users are collated to manage accident database.</p> <p>ITARDA exchanges information with other research institute abroad. Their research work is to reduce the number of accidents and fatalities on either Vehicle, motorbikes, humans.</p> <p>Coordinated Research and Analysis on traffic accidents with medical engineering to contribute to vehicle safety. These analysis are therefore used for traffic safety education.</p>
	PM	<p><Please answer following Questions;></p> <p>Q1: Was this session useful to solve the traffic issues in your country?</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country?</p> <p>Q3: Do you want to continue to contact with them?</p>	<p>Toshiba Infrastructure Systems & Solutions Corporation</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p> <p>Sumitomo Electric Industries, Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p> <p>Nippon Signal Co., Ltd.</p> <p>Q1:Yes</p> <p>Q2: Installation of Traffic Signals</p> <p>Signal control system</p> <p>Auto fare collection system</p> <p>Q3:yes</p> <p>Tokyo Aircraft Instrument Co., Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p> <p>One for All Labs Co., Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p> <p>One for All Labs Co., Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p>

			<p>Nippon Electric Co., Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p> <p>Hitachi, Ltd.</p> <p>Q1:</p> <p>Q2:</p> <p>Q3:</p>
Wed	AM		Check out From JICA Tokyo
Wed	PM	<p><Please answer following Questions;></p> <p>Mitsubishi Heavy Industries:</p> <p>Q1: Was this session useful to solve the traffic issues in your country?</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country?</p> <p>Q3: Do you want to continue to contact with them?</p>	<p>Yes</p> <p>Electronic Toll payment</p> <p>Yes</p>
Thu	AM		Kyoto Morning Tour
	PM	Observation at Hanshin Expressway	<p>Hanshin have been able to construct different highways and suspended bridges putting the environment into consideration. Spaces are been utilized and authentic highways are been constructed.</p> <p>Feasibility countermeasures are carried out, relevant organizations are been coordinated, budget spending plan is been constructed, project license is been acquired from the national government before commencing construction.</p>

			<p>Hanshin conducts quality inspection and safety control during their work execution period.</p> <p>Periodical maintenance and inspection is been carried out on expressways ot make sure they are in good conditions.</p> <p>Hanshin was able to design and construct a bridge to pass through a building. Awesome</p>
Fri	AM		Checkout from Kyoto
	PM	<p><Please answer following Questions;></p> <p><u>Nagoya Electric Works:</u></p> <p>Q1: Was this session useful to solve the traffic issues in your country? Yes</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country? Projection of Traffic Condition in VMS</p> <p>Q3: Do you want to continue to contact with them? Yes</p>	

Could you describe your comments on this week ?

The week was a bit stressful. All the companies we visited are worth working with. They all take their time to produce excellent products and deliver world class services.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Mr. Niaz Ali (Pakistan)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	PM	Program Orientation/ Ms. Sasaki	Brief introduction of program indicating all activities helps in efficient time management.
	PM	Introduction of JICA's Cooperation on ITS	Learned about ITS deployment with short, medium- and long-term Plans, solution menu is helpful in deciding focus areas. Traffic signal control and traffic demand management (smart parking) are applicable ideas in big cities of Pakistan.
Tue	AM	<p>1.ITS Stakeholder in Japan</p> <p>2. Intelligent Transport Systems Overview</p>	<p>Learned about different stakeholder involved in ITS, coordination and collaboration of different Ministries having different role by governing law. Such model can adopt in my country in order to ensure successful deployment of ITS.</p> <p>Role of JARTIC in providing traffic congestion information is helpful to decide corrective measures. Also learned that standardization is important for the uniformity of system.</p> <p>Very Brief introduction of ITS application areas defined by US, European and Japanese Framework. It includes also assistance in public transport operations. At present ITS is being adopted in Bus Rapid Transit Projects in Pakistan.</p>
	PM	<p>3.ITS Planning and Important Consideration towards Implementation</p> <p>4. Introduction to ITS</p>	<p>Very Useful Information for the successful implementation of the Its projects that include problem identification, planning, phasing and feasibility. Institutional Arrangement is very important information provided in the lecture, many projects fails due to lack of clarity on institutions role, jurisdiction and capacity.</p> <p>Detail brief about detail of services in ITS, these</p>

			are very helpful to know the actual requirement/ needs before the procurement. Also helpful in System's sustainability in terms of maintenance and operational capacity.
Wed	AM	1. Country Report Presentation	It was useful to know the experience and challenges of other countries in the implementation of the ITS
Wed	PM	2. ITS Japan (including ITS world Congress Report) 3. Road Asset Management	Very informative to know the ITS related events/ platforms on which experts share new knowledge in the field. Brief about the use of technology in road maintenance and management. Japan's initiatives for the capacity building of developing countries and JICA scholarship opportunities.
Thu	AM	1. Vehicle Technologies in Intelligent Transport System	Detailed in information about the use of technologies, stages and challenges for the automated drive of vehicle which includes buses, shared and freight vehicles (truck platooning).
	PM	2. Recent Activities Toward Connected Car Society 3. ITS Efforts in Japan	Informed about the Japan's vision for the implementation of automated vehicles. Also shared planned/ expected use of 5G technologies for V2V and V2I. Informed about the Electronic Toll Collection (ETC) introduction and upgradation and use of road side infrastructure for highway bus location. Also informed about the challenges of traffic congestion and road safety and relevant corrective measures.
Fri	AM	1. Field Visit of JARTIC	Very informative project providing traffic congestion information and sustainable business model generating revenue by data sharing.

	PM	2. Wireless Communication System for ITS	Brief information about the wireless communication technologies and the bandwidth frequencies required for short, medium and long distance. Also gave insight about the limitations involved.
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Could you describe your comments on this week?

The course is very well designed, covering all the aspects that includes planning, implementation and type of technologies involved. The course covers use of ITS in private vehicle and the traffic management. Japan has very efficient public transport system, some insights about use of ITS in its operations may also be added in the course.

Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Mr. NIAZ ALI (Pakistan)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	National Planning and ITS	Described brief history of City Development and Theories of Urban Planning on which cities were developed keeping in consideration the development of public and private transport means as well economic and social aspects. Also briefed about new urban development approached that includes new urbanism, TOD and Smart Growth. In second session, use of ITS technologies in reducing congestion and CO2. In last, he defined impact of mobility on municipal business model.
	PM	Observation of VIC Center	Brief introduction of VICS function, its development and stakeholders involved in the current business operations of VICS. Moreover, he defined sustainability of business model and arrangement for the continuous provision of services to the last consumers in case of closure of some functions.
Tue	AM	Funding and Maintaining ITS	Defined the stakeholder responsible for the development and maintenance of ITS. And also informed about the types of funding sources by the Government and options of Public private partnerships. Moreover, defined the possibilities of Government support in terms of subsidy and viability gap funds, for the sustainability of the project. Lastly, informed about some case studies around the world and maintenance & Operation Issue.
	PM	Initiatives of the Ministry of Economy, Trade and Industry Related to Automated	Defined importance of automated driving, its levels and current developments in the industry. Also defined action plan and priority areas to achieve the goals of automated driving. Furthermore, defined aims to further clarify the business models, relevant legislations and social

			acceptance through demonstration of various projects.
Wed	AM	Introduction to Traffic Management Signal Control/ Highway Traffic Management	Briefed in detail signal control at different scales i.e. single, route and area. And also defined detailed structure and equipment used to install signals and sensors and also their connectivity, keeping in view utility considerations. Very informative lecture about different technologies and their functions, used in signals. It can be used to upgrade signal system in my country to control the traffic flow. Incident detection and case studies of traffic Management.
Wed	PM	Overview of Road Improvement, Management and Maintenance in Japan	Informed about the road types and their incremental development, Safety measures to reduce the fatalities and actions to reduce the traffic congestion. Furthermore, gave insight about disaster prevention, environmental measures and maintenance of road function and operations during emergency and traffic situation. Moreover, also informed about use of ITS for road management.
Thu	AM	Public Transportation and ITS ITS deployment by the Japanese Police	Briefed about the transportation modes of road surface, requirement of public transport operators and users, collection of probe data and their solutions such as priority lanes/signals and integrated platform for providing relevant information to the users. Informed about traffic accidents and Japan's initiatives to reduce the number of fatalities due to road accidents such as UTMS, TSPS and DSSS.
	PM	Observation of Traffic Control Center of Metropolitan Police Department	Defined very briefly about the functions of control center in normal conditions and in case of disaster. Also informed about the deployment of roadside infrastructure, data collection and its processing.

	PM	<p><Please answer following Questions;></p> <p>Q1: Was this session useful to solve the traffic issues in your country?</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country?</p> <p>Q3: Do you want to continue to contact with them?</p>	<p><u>Toshiba Infrastructure Systems & Solutions Corporation</u></p> <p>Q1: yes</p> <p>Q2: Real Time Traffic Information System and Traffic Control Center. And also, RSU toll collection systems.</p> <p>Q3: At present my organization does not deal with private traffic control or toll collection. But we intend to establish BRT control center, therefore I would like to contact them if they can provide their services.</p> <p><u>Sumitomo Electric Industries, Ltd.</u></p> <p>Q1: yes</p> <p>Q2: Road side traffic information devices and traffic control center.</p> <p>Q3: As said earlier, my organization does not deal with private traffic control. But we intend to establish BRT control center, therefore I would like to contact them if they can provide their services.</p> <p><u>Nippon Signal Co., Ltd.</u></p> <p>Q1: Yes</p> <p>Q2: Signals with route and area control and AFC system.</p> <p>Q3: For priority signaling and Automated Fare Collection, I would like to contact them.</p> <p><u>Tokyo Aircraft Instrument Co., Ltd.</u></p> <p>Q1: Yes</p> <p>Q2: Traffic Speed Control Devices</p> <p>Q3: At present my organization does not deal in toll collection, may be in future if changed my organization.</p> <p><u>One for All Labs Co., Ltd.</u></p> <p>Q1: Yes</p> <p>Q2: People Flow Analysis Program (PFLOW) is used for Travel Demand Survey Studies which are very necessary for public transport planning.</p> <p>Q3: I am very much impressed by the methodology and accuracy People Flow Analysis Program. I would like to contact them.</p>
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			<p><u>Nippon Electric Co., Ltd.</u></p> <p>Q1: Yes</p> <p>Q2: All of the products related to assist the operations of BRT System.</p> <p>Q3: Since I am working in Mass Transit Projects and their projects are perfect match with our needs. Therefore, would definitely would like to contact them.</p> <p><u>Hitachi, Ltd.</u></p> <p>Q1: Yes</p> <p>Q2: Heavy Vehicle Control System</p> <p>Q3: At present my organization does not deal in heavy traffic vehicle control, may be in future if changed my organization.</p>
Wed	AM	Experience of Shinkansen	Had good experience, travelling by Bullet Train (Shinkansen).
Wed	PM	<p><Please answer following Questions;></p> <p><u>Mitsubishi Heavy Industries:</u></p> <p>Q1: Was this session useful to solve the traffic issues in your country?</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country?</p> <p>Q3: Do you want to continue to contact with them?</p>	<p>Yes</p> <p>Electronic Toll Collection System and travel demand survey through mobile network.</p> <p>At present my organization does not deal in toll collection, may be in future if changed my organization.</p>
Thu	AM	Kyoto Morning Tour	Interesting tour of historical places of Kyoto. It was very informative tour about the Nijo-jo castle, Kinkakuji Temple and Imperial Palace. It was also very refreshing.

	PM	Observation: Hanshin Expressway (HEX)	Very informative and impressing to know the creative solution of HEX to deal with traffic congestion on slopes through Blink Lights and innovative construction techniques to build expressway through building and over the private land, due to lack of space.
Fri	AM	Observation: Nagoya Castle	Very interesting and informative tour about the history of Japan's ruling class living style.
	PM	<p><Please answer following Questions;> <u>Nagoya Electric Works:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Yes</p> <p>Electronic Potable and Fixed Road Signs and Information Boards to provide traffic information to ensure the safety and traffic flow of traffic.</p> <p>At present my organization does not deal in installation of road signs and information boards, may be in future if changed my organization</p>

Could you describe your comments on this week?

I learned very important information from the Nagoya Electric Work's Presenter that training/ SOPs about the usage of equipment is necessary for its efficient operations. Therefore, I would suggest that presentation from the organizations which involve in the operations, should include an overview of challenges during operations and SOPs of the corrective measures.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Ms. Rachel M. Birung (Philippines)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	<i>Program Orientation</i> (Ms. Junko Sasaki)	<ul style="list-style-type: none"> This really helps to introduce the program, what should we expect and what output is expected of us.
	PM	<i>Introduction of JICA's cooperation on ITS</i> (Mr. Kanyama Yohei)	<ul style="list-style-type: none"> I really appreciate JICA and the Government of Japan for helping and supporting different countries like the Philippines. For providing our country the technical support, the grant aid and the financial support that we needed really helps us to mitigate our problems slowly.
Tue	AM	<p><i>ITS Stakeholders in Japan</i> (Assoc. Prof. Kanoshima Hideyuki)</p> <p><i>Intelligent Transport Systems Overview</i> (Assoc. Prof. Shunsuke Kamijo)</p>	<ul style="list-style-type: none"> Stakeholders play an important role in the success and implementation of any project. Stakeholders should work together and inform the others about their projects. In our case, we have a little problem about coordination with the maintenance of roads and drainages because it mostly affects our loop detectors and it takes time to restore each detector and it affects the data collection on that intersection. So proper coordination beforehand is needed. Based on the study for the development of ITS in Metro Manila, beyond the ITS Architecture for the MMDA, a National ITS Architecture is envisioned to serve as a basis or model for future ITS projects in the Philippines. Such will

			provide a common framework for planning, defining and integrating ITS.
	PM	<p><i>Introduction to ITS</i> (Prof. Ozaki Haruo)</p> <p><i>ITS Planning and Important Considerations toward Implementation</i> (Mr. Hiroya Totani)</p>	<ul style="list-style-type: none"> Our Unit Service Plan for Metro Manila ITS is Traffic Management, Public Transportation, Traffic Information Distribution, and Disaster Risk Monitoring/Crime Prevention. It is very important to have a better understanding of any problems before deciding on something and how to implement it after. The ITS Master Plan for Metro Manila was done by checking the background of the city; its geography, demography and others. Then identifying the transportation issues in Metro Manila. Then establishing its objectives, policy direction and ITS goals. And lastly is to select ITS Applications that will help Metro Manila's traffic condition.
Wed	AM	<i>Country Report</i>	<ul style="list-style-type: none"> Every county has their own problems regarding their ITS system and we are learning on each others methods in introducing ITS and the possible mitigation process to eliminate such problems in the future.
Wed	PM	<i>ITS World Congress and ITS Japan / ITS Asia-Pacific</i> (Mr. Takehiko Barada)	<ul style="list-style-type: none"> ITS world Congress is a conference to promote ITS technologies and to exchange solutions to ITS problems in the future. And it is also a place to showcase new technology regarding ITS. So it is great event to properly address ITS problems and its solutions

		<i>JICA's Development Initiative for Road Asset Management</i> (Mr. Kanenawa)	<p>and to have a good relation with other participating countries.</p> <ul style="list-style-type: none"> This JICA's initiative is really needed by the Philippines in the future especially that our country has many road infrastructures at the moment for the Build Build Build Project of President Duterte's Administration. This is to ensure that our road infrastructures can be used for longer time.
Thu	AM	<i>Vehicle Technologies in Intelligent Transport System</i> (Assoc. Prof. Kimihiko Nakano)	<ul style="list-style-type: none"> Automated vehicles available at the moment are a big help for drivers to secure their safety but they cannot fully rely on this technology, they should be responsible enough because it is only an aide for safety. But maybe we can apply the Adaptive Cruise Control in all our vehicles in the Philippines because our drivers usually drive closely with each other that caused collisions.
	PM	<i>Ministry of Internal Affairs and Communications (MIC) - Frequencies</i> (Mr. Koji Hara)	<ul style="list-style-type: none"> We have learned about the frequencies that Japan is using to disseminate traffic information and it is updated every 5 minutes which is very fast. Actually, MMDA develop its own traffic navigator application but it is not functioning at the moment according to users. And now that the Globe Telecom Inc launched Southeast Asia's first 5G broadband services, with embattled Huawei Technologies Co Ltd providing the equipment last June 20, 2019, maybe we can use this to fix the application and update traffic information fast.

		<p><i>Ministry of Land, Infrastructure, Transport and Tourism (MLIT) – Measures to Alleviate Traffic Congestion using ICT (Mr. Mawatari)</i></p>	<ul style="list-style-type: none"> I have learned about the ETC in Japan and the unified collection in all the expressways. In our country, we are using the RFID technology in some cars that is being installed in the car's windshield. That RFID is only used in a certain expressway and cannot be used in other expressway. And mostly of the cars is paying cash so there is congestion in the toll gates especially during holidays. So maybe we can use Japan's ETC technology to unify our collections.
Fri	AM	<p><i>Japan Road Traffic Information Center (JARTIC)</i></p>	<ul style="list-style-type: none"> JARTIC System is very nice because there is a centralized organization to gather data around Japan and disseminate this information to public. This centralized dissemination of information also avoids confusion because it is verified by one organization. Philippines should also organize a system like this to proper disseminate information especially on disaster concerns.
	PM	<p><i>Wireless Communication System for ITS (Prof. Makoto Itami)</i></p>	<ul style="list-style-type: none"> Standardization of any technology is very important because you can easily integrate new technology on the existing system and suppliers can easily give you new technology that matches your preferred specifications and standards. Like in our case, we have a different supplier for our pilot project of upgrading our traffic signal facilities with that of our succeeding projects so proper integration is a must.

Could you describe your comments on this week ?

My comments this week is not too detailed maybe because some of the topics is not in line with my present work but I have learned so much and maybe I can recommend this applications to concern agencies back in our country.

Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Ms. Rachel M. Birung (Philippines)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	<i>National Land Planning and ITS</i> (Dr. Hiroshi Makino)	<ul style="list-style-type: none"> The different concepts in developing a city is needed to carefully plan the looks, the amenities needed, and the building of road infrastructures and establishments. It also needed to have a long-term goal plan to properly predict the situations in the future. Because in the case of EDSA, which is Metro Manila's most congested road, I think they don't consider its future use and the government can no longer make the roads wider or expand it because of the many big establishments on both sides of the road. So this lecture really helps to develop a good city and to have a better ITS applications.
	PM	<i>VICS (Vehicle Information and Communication System) Center</i>	<ul style="list-style-type: none"> Car navigation system using VICS helps the driver to avoid traffic congestion and to have accurate road traffic and safety information. And I think that this system helps the driver to reduce his stress and reducing the stress means a small probability to have accidents on road. The system also helps the driver for having a convenient driving experience that also reduces traffic accidents.

Tue	AM	<i>Funding and Maintaning ITS</i> (Mr. Shuntaro Kawahara)	<ul style="list-style-type: none"> Operating and maintaining ITS facilities and equipments is really hard because it requires a huge amount of money to replace damages and upgrade its software applications. Our organization's budget is approved by the Senate Committee. This budget is use to fund projects like our signalization of new warranted intersections and including the maintenance of our existing traffic signal facilities and it is also used for operations of other offices. The budget of the organization for the next year depends on the successful rate of the projects being implemented and the performance of the organization. So our organization really needs to perform well to have a better budget for the operation and maintenance of our ITS facilities.
	PM	<i>Initiatives of the Ministry of Economy, Trade and Industry (METI) Related to Automated Driving</i> (Mr. Nakano)	<ul style="list-style-type: none"> Autonomous driving provides the motorists a convenience and ease of driving. This also helps to address traffic congestion because it reduces traffic accidents that caused by human error. So autonomous driving is for safer and smoother traffic and helps to lessen pollution.
Wed	AM	<i>Overview of Road Improvement, Management and Maintenance in Japan</i> (Assoc. Prof. Kanoshima Hideyuki)	<ul style="list-style-type: none"> Road improvement by increasing its capacity is not possible for our other major thoroughfares because of the presence of many big establishments on both sides of the road which is difficult to eliminate. Dedicated line for buses is also difficult to implement

			<p>because of this situations. Improvement of road landscape by undergrounding of electrical cables is also not applicable for us especially for streetlights because the wires are vandalized and stolen. Constant repair of road facilities also damages our traffic signal facilities especially the loop detectors. So, proper planning and proper construction of road infrastructure is a must to avoid the above situations and to also avoid the disaster related destructions.</p>
Wed	PM	<p><i>Signal Control / Highway Traffic Management</i> (Assoc. Prof. Shunsuke Kamijo)</p> <p><i>Introduction of Traffic Management</i> (Mr. Mabuchi)</p>	<ul style="list-style-type: none"> • Traffic signal control is very important tool in roadways to help maintain the smooth traffic flow and to reduce the intensity of accidents and collisions in the intersections. And providing the intersection with a good traffic control and proper equipments like sensors secures the safety and convenience of road users. • Traffic management is necessary to ensure the safety of pedestrians and motorist. And this is only achieve when the intersections have a proper equipments installed, road structures are good, traffic signage is properly installed, pavement lane markings are visible and having a reliable traffic control centers.
Thu	AM	<p><i>Public Transportation and ITS</i> (Mr. Koichi Sakai)</p>	<ul style="list-style-type: none"> • Public transportation is of one the means of eliminating traffic congestion. But the country should have a good public transport to make this happen. In case of our country, we have existing

			<p>public transport like light railway transit and we also have buses, jeepneys and taxis but our roads mostly composed of private own vehicles because our public transport is not that efficient. We also don't have a bus priority system on our major thoroughfares because of the problems in road infrastructure. But we have a Bus Management Dispatch System to manage and monitor the buses going in and out of the metropolitan area. Our light railway transit also breakdown frequently on the past years so proper maintenance and operation is needed.</p>
		<p><i>ITS Deployment by the Japanese Police</i> (Mr. Nakaba Izumoto)</p>	<ul style="list-style-type: none"> • One of the many good functions of ITS is securing the safety of the road users and safety always comes first. These applications lessen the traffic accidents happening in the country. Making use of the Universal Traffic Management Systems improves traffic safety and provides smooth traffic flow. In our case, using ITS tools that the Japanese Police deployed helps us to augment the lack of traffic enforcer in the field.
	PM	<p><i>Traffic Control Center of Metropolitan Police Department</i></p>	<ul style="list-style-type: none"> • Traffic control centers is really needed in traffic management because it collects and analyze necessary data for alleviating traffic congestion, it supplies important information to road users for a convenient and safe driving, it can adjust timing parameters to optimize traffic signal for smooth traffic flow and it especially alarms roads users when there is a disaster happening. So traffic signal centers have to be reliable and efficient at all times.

Fri	AM	<p><i>Traffic Flow Fundamentals / Traffic Congestion Analysis & Advanced Management</i> (Prof. Takashi Oguchi)</p>	<ul style="list-style-type: none"> The lecture helps us to analyze traffic congestion and to identify its cause. It helps us for the improvement of road infrastructure geometric design and to know the types of roads that should be build in the future. It also helps us to have better management strategies on road situations. I believe that traffic signal facilities and its equipments are really needed to gather probe datas to analyze the situations on the roads. And signalized intersections should be synchronized well to avoid congestion and to improve traffic flow or else traffic signal functions is not maximized.
	PM	<p><i>Parking Lots Improvement Policy</i> (Prof. Hideo Nakamura)</p>	<ul style="list-style-type: none"> One of the contributors of traffic congestion in the Philippines is illegal parking. This is cause by limited parking space at commercial establishments and private vehicle owners do not have their own parking space. There is also a high volume of vehicle registration in our country and the government should implement its policies strictly or maybe amend their policies that individual cannot buy a vehicle if they don't have a parking space. So this lecture is a big help for our government to have a good policy on providing enough parking lots for the convenience of its people.

Could you describe your comments on this week ?

I have learned a lot this week so I have shared some scenarios back in our country and the useful information that I gathered specially on traffic signal controls and the ITS applications that we can use to upgrade our existing traffic signal facilities and traffic control center to maximized its functions.

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Ms. Rachel M. Birung (Philippines)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	<i>Sensor Technologies for ITS (Assoc. Prof. Shunsuke Kamijo)</i>	<ul style="list-style-type: none"> Traffic sensors are really needed for traffic signal to operate well and to gather information and data on roads. At the moment, we are only using vehicle loop detectors and CCTV cameras. I mentioned in the last feedback sheets that loop detectors are difficult to maintain because of road maintenance projects and asphalt overlays. So this lecture helps me to choose other sensors that we can use to upgrade our system and to get reliable data on roads. We also like to upgrade our CCTV cameras to augment the lack of traffic enforcer in the field.
	PM	<i>Overview of Traffic Control Center (NEXCO)</i>	<ul style="list-style-type: none"> I don't know how the expressways companies in the Philippines are working. I am not also aware if there is a control center for expressways in our country. All I know is that building road infrastructure like expressways requires a big funding and they also paid it like NEXCO is doing by paying the initial cost by their toll collections. I really appreciate the design of the control center of NEXCO because they consider the comfortability and convenience of their staff which is really good for them to perform properly and perform at their best.

		<i>Nippon Signal ITS Seminar</i>	<ul style="list-style-type: none"> A company that has a lot of experienced in the field of traffic signals is really a help for developing countries to collaborate with because they know what should be done to mitigate different traffic problems. Nippon Signal provides safety and reliability that means they always prioritize the safety of the road users and this will only be achieve by also providing a reliable traffic signal facilities and different ITS technologies. And to make the system reliable, synchronization and adjustments of timing is a must to reduce congestion.
Tue	AM	<i>Institute for Traffic Accident Research and Data Analysis (ITARDA) (Mr. Makoto Nakanishi & Mr. Yoshihiko Kinoshita)</i>	<ul style="list-style-type: none"> We also have a same system in our country but I think not as well organize like ITARDA. This is the process of our system: The Metro Manila Accident Reporting and Analysis System (MMARAS) begun on 2005. This program was created and managed by the Road Safety Unit (RSU) of the MMDA-Traffic Discipline Office-Traffic Engineering Center (MMDA-TDO-TEC) in cooperation and assistance of the Police Traffic Investigation Department of the Philippine National Police (PNP). The objective is to compile and maintain a database of accidents classified into Fatal, Non-Fatal Injury and Damage to Property road crashes, which also indicates the areas where safety improvements need to be made. The system will also allow the impact of improvement measures that needs to be monitored.

			<p>This report is intended to provide brief information on road crashes that have been recorded by the MMDA-Road Safety Unit thru the Police Blotter of the PNP. The information is presented in tabular form, which provides a readily identifiable pattern of road crash locations of vehicles involved, type of collision, causation patterns and other important details of the incident.</p> <p>The TEC - Road Safety Unit currently has eight (8) data researchers who gather road crash data from various Police Traffic Precincts and stations of the PNP within Metro Manila. The compiled data helps us to see the increasing- occurrences of road crashes, realize significance and the real picture of what is really happening in roads of the Metropolis. It also gives additional information in analyzing the causes of road crash for the formulation of remedial measures that would be introduced on the identified areas called "Blackspot".</p> <p>The assistance and cooperation of the Police Traffic Investigators will be necessary to maintain an accurate record of facts surrounding every road crash within Metro Manila, since a truly significant accident picture will only develop over time. The work of the TEC- Road Safety Unit is crucial in providing appropriate directional trust in the fight to make the roads of Metro Manila a safer place for everyone.</p> <p><i>From TEC-Road Safety Unit MMARAS Annual Report 2018</i></p>
PM		<p><Please answer following Questions;> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact</p>	<p><u>Toshiba Infrastructure Systems & Solutions Corporation</u> Q1: Their system may help us to have a systematic management of transportation and traffic demand. Q2: Sensing Technology and Advanced Traffic Management System.</p>

	with them?	<p>Q3: <u>Sumitomo Electric Industries, Ltd.</u> Q1: it is useful because we would like to promote and create safe and pleasurable road and traffic environment. Q2: AMIS, PTPS, FAST and DSSS Q3: <u>Nippon Signal Co., Ltd.</u> Q1: it is useful for us to provide real time traffic information. Q2: Emergency power supply and detectors Q3: <u>Tokyo Aircraft Instrument Co., Ltd.</u> Q1: The session is useful for our organization to augment the lack of traffic enforcers in the field. Q2: Speed camera. Q3: <u>One for All Labs Co., Ltd.</u> Q1: This is useful on putting up commercial establishments because they can grasp the flow of people to properly decide where to build their business. I think it can also be used to predict traffic generation for businessman to make mitigation plan for traffic congestions in the future. Q2: PFLOW Q3: Maybe. I think we have this kind of system in our country but not as good as their system. <u>Nippon Electric Co., Ltd.</u> Q1: It is useful to improve our public transportation especially buses. Q2: Transportation Card System. Q3: <u>Hitachi, Ltd.</u> Q1: I think it is useful to provide reliable traffic services. Q2: Vehicle route management and vehicle violation detection. Q3: Note: Answer for Q3 <ul style="list-style-type: none"> • Maybe we can contact them for the </p>
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			specifications and price quotations. The problem is that we are not allowed to put any products name/brand in the estimates, bid quotations and bid documents, we only just hope that Japanese companies will join in our bidding process.
Wed	AM		
Wed	PM	<p><Please answer following Questions;> <u>Mitsubishi Heavy Industries:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Q1: The session is useful because we can use their technology to improve and to unify our toll collections specially that some road users are using RFID technology right now. Q2: RFID Technology and ANPR System (Automatic Number Plate Recognition) Q3: Same answer as others.</p>
Thu	AM		
	PM	<p><i>Traffic Control in Hanshin Expressway (Dr. Tamagawa)</i></p>	<ul style="list-style-type: none"> As I mention, I don't know how the expressway companies works but Hanshin dedication to enhance their technologies to improve their services is really nice and good. And you really need passion for a motivation to develop something for the betterment of the system. This enhancement is needed to provide better services for the convenience of the road users and to improve traffic management.

Fri	AM		
	PM	<p><Please answer following Questions;> <u>Nagoya Electric Works:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Q1: It is useful because our organization is planning to have an additional VMS in other major thoroughfares of Metro Manila to provide real-time information and to have a mobile VMS for safety purposes especially on our maintenance activities. Q2: VMS System and Mobile VMS Q3: Same answer as others.</p>

Could you describe your comments on this week ?

I honestly think that companies introducing their products and technologies to us are helpful because we can choose and have a proper judgment of the best technology that we can use to improve our traffic management and transportation services to provide real time information for the safety and convenience of road users and for pleasurable traffic environment.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Ms. Sruangsaeng Chaikasetsin (Thailand)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon 24	AM	Briefing Session	This session is about the information how to stay at JICA Tokyo center, the meal card, the cash card, and so on.
	PM	Program Orientation for Practical Technology on Intelligent Transport Systems (ITS)	This session is to give the briefly explanation about this training. Firstly, it is introduced the lecturer, the consultant team, the JICA coordinator and Program officer. Then, this is about the program objective and the expected output. Also, the schedule of the country report presentation and the final report presentation are described. The field trip the evaluation meeting is explained. Lastly, the explanation is about the active learning.
		Lecture Introduction of JICA's Cooperation on ITS	This lecture is briefly explained about the JICA and how JICA supports the ITS introduction in the developing countries such as, Vietnam, Philippines, and so on. Also, the examples of the cooperation ITS projects between JICA and Japanese company are introduced. For example, the Traffic Control System for Expressway in Hanoi, the Traffic information provision in India, the Traffic Demand Management (smart parking) in Istanbul
Tue 25	AM	Lecture ITS Stakeholders in Japan	There are many organizations that is related to the ITS in Japan, which can be categorized into the government, the industry and the academia organization. The relevant ministries are Cabinet Office, METI, NLIT, NPA, and MIC. For the industrial organizations are ITS Japan, JARTIC, VICS, DRM, ETC and ITS-TEA. Lastly, there are many related field of academia, such as the mechanical engineering, the electrical engineering, the urban planning, and so on. In addition, the other important agency is the

			international standardization that is ISO and the japan standardization.
		Lecture ITS Overview	This lecture is briefly explained about the ITS development in Japan, ETC and VICS, the traffic management. In the traffic management, the big data is became the important role. Moreover, the overview about the types of sensor, the specification of sensor in Japan are also described. The information that can be provide from the data is the trip reduction choices, mode choices, departure-time choices, route choices, and efficient use of car. In addition, this lecture is also explained about the ITS communication in Japan.
	PM	Lecture Introduction to ITS	This session is mainly focused on the standard for the ITS system. ISO 14813-1 is the international standard for the ITS system, which is consisted of 13 service domains. The other is the US Architecture reference for Cooperative and Intelligent Transportation, EU FRAME Architecture and Japan National ITS Architecture. The important considerations to standardize for each country ITS system are the identification of road transport problem and the specification service of ITS

		Lecture ITS Planning and Importance Considerations toward Implementation	The ITS master plan is very important first step to develop the successful ITS system, which is preliminary survey, ITS master plan, and project implementation, in order. In the preliminary survey, it is to review the current condition and identify the issues. And, to set the ITS master plan by specify the objective and set the component with the phasing process that will be included the institutional arrangement, cost estimation and cost analysis. This lecture is also explained about the important lessons that they have leant, such as, the incoordination between civil and ITS works, level for specify requirement, the jurisdictional issues, the clarifying demarcation of the related organization, and the initiatives and capability of the employer.
Wed 26	AM	Country Report Presentation	This session is about the presentation of all participates for this training to briefly explain about the ITS situation in their country. My finding is the ITS technology will be the tool that will help each country to solve their issues. Most issues are about the lack of the stable communication and also how to use the new technology with the existing technology.
	PM	Lecture ITS World Congress and ITS Japan/ ITS Asia-Pacific	This lecture is introduced about the ITS organizations, which is consisted of ITS America, ERTICO-ITS Europe, ITS Asia-Pacific and ITS-Japan. Also, this is introduced IT World Congress, which is the world conference for ITS organization all around the world. This conference is hold annually by different theme and different country in each year. For the near schedule,2019, it will be arranged at Singapore with "Smart Mobility, Empowering Cities" theme.
		Lecture Road Asset Management	In Japan, the road asset management is also the important field that need to be considered. Especially, the road infrastructure, the reason is the small area of the country. In order to consider the road asset management, the life

			cycle of the road infrastructure is very important. From the construction, maintenance until the reconstruction, this is what we need to focus. This is leaded to the Cross-ministerial Strategic Innovation Promotion Program (SIP), which is to use the research to answer the issue, for example, the Advanced Technologies for Maintenance and Management (Flying Robot for bridge/tunnel inspection, Digital Image analysis for evaluation cracks on slabs, Warning monitoring system for slope failure, "Excel patch"). This program is operated in many countries, such as Bangladesh, Bhutan, Kenya and so on.
Thu 27	AM	Lecture Vehicle Technologies in Intelligent Transport System	This is mainly focused on the automated vehicle development. The level of driving automation system is from 0 to 5, more advanced, respectively. That can be defined by these terminologies, which are the Operational Design Domain (ODD), the Fallback, the Object and Event Detection and Response (OEDR) and the motion control. Now, it is the level 2 on the market, which can use in the adaptive cruise control and the lane keep assist. The development of the automated vehicle is gradually study to level 5, such as the google car and the Tesla. However, there are still some problem about the safety and the human factor that caused the accident for the automated driving. Moreover, the use of the personal driving, it is also useful for the logistic that is the truck platooning. So, this concept is also used for the public transport, which is the automated bus, due to the lack of the driver.
	PM	Lecture Our Recent Activities toward Connected Car Society	The communication system is the one of the important parts to use the ITS system. In Japan, it is mostly used 5.8 GHz (DSRC) for ETC and 700 MHz (DSRC) ITS connect for V2I, Ambulance2V, and CACC. Now, the automated driving is become more advanced that is nearly to use in the real life. So, they set up the Field

			Operational Test to test and get the information to develop this automated driving, so that it can be used in real life with the safety drive and maybe better than the human drives. And, the FOT at Tokyo Waterfront City area is about to stimulate the situation which the non-automated and automated drive together. Also, this lecture is explained about the 5G that can be used to better communication, for example, the truck platooning. Lastly, it is about the advancement of current wireless systems, V2I, V2V, and V2X. The main point to use ITS is to set the strategy roadmap to deal with the current system and the new system.
		Lecture ITS Efforts in Japan	This lecture is about the role of the government agency to the ITS development in Japan. ITS development in Japan is started from the car navigation, VICS, ETC, ITS spot, and now, ETC 2.0. The important part is the ETC system, which is consisted of the roadside infrastructure and on-board unit in the vehicle. So that, the data can collect from the vehicle and, the roadside infrastructure can also send the information to the vehicle. This data can be used to solve the congestion, safety, toll, logistic, and public transport.
Fri 28	AM	Observation JARTIC	In the beginning, there is the explanation of the overview of JARTIC, which is the public interest corporation to collect and share the traffic road information in Japan. In the data collection process, it is from automatic and manual data. The manual data is from the police and the road administrator, which JARTIC's staff will manual collect it. And, VICS information is automatically send to the server and share to JARTIC. For the information provision, JARTIC share the traffic road information in many medias. On-phone response is the way to give the information for the person that want the detail information by calling JARTIC. Also, the broadcasting is the way to share information,

			which are TV and radio broadcast. Moreover, the internet website is also one of the medias that JARTIC used, which are "Traffic Information Now!!" and "Disaster-Web". Lastly, JARTIC also provided the traffic road information for private businesses, for example, Car manufacturer, Mobile phone, and so on. From the observation of JARTIC office, the other part that is very important, it is the computer room that is the data server and convert the graphic data to text data, so it is ready to use.
	PM	Lecture Wireless Communication Systems for ITS	This lecture is about the wireless communication system for ITS in Japan, which is mainly focused on the road-vehicle communication and the inter-vehicle communication. My findings after learning this lecture is about how to develop the wireless communication in order to send or receive the information to vehicle. In Japan, they are dedicated some frequency for ITS only, so that they can use it to the best performance. And, the other point that is very important, it is about to set standard for this communication from the exist system until the addition system, so that they can be used compatible with each other.

Could you describe your comments on this week ?

This week is very interesting content to learn, which will be the background for me to understand the basic of the ITS, and, how to stay in JICA Tokyo for 27 days.

Feedback Sheet

Period: Jul.1 -Jul.5

Date of Submission: Morning on Jul.8

Name: Ms. Sruangsaeng Chaikasetin (Thailand)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon 1	AM	Lecture National Land Planning and ITS 1	This lecture is explained about the history of innovation in National Land in brief. Then, this is about the transportation has changed the world after the world war II. After that, the sustainable community and smart growth are introduced as the land planning.
		Lecture National Land Planning and ITS 2	This lecture is to understand about the ITS with the land planning. It is explained about the overview of ITS. Also, the lesson learned from the research and development in Japan and the smart use of road concept are explained. In addition, the ITS platform and the ITS solution are also learnt. The solutions are to solve the accident, the congestion, and the heavy vehicle. Mostly of the project are done by the public private partnership.
	PM	Observation VISC center	This session is the site-visit of the Vehicle Information and Communication System center. The VICS center is part of the plan for ITS system in Japan. VICS is the source of the car navigation. The mechanisms of VICS is consisted of to collect information, process and edit information, provide information and utilize information. There are three media that VICS is used, which are the FM broadcasting, the radio wave beacon, and the infrared beacon. In addition, VICS is used the text, the simple graphic and the map to display information. Currently, the ETC 2.0 is introduced, so VICS can provide more advanced information that is for congestion evasion support and the safe driving assistance. Moreover, the VICS wide is developed to provide more service, such as the route search, the detail traffic information, the weather condition and so on.

Tue 2	AM	Lecture Funding and Maintaining ITS	This lecture is about the briefly information about the funding for the ITS development and maintenance. It is consisted of the category of funding source, the cases of funding source for road improvement, the innovative fund raise mechanisms, and the maintenance and operation issues.
	PM	Lecture Initiatives of the Ministry of Economy, Trade and industry related to Automated Driving	This lecture is about the effect of the automated driving development in Japan. It is explained about the overview of the automated driving system. Also, the plan for each country to deal with this technology is introduced. To use the automated driving, the importation part is to get the social acceptability. This is about the effort of MET to the society, which is came up with many field experiments to initial the automated driving in Japan.
Wed 3	AM	Lecture Overview of Road Improvement, Management and Maintenance in Japan	This lecture is about the overview of road development, road management and maintenance, and ITS supports road management in Japan. The hierarchical road classification and the road development are explained. Then, the improvement of road function is explained, which is consisted of the traffic safety measures, the countermeasure against traffic congestion, the disaster prevention, the environmental measures, and the improvement of road landscape. Lastly, the ITS supports road management in Japan is explained about the ITS facilities of roadside and the ITS service applies to road management.
		Lecture Signal Control and Highway traffic management And Introduction of Traffic Management	This lecture is beginning with the basic knowledge of the signal control, which are the algorithms and the sensors. The parameter for signal control is explained. Also, the concept of the SCATS, SCOOT, MODERATO is learnt. In addition, this lecture is also described about the balancing solution for the pedestrians and the

			vehicles. After that, the highway traffic management is explained. This is about the incident detection system and the shockwave detection. The active traffic management in UK and I2V cooperation systems for the safety application are also learnt.
	PM	Group Work 1	This session is to brainstorm about the final report presentation with the Japanese expertise. This is to share the current situation, the problem, what we have learnt, and how to use this knowledge to solve our country's problem. So that, the idea about the final report will be generated.
Thu 4	AM	Lecture Public Transportation and ITS	The public transportation and the ITS that used in the public transportation of Japan is explained. It is mainly focused on the solution for the bus operators and the bus users. For the operators, the systems that used are the bus priority system, the bus operation management system and to supervise the bus driver. And, the bus location system and the journal planner are used for the bus users. Also, the standard of the bus information format in Japan and the Mobility-as-a-service are explained.
		Lecture ITS Deployment by the Japanese Police	The ITS deployment by the National Police Agency is described. The policy to reduce the traffic accident is explained that to introduce the ITS technology to solve the traffic accident. The universal traffic management system is used. The data collecting is from the infrared beacons, which is the two-way communication. Currently, NPA is also used the probe data in the system. Also, the recently UTMS are introduced that are the traffic signal prediction systems and the driving safety support systems. The DSS is also the system that is used the autonomous driving as the part of the system.
	PM	Observation Traffic Control Center of Metropolitan	This is the site-visit of the traffic control center of MPD. There are three main parts in the

		Police Department	operation of this traffic control center, which are the collecting information, the processing information and the distributing information and the controlling signals. Also, the universal traffic management systems are used, which are the public transportation priority systems, the advanced mobiles information systems, the fast emergency vehicle preemption systems, the traffic signal prediction systems, and the driving safety support systems.
		Lecture Traffic flow fundamentals	This is about the traffic flow fundamental. The traffic congestion, capacity and the bottleneck were learnt. The time-space diagram and basic variables were explained. After that, the traffic state variables and the fundamental diagram were learnt. Lastly, this lecture is explained about the cause and the example of the traffic congestion.
Fri 5	AM	Lecture Traffic congestion analysis & advanced management	This lecture is continuous from the previous lecture about the fundamental of the traffic engineering and the applications of it. The shock wave, the congestion analysis, and the nature of the congestion phenomena is explained. Then, the theory about the signal control is learnt. It is consisted of the type of signal control and the design of the signal phrase. Finally, the application of this fundamentals is explained, which are the advanced traffic management, the dynamic traveler information system, the electric toll collection and the advanced public transportation system.
		Lecture Parking Lots Improvement Policy	Policy about the parking lots was learnt. It can be divided into two periods, before 2000 and after 2000. Due the traffic congestion in 1960's, it is not only the problem about the increasing of car, it is also about the lack of the parking lots. So, the parking act (1957) and the road traffic act (1960) were established. The main idea is about to regulate the parking lots area.

			<p>However, the other problem was beginning, that was about the development of the roadside shopping area and the shopping center in the suburban area. Therefore, the new countermeasures were added in 1991 to regulate the parking lots area for the developer. For the policy after 2000, it was about too much the parking lots, but the people did not use because of the fare of the legal parking lots, but they used the illegal parking lots instead. Also, the development of another support system are the navigation system to find the parking lots. So, it is better to include the parking lots design to urban planning.</p>
	PM	<p>Observation On-board ITS system and VICS display experience</p>	<p>This observation is about to have the experience on the on-board ITS system and the VICS display of the car navigation by seating in the car and driving around JICA Tokyo. This was about 20 minutes with the three locations of the optical beacons along the road. Also, the experience about the VICS display on the car navigation was learnt.</p>

Could you describe your comments on this week ?

This week is very interesting content to learn, which will be the background for me to understand the basic of the ITS, and, how to stay in JICA Tokyo for 27 days.

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Ms.Sruangsaeng Chaikasetsin (Thailand)

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon 8	AM	<p>Lecture Sensor Technologies for ITS</p>	<p>This lecture is about the overview of the sensor that is used in ITS system, for example, Ultrasonic detector, Microwave detector, Optical beacon, Camera, and so on. These detectors are mostly used the electromagnetic spectrum. So, the fundamental function of the detector is explained, radar and image sensor, and also the probe data from the smart phone.</p>
	PM	<p>Observation Kanto Branch Traffic Control Center (NEXCO East)</p>	<p>This session is about the observation of Traffic Control Center of NEXCO East at the Kanto branch. NEXCO East is one of the expressway company in Japan, which covers in Kanto area and Nagano. This traffic control center is consisted of two departments, which are traffic control department and the facility control department. This traffic control center is newly established which is operated in 24 hrs. a day in 365 days a year.</p>
		<p>Observation Nippon Signal</p>	<p>This session is about the site-visiting of the Nippon Signal company. The main business field is the railway signal system, the traffic signal control and the smart mobility system. Their experience is in many countries, such as Uganda, Vietnam, and so on. Also, it is briefly explained about the traffic signal control. Lastly, the overview of the Nippon Signal business is shown.</p>
Tue	AM	<p>Lecture Institute for Traffic Accident Research and Data Analysis (ITARDA)</p>	<p>ITARDA is the public foundation that established for solving the traffic accident in Japan due to the highest traffic accident in Japan. The major activities in ITARDA are J-TAD, in-depth investigation, study and analysis, dissemination and exchange with research institutes abroad. The outcomes are the</p>

			compiled cross tables, micro data, researches, presentation of research, ITARDA information, website and publication.
	PM	<p><Please answer following Questions;> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p><u>Toshiba Infrastructure Systems & Solutions Corporation</u> Q1: Yes. Q2: Highways Solution about the traffic control center, which are the advanced traffic management system and the facility management system. Q3: Yes.</p> <p><u>Sumitomo Electric Industries, Ltd.</u> Q1: Yes Q2: Signal Control System Q3: Yes</p> <p><u>Nippon Signal Co., Ltd.</u> Q1: Yes Q2: Traffic signal control Q3: Yes</p> <p><u>Tokyo Aircraft Instrument Co., Ltd.</u> Q1: Yes Q2: Speed enforcement system Q3: Yes</p> <p><u>One for All Labs Co., Ltd.</u> Q1: Yes Q2: The Usage of the big data from the smart phone Q3: Maybe, because there will be some issue about how to get the probe data and the accuracy when using in Thailand.</p> <p><u>NEC Co., Ltd.</u> Q1: Yes Q2: Public Transportation system Q3: No, because it is not related to my work.</p> <p><u>Hitachi, Ltd.</u> Q1: Yes Q2: Traffic Management System Q3: Maybe, because the presentation is about the proposal, not the past experience, so it can be the guarantee about the accuracy.</p>

Wed	AM	Travel to Kobe	
Wed	PM	<p><Please answer following Questions;> <u>Mitsubishi Heavy Industries:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Q1: Yes. Q2: Traffic Management System Q3: Yes.</p>
Thu	AM	Kyoto Morning Tour	
	PM	<p>Observation Hanshin Expressway</p>	<p>This session is about the overview of the traffic control in Hanshin Expressway, which covers in Kobe, Kyoto and Osaka. The basic concept is the traffic flow smoothing with the customer service improvement and the environmental impact reduction. Then, the development of traffic control system is explained. Also, the traffic information service is described, which is via website, application, CMS.</p>
Fri	AM	Travel to JICA Chubu	
	PM	<p><Please answer following Questions;> <u>Nagoya Electric Works:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?</p>	<p>Q1: Yes. Q2: VMS and Mobile VMS Q3: Yes, because VMS is one of the ITS device that is during the development of Traffic control center of my work in Thailand.</p>

Could you describe your comments on this week ?

This is the excellent week to go the field trip and have some travel in many cites, however, the afternoon session on Monday is too many sessions, so it is hard to concentrate. It will be better, if it can divide into two parts with different day.

Feedback Sheet

Period: Jun. 24-Jun.28

Date of Submission: Morning on Jul.1

Name: Mr. Abudallah Ssenyonjo

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	General Briefing of Participants	All Issues necessary for my stay at JICA Tokyo where properly explained. The session met my expectation
	PM	Program Orientation	A detailed background about JICA was given, and generalized expectation from the course. Findings- During this session, I realized that JICA had enough experts to transfer skills and knowledge to participants.
Tue	AM	Stakeholder mapping for ITS an overview of ITS	By end of the session, I realized that more stakeholder shall be involved in Uganda during the development of the ITS masterplan.
	PM	ITS Masterplan	The session explained the need for ITS Masterplan. Finding- I realized that before implementation of the ITS applications, my country needs a masterplan in place first.
Wed	AM	Presentation of the Country Report at JICA Head quarters	Reports from each country were presented by the respective participants. Finding- Implementation of ITS in-developing countries is at

			different stages and Other countries have not started
Wed	PM	Presentation of the ITS World Congress Report and On-going Road projects	Finding-I realized that the various countries implementing ITS periodically meet to discuss ITS related Issues
Thu	AM	Presentation from Ministry of Internal Affairs and Communications (MIC)	Finding- Learnt that MIC is primary stakeholder around ITS.
	PM	Presentation from MLIT	Finding- Learnt that MLIT is primary stakeholder around ITS.
Fri	AM	Visited JARTIC	Finding- Learnt that JARTIC interfaces with a number of players such as Traffic Police, Road Administrators and VICS.
	PM	Information and Communications	Finding- Learnt the kind of information required for the ITS and the communication modes to the end users of the Information

Feedback Sheet

Period: July 1. -Jul.5

Date of Submission: July 7

Could you describe your comments on this week?

The Course content was applicable to participants, though delivered in a very short duration. For future trainings, more time may be allocated to course delivery

Name: Mr. Abudallah Ssenyonjo

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	National Land Planning	<p>Finding- Learnt the different approaches of mitigating urban traffic problems with ETC2.0, ITS components and applications.</p> <p><i>The session met my expectation</i></p>
	PM	Visit to VICS Centre (Kyobashi Tokyo)	<p>Finding- The Session explained how VICS interfaces with the other relevant traffic management bodies such as the different prefectures, JARTIC, Car Navigations systems and road Users.</p> <p><i>The session met my expectation</i></p>
Tue	AM	Utilization of Financial Resources	<p>Finding- Under this session, I learnt the various mechanisms through which funding and maintenance costs for ITS can be gathered.</p> <p><i>The session met my expectation</i></p>
	PM	Ministry of Economy, Trade and Industry (METI)	<p>Finding- I learnt that METI has greatly supported the evolution of ITS Japan. Therefore, in Uganda also the Ministry of Finance, planning and Economic Development needs to embrace ITS.</p> <p><i>The session met my expectation</i></p>
Wed	AM	Road Management	<p>The session described the evolution of the Road network in Japan in Response to Traffic Safety, Traffic Congestion, Disaster prevention and Environment Management</p>

			<i>The session met my expectation</i>
Wed	PM	Group Work 1	This Session guided participants on how they shall structure their final report presentations. The different groups also presented what they had learnt so far. <i>The session met my expectation</i>
Thu	AM	Public Transportation	Finding- From the session, I discovered that maximum usage of public transport systems can help to decongest traffic. The session also taught me the modern management of Public buses. <i>The session met my expectation</i>
	PM	Visited the Traffic control of the metropolitan police Department	Finding- I learnt how a Traffic Control Centre is operated. <i>The session met my expectation</i>
Fri	AM	Traffic Engineering	Finding- I was introduced to the fundamentals of Traffic Engineering, and Congestion analysis. <i>The session met my expectation</i>
	PM	Drive around Tokyo to observe the operation of the On-Board ITS System	Finding- I observed information such as Traffic congestion on give section of the roads, closed lanes and others can be relayed to road users. <i>The session met my expectation</i>

Could you describe your comments on this week?

The Course content was applicable to participants, though delivered in a very short duration. For future trainings, more time may be allocated to course delivery

Feedback Sheet

Period: Jul.8 -Jul.12

Date of Submission: Morning on Jul.16

Name: Mr. Abudallah Ssenyonjo -Uganda

		Title of Lecture/Session	Your insights, findings or applicable ideas etc.
Mon	AM	Sensor Technologies for ITS	<ul style="list-style-type: none"> ➤ The session Introduced us to the various Types Sensors that can be for Traffic Information Collection. ➤ Mode operation of the various types of Sensors and selection criteria for a sensor Technology
	PM	Field Visits and observation at premises for NEXCO EAST and Nippon Signal (Kuki Plant)	<ul style="list-style-type: none"> ➤ The session Enlighted us with how Expressways are managed. Practical Application of ETC.2 ➤ The visited to Nippon Signal (Kuki Plant) created awareness amongst on the recent advancements in Traffic control methods using MODERATO using Intelligent Traffic Signal equipment (Detectors, Traffic Signal Controllers, Traffic information Networks)
Tue	AM	Traffic Accident Investigations and Data Analysis by ITARDA	<ul style="list-style-type: none"> ➤ The Presentation from ITARDA officials gave a proper Benchmark for Setting up Traffic Accident Investigations and Data Analysis Departments or Institutions my Country with clear guidance on the following aspects: <ol style="list-style-type: none"> a) Traffic Safety Act and policy b) Required measures to alleviate Traffic Congestion c) Standard Operating

			<p>procedures for Accident Investigation and Analysis</p> <p>d) Possible funding mechanisms for Accident Investigation and Analysis Institutions.</p> <p>e) The role of Research and Development in Accident Investigation and Analysis</p>
	PM	<p><Please answer following Questions;></p> <p>Q1: Was this session useful to solve the traffic issues in your country?</p> <p>Q2: What kinds of services, techniques or items do you think are applicable for your country?</p> <p>Q3: Do you want to continue to contact with them?</p>	<p><u>Toshiba Infrastructure Systems & Solutions Corporation</u></p> <p>Q1: YES</p> <p>Q2: Manufacturing and Installation of OBU</p> <p>Q3: YES- At the stage of operationalizing a number of ITS applications such as the Car Navigation systems, Bus priority systems and others.</p> <p><u>Sumitomo Electric Industries, Ltd.</u></p> <p>Q1: YES</p> <p>Q2: Design of Traffic Control Systems, Public Priority Transportation Systems, and Co-ordination of Traffic flow</p> <p>Q3: YES- At the stage of operationalizing Bus priority systems</p> <p><u>Nippon Signal Co., Ltd.</u></p> <p>Q1: YES</p> <p>Q2: Design, Installation and Commissioning of Traffic Signal Controllers and Signal Heads, AND Design, Installation and Commissioning Railway Network Equipment and Control systems</p> <p>Q3: YES</p> <p><u>Tokyo Aircraft Instrument Co., Ltd.</u></p> <p>Q1: YES</p> <p>Q2: Design, Installation and Commissioning of Airport and Office Gates</p> <p>Q3: YES</p>

			<u>Hitachi, Ltd.</u> Q1: YES Q2: Design, Installation of Control systems Q3: YES
Wed	AM	Checking Out in Preparation for Visit to Mitsubishi Heavy Industries and Kyoto City	Not Applicable
Wed	PM	<u>Mitsubishi Heavy Industries:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?	Q1: YES Q2: Design, Manufacture, Installation and Commissioning of ETC and ERP systems Q3: YES
Thu	AM	Bus Tour at the various Castles and Palaces in Kyoto City.	The Session gave the historical leadership in the Japan.
	PM	Visited Hanshin Expressway Company	➤ The session Enlighted us with how Expressways are managed. Practical Application of ETC.2
Fri	AM	Bus Tour at the various Nagoya Castles.	The Session gave the historical leadership in the Japan.

	PM	<Please answer following Questions;> <u>Nagoya Electric Works:</u> Q1: Was this session useful to solve the traffic issues in your country? Q2: What kinds of services, techniques or items do you think are applicable for your country? Q3: Do you want to continue to contact with them?	Q1: YES Q2: Design of Variable Message Signs Q3: YES
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Could you describe your comments on this week.

- This week was extremely important to me because I was exposed to the various Service Providers and Manufacturers of ITS equipment. This will provide a reference for preparation of Technical specifications at the procurement stage of ITS Equipment.
- This week enabled us to Practically appreciate all the ITS Solutions we studied in Week 1 and 2.
- In the process, we also made new relevant Contacts in the field of ITS. The results of this week amazingly exceeded my expectations.
- **On this Note, I hereby thank the course coordinators and Organizers for their unlimited commitment and the wonderful arrangements.**

7. 質問票集計表

質問集計表/Questionnaire

研修コース名	ITS(高度道路交通システム)実務 (201984545-J002)
研修期間	2019/6/23 ~ 2019/7/20
受入人数	8名

パート1：研修成果について/PART I Program output

案件目標・単元目標は各研修にて設定

1. 案件目標を達成しましたか？

← 十分達成できた		達成していない →	
4	3	2	1
8			

2. コメントや提言 (特に評価が1または2の場合)

[カ-ナコビナ] The contents of the course is comprehensive and practical as topics discussed were observed in practice in the field observations and visits to ITS related organisations.
 [エジプト/ルファット] in my opinion we need to know much information and details about weighting system as it's one of the main problems in egypt

※案件目標に加え単元目標 (例3つ) も設定されている場合

1. 単元目標を達成しましたか？

	← 十分達成できた		達成していない →	
	4	3	2	1
単元1	8			
単元2	7	1		
単元3	4	4		

2. コメントや提言 (特に評価が1または2の場合)

【単元1】
 [カ-ナコビナ] This was thoroughly treated and objective met.
 【単元2】
 [カ-ナコビナ] The need for Governments to lead and create the necessary stakeholder forum and legislature in the successful introduction and implementation was clearly highlighted.
 【単元3】
 [カ-ナコビナ] The lecturers and consultants guidance in preparing the action plan has been helpful.
 [エジプト/ルファット] it's can't be accurate due to funding issues

3. 全単元目標を通じて、「科目」について、以下の質問に答えてください。

特に有益であった科目

<p>(Subject) 科目</p> <p>[ナイジェリア/ネカ] Public Transport and ITS [タイ/ホ-] Stakeholders surrounding ITS [ウガンダ/アブ] a) ITS Masterplan b) ITS Stake holders c) Funding and Maintaining ITS d) Public Transportation and ITS e) Traffic Engineering f) Sensor Technologies for ITS [カ-ナコビナ] Sensor Technologies for ITS [バ-キスタン/ニアズ] Introduction to ITS, Mechanical Engineering, Measures to alleviate traffic congestion, Information and Communication, Sensor Technologies, National Land use Planning, Road Management, Traffic Engineering and Traffic Safety [カ-ナコビナ] Observation: Traffic Control Centre of Metropolitan Police Department [イリビノル/イェル] Traffic Control Systems and Traffic Management Systems and Services [ケニア/ガリ] The field visits especially the ones to the traffic centers and vendor companies. [エジプト/ルファット] Map information - observation visits [カ-ナコビナ] Funding and maintaining ITS [カ-ナコビナ] National Police Agency (NPA) – ITS Deployment by the Japanese Police [カ-ナコビナ] Traffic Flow Fundamentals</p>
<p>(Reason) 理由</p> <p>[ナイジェリア/ネカ] The Bus priority system: Buses have the onboard unit and it is in sync with the traffic control system. I was made to understand that priority is being given to buses because of their schedule which is very inspiring. There is also a bus system classified under the train system. This bus does not use stirring on the dedicated lane. [タイ/ホ-] This is a good lesson learn for Thailand to use the example to follow as the whole system. [ウガンダ/アブ] These subjects directly impact traffic management in Kampala [カ-ナコビナ] The presentation of the various devices for collecting traffic data [バ-キスタン/ニアズ] Very briefly defined the technologies involved and their role in level of automation, type of technologies and sensor used and frequencies required for communication, city development pattern, traffic safety parameter and traffic engineering solutions [カ-ナコビナ] The Observation of how the Traffic Control Centre is set up and the use of monitors and visual display of information on the monitors. [イリビノル/イェル] we can use this for upgrading our existing traffic signal facilities and integrating new ITS technologies [カ-ナコビナ] The course discussed the various ways ITS can be funded and cited numerous innovative fund raising mechanism being implemented by other countries. I have learnt a lot from the examples. [カ-ナコビナ] The collection of data using various vehicle detectors, the transmission of the data to the Traffic Control Centre and the analysis and management of traffic flow from the Control Centre. [カ-ナコビナ] The mathematical analysis of traffic flow data.</p>

必要ではなかった科目

<p>(Subject) 科目</p> <p>[ナイジェリア/ネカ] Visit to the Metropolitan Police Department</p>
--

[ウガンダ語] Roads management [ケニア語] Automated driving lessons
<p>〈Reason〉理由</p> <p>[ナイジェリア語] The metropolitan police are in charge of traffic monitoring in the country. Collects data, analyze traffic information in and around Tokyo from the Traffic Control Center. They have been able to manage traffic from the control center with the use of the installed road side detectors including the CCTV. Analyzed data gathered from the roadside vehicle detectors are then distributed via various media : Traffic Information Board, Traffic Signals, Radio Broadcast, Telephone service information, JARTIC center. The control center gives priority to buses and other emergency vehicles (ambulance, fire fighter etc) by controlling the LED traffic light form the control center. The control center.</p> <p>[ウガンダ語] This subject is not in line with my profession [ケニア語] They were not very essential for us</p>

扱われなかったが、含むべき科目

<p>〈Subject〉科目</p> <p>[ナイジェリア語] ITS in Bus Rapid Transit [ベキスタン語] Use of ITS technologies in Public Transport [ケニア語] Citizen education before and during introduction of ITS. [エジプト語] weighting system in Japan [タイ語] Maintenance Strategy for ITS system</p>
<p>〈Reason〉理由</p> <p>[ナイジェリア語] Public transportation should not be forgotten in terms of ITS and because the traffic control center is been implemented to allow road users get to their various destination with ease. So there is the need to integrate the operations of public transport with the traffic control center.</p> <p>[ベキスタン語] Although the course is very well desgined but as participant from an organisation which deals in public transit projects. Likewise in Japan, in my country public tansit and private traffic control is managed by different organisations. The course only covers priority signalling for Buses but there are other ITS technologies used in Public Transport which can also be introduced in this course.</p> <p>[ケニア語] It was not clearly illustrated in the course how Japan achieved sensitization of the public towards road safety, respect for rule of law and also sensitizing the public towards the use of ITS equipment etc [エジプト語] as it's one of the main problems damaging the roads because of excessive weight by heavy vehicles [タイ語] This course is already included this, but it is just in brief. However, I think it is very topic on the ITS system.</p>

パート2：研修デザインについて/ PART II Program Design

1. あなたもしくは所属組織が案件目標を達成する上で、プログラムのデザインは適切だと思いますか？
(※プログラムのデザイン：プログラムの構成、バランス)

← 適切である		適切ではない →	
4	3	2	1
7	1		

2. 研修期間は適切でしたか？

長い	適切	短い
	7	1 [エジプト語]

3. 本研修の参加者人数は適切だと思いますか？

多い	適切	少ない
	7	1 [ナイジェリア]

4. 本研修において研修参加者の経験から学ぶことができましたか？

← できた		できなかった →	
4	3	2	1
1	7		

5. 視察や実習など直接的な経験を得る機会が十分ありましたか？

← 十分あった		なかった →	
4	3	2	1
7	1		

6. 討議やワークショップなど、主体的に参加する機会が十分ありましたか？

← 十分あった		なかった →	
4	3	2	1
5	3		

7. 講義の質は高く、理解しやすかったですか？

← 良かった		良くなかった →	
4	3	2	1
6	2		

8. テキストや研修教材は満足するものでしたか？

← 満足した		満足していない →	
4	3	2	1
6	2		

9. 本邦研修で得た日本の知識・経験は役立つと思いますか？

A	4 [エジプト/ルファット]	はい、業務に直接的に活用することができる。
B	5 [エジプト/ルファット]	直接的に活用することはできないが、業務に応用できる。
C		直接的に活用、応用することはできないが、自分自身の参考になる。
D		いいえ、全く役立たない。

10. 目標を達成するための適切なファシリテーション（講義内容の理解促進、AP等の作成にかかる助言等）を受けることができましたか？

← 満足した		満足していない →	
4	3	2	1
7 [ケニア/アリ]	2 [ケニア/アリ]		

11. 研修監視員の通訳および研修監視サービス（調整・手配）には満足しましたか？

← 満足した		満足していない →			
通訳	4	3	2	1	通訳はなかった
	7	1			
調整業務	4	3	2	1	
	8				

12. 日本の社会的・文化的背景を理解できたと思いますか？

← 十分できた		できなかった →	
4	3	2	1
3	5		

13. 宿泊施設に関する以下の項目について、満足であったかお答えください。

	← 満足した		満足していない →		X
JICA センターの設備	4	3	2	1	
	7	1			
JICA センターの食事	4	3	2	1	
	1	2	3 [ナイジェリア/袖、 ガーナ/コビナ、ケニア/アリ]	2 [ウガンダ/アブ、 エジプト/ルファット]	
JICA センターのサービス	4	3	2	1	
	6	2			
ホテルの設備	4	3	2	1	
	7				1 [フィリピン/レイチェル]
ホテルのサービス	4	3	2	1	
	5	2			1 [フィリピン/レイチェル]

14. Q1~Q13 に関して、改善のための提言

<PART I>
Q3 (3) [パキスタン/アズ] Although the course is very well designed but as participant from an organisation

which deals in public transit projects. Likewise in Japan, in my country public transit and private traffic control is managed by different organisations. The course only covers priority signalling for Buses but there are other ITS technologies used in Public Transport which can also be introduced in this course.

<PART II>

Q5. [ケニア/アリ] Site visits should be increased to factor visits to Ministries as well eg MLIT and METI.

Q7. [エジプト/ルファット] I prefer some instructors speak by their own language as Mini San translating very good so we can have better understanding in some lectures

Q13 [ナイジェリア/袖] JICA should consider serving african dishes atleast once a day. There should be availability of educational board games like scrabbles and board games. It helps people interact well and also helps in learning new English words

Q13. [ガーナ/コビナ] Variety of meals available at the dining hall is limited. I suggest the inclusion of some african dishes.

Q13. [エジプト/ルファット] Food in jica tokyo is not a high quality and needs more and more improvement

パート 3 : 日本での気づき・学びについて / PART III Findings and Learnings

1~4.(必須):“日本での学びとその活用について”

1.研修を通じて学んだ知見の中で、自国の課題解決に貢献しうる知見（手法、業務・組織、制度、概念）、技術、技能を挙げてください。

[ナイジェリア/袖] Traffic Management: With the implementation of traffic control centers in Japan, these companies (JARTIC, VICS, Police Agency, NEXO etc) have been able to work hand in hand to manage traffic situations and to eradicate congestion in Japan.

[ガーナ/コビナ] The stakeholder approach in implementing ITS. The installation of vehicle detectors and the management of the Traffic Control Centre. The electronic toll collection and management of the expressways by the expressway companies. Jartic and VICS centres.

[ケニア/アリ] I found the field practice most beneficial. I loved the sharing idea, this is good for consultation purposes and getting a different perspective from your colleagues. The idea of changing leadership roles among classmates was extremely good. Further the partnership between organisations in Japan was very mind opening. Example between the road administrators, the police, JARTIC, VICS, academic society and Industry. This is a good learning point that i can adopt for my country. Also esistance of ITS JAPAN is very essential in promotion of ITS related activities in JAPAN. I can also borrow a leaf here.

[パキスタン/アズ] Traffic Signal control through centralized control center, VICS, JARTIC, ITARDA, Mangement of traffic through Single Entity, Traffic Information Collection and Display

[エジプト/ルファット] Control centers - Traffic management- Electronic tolling system - monitoring - Vms - incident detection and traffic violations

[タイ/ホー] ITS master plane , Wireless communication, Traffic engineering, All of site visting

[ウガンダ/アブ] Bus Rapid Transit systems

[フィリピン/レイチェル] The sensor technologies use for traffic management.

2.なぜそれが有用であるか述べてください。

[ナイジェリア/袖] This knowledge will be very useful back in my country because traffic is one major problem we are facing in the country

[ガーナ/コビナ] The above is necessary for successful implementation of ITS. We may not be able to apply it

extensively as Japan has done but we will adapt it to suit our peculiar needs and resource constraints.
 [ケニア] Distribution of responsibility between people that's what I learnt from changing leaders in class. Partnership between the road administrators, the police, JARTIC, VICS, academic society and Industry. This is a good learning point that i can adopt for my country.
 [パキスタン] I think through integrated approached traffic problems can be solved effectively. All above-mentioned knowledge depicts the same approach.
 [エジプト] because it will help improving traffic issues in my country
 [タイ] As Thailand has already develop many kinds of ITS system, but it cannot be use efficiently due to lack of experience and expertise. So, it is a good experience to learn from the expertise in each field.
 [ウガンダ] Bus Rapid Transit systems can move higher traffic densities as compared to the MATATU that have in our country serving as public transport means, and this will greatly decongest our City
 [リベリア] Because it is related to my present work.

3. どのように自国に採用もしくは適用するか述べてください。また、採用もしくは適用において課題があれば記述してください。

[ナイジェリア] Construction of ring roads to serve as alternative route with traffic lights installed at intersections will help reduce congestion
 Implementation of traffic control center will also help our organization. As a regulator of public transport in Lagos State, the availability of a traffic control center will help ease bunching of buses as drivers will be warned and advised on what route to take from the traffic control center.
 [ガーナ] The obstacle I foresee in the adaptation is the availability of resources to set up an area wide network of vehicle detectors.
 [ケニア] Arranging an ITS Seminar in Mombasa that can be attended my members of Academic Institutions, the Police, Officers from the Ministries of Planning, Land and Infrastructure as well as the Kenya Private Alliance Society (KEPSA) to discuss issues of ITS and Road safety as well as how to wor together to achieve better traffic in Mombasa. One of the obstacles is funding to arrange such seminars. Also cooperation from all stakeholders to attend.
 [パキスタン] Technologically , we need to select carefully roadside traffic information collection equipments i.e. video image sensors/ cameras which are require less in numbers and with low maintenance. Administratively, central institutional arrangement is very important to adopt this system.
 [エジプト] Funding problem - I think we should start with tolling as it will help make a good fund for other technologies also traffic management
 [タイ] These knowledge will be used as the example to adapt with the Thailand situation. The obstacle will be the different place, will get the different result. However, it is good to not start from the beginning.
 [ウガンダ] Through proposal submission to the management of my organization. Potential Obstacle: Absence of funding
 [リベリア] By introducing this new technologies and the benefits that we may get in adapting it. Budgetary constraints.

4. 日本滞在中に強く印象に残った日本人の特徴や日本の特性にマークをしてください。

親切	8	細部までこだわる	7
時間に正確	8	文化と歴史が素晴らしい	6
規律を守る	7	食事がおいしい	
勤労・勤勉	7	清潔・きれいな	5
礼儀正しい	8	治安が良い	7
物静かである	4	交通渋滞が激しい	
働きすぎである	1	自然豊か	3
その他()			

具体的なエピソード その他の特徴・特性

[ナイジェリア] Jovial / Law abiding, Happy people, Brilliant
 [ケニア] They are honest with their responses. If they don't know something they are open about it. They are friendly to foreigners and are willing to help whenever you need.
 [パキスタン] Shy, Helping

5.(任意):“日本での経験について”

[ナイジェリア]
 I must say that i am amazed with the level of orderliness in this country. Japan has law filled with lawful citizens
 ・ The manner at which traffic rules are obeyed
 ・ People queue at bus stations, wait patiently for buses or trains
 ・ The level of priority given to elderly people, disables, pregnant women etc. is just too high for me to comprehend
 ・ I see children walk home from school, ride bicycles, board buses & trains on their own without fear of insecurity. That is what I have termed TRUST
 I am glad to say that Japan is one of the few countries with law abiding citizens
 The people of Japan go out of their way to render assistance off any kind. A week after my arrival in Tokyo Japan, I went to the train station and became so confused that this boy walked up to me and asked how he can help. I showed him my map and surprisingly this boy took me to my destination and took a train back. I had tears in my eyes. I offered him money but did not accept it. He said should you go out and can't find your way back, don't be afraid to ask we are always available to help.
 I love this country. The love the people of this country have for themselves is overwhelming
 They greet like they owe it to you
 The infrastructure here is beyond this world. Technology has gone far in Japan
 God Bless Japan
 [ウガンダ]
 Japan is a multi-cultural country, safe for living in, with high level infrastructures.
 [ケニア]
 What impressed me the most was the fact that all the japaneses facilitators (Lecturers, people from industry and cordinators) never reponded to questions they were not sure of the answer. On more than one occassion I asked questions and they were not responded to because the person was not sure of the correct answer. The answer would sometimes be provided later after they ascertained the information was correct.

This is a big virtue that i learnt adn i hope to emulate in the future. Ofcos being time consciuous is another great virtue of the japanese people that i like.

[エッセイ/レポート]

it's a very good experience as I learned a lot during my stay and not only about course material but how to be punctual in each detail

Japan is a long experience country we should learn from their experience and accept culture difference as it's a totally different and this is the point in the japanese people respecting other's as a religion for example - if you visit japan don't stay at your room watching the walls as you will miss the experience and the japanese culture

[体験レポート]

This is the good experience to be as JICA trainee, especially on ITS system that Japan is one of the world leading nation about it. Beside the learning experience, it is a wonderful time to spend in Japan for a month.

This gave me more than the usual travel experience. People, City, Food and other Japanese culture is very nice, polite and safety to travel around the city alone. It is also convience and comfort to do so. In conclusion, it is a very wonderful experience for me in Japan.

※あなたの回答は JICA が事業改善のために使用させていただきます。ご協力ありがとうございます。

8. 企業視察・企業発表 研修員フィードバック

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

東芝インフラシステムズ(株) 様

番号	研修員情報		問1	問2	問3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail				
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	Traffic Control Centre, electronic toll collection	Yes
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads			
	E-mail				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa			
	E-mail				
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority			
	E-mail				
5	氏名	Mr. ALI Niaz ニアズ	Yes	Real Time Traffic Information System and Traffic Control Center. And also, RSU toll collection systems.	At present my organization does not deal with private traffic control or toll collection. But we intend to establish BRT control center, therefore I would like to contact them if they can provide their services.
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority			
	E-mail				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチェル	Yes. Their system may help us to have a systematic management of transportation and traffic demand.	Sensing Technology and Advanced Traffic Management System.	N/A
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority			
	E-mail				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Highways Solution about the traffic control center, which are the advanced traffic management system and the facility management system.	Yes
	所属等	Civil Engineer, Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways			
	E-mail				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Manufacturing and Installation of OBU	YES- At the stage of operationalizing a number of ITS applications such as the Car Navigation systems, Bus priority systems and others.
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)			
	E-mail				

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

住友電気工業(株)様

番号	研修員情報		問1	問2	問3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail				
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	Traffic signal controllers	Yes
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads			
	E-mail				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	Yes	I have a lot of interest in engaging them for my ITS project.	Yes
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa			
	E-mail				
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority			
	E-mail				
5	氏名	Mr. ALI Niaz ニアズ	Yes	Road side traffic information devices and traffic control center.	As said earlier, my organization does not deal with private traffic control. But we intend to establish BRT control center, therefore I would like to contact them if they can provide their services.
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority			
	E-mail				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチェル	Yes, it is useful because we would like to promote and create safe and pleasurable road and traffic environment	AMIS, PTPS, FAST and DSSS	N/A
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority			
	E-mail				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Signal Control System	Yes
	所属等	Civil Engineer, Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways			
	E-mail				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design of Traffic Control Systems, Public Priority Transportation Systems, and Co-ordination of Traffic flow	YES- At the stage of operationalizing Bus priority systems
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)			
	E-mail				

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

日本信号(株) 様

番号	研修員情報		問1	問2	問3	参考 (7/8月) 視察全般についての 研修員からのコメント)
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?	
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosnri レファット	N/A	N/A	N/A	
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)				
	E-mail					
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	signal controllers, traffic signal heads, vehicle detectors	Yes	Vendor of traffic light equipment. Great explanation given. They are currently doing a project in kampala of installing traffic signals through JICA funding. As Mombasa we are equally interested in a similar project. I have indicated in my action plan that I would like to work with either Sumitomo or Nippon signal in the installation of traffic signals in 5 key junctions in Mombasa.
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads				
	E-mail					
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	Yes	N/A	Yes	Working on great Traffic signal installation project in Kampala. Great equipment high quality. Are also of interest to me.
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa				
	E-mail					
4	氏名	Ms. ACHI Nneka Martha ネカ	Yes	Installation of Traffic Signals Signal control system Auto fare collection system	Yes	It is good to note that without traffic lights, congestions cannot be solved They supply traffic lights and other sensor monitors to other countries. They do a test-run on the traffic accessories before sending them out. We were taken to the factory, we were shown a video on what they do, how they have contributed in solving traffic congestions. We were shown some demonstration on how they receive alarm signals when there is violation in traffic rules especially with the rail. Installed equipments, sensors, LED traffic lights, UPS at the NIPPON center was shown to us. A demonstration was made on how the UPS takes over when there is power outage. Excellent.
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority				
	E-mail					
5	氏名	Mr. ALI Niaz ニアズ	Yes	Signals with route and area control and AFC system.	For priority signaling and Automated Fare Collection, I would like to contact them.	Very interesting to know about the usage of moderato in signals to control the traffic congestion. Their quality control process and remote monitoring was very impressive. It would be interesting to know about the other products of Nippon Signals (i.e: AFC).
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority				
	E-mail					

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

日本信号(株) 様

番号	研修員情報		問1	問2	問3	参考 (7/8月) 視察全般についての 研修員からのコメント)
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?	
6	氏名	Ms. BIRUNG Rachel Malupeng レイチェル	Yes.it is useful for us to provide real time traffic information.	Emergency power supply and detectors	N/A	<p>• A company that has a lot of experienced in the field of traffic signals is really a help for developing countries to collaborate with because they know what should be done to mitigate different traffic problems. Nippon Signal provides safety and reliability that means they always prioritize the safety of the road users and this will only be achieve by also providing a reliable traffic signal facilities and different ITS technologies. And to make the system reliable, synchronization and adjustments of timing is a must to reduce congestion.</p>
	所属等	Engineer II,Traffice Engineering Center - Traffice Signal Operation & Mgt Division,Metropolitan Manila Development Authority				
	E-mail	[Redacted]				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Traffic signal control	Yes	
	所属等	Civil Engineer. Practitioner Level,Bureau of Highway Safety/Traffic and Transportation Survey,Department of Highways				
	E-mail	[Redacted]				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design, Installation and Commissioning of Traffic Signal Controllers and Signal Heads, AND Design, Installation and Commissioning Railway Network Equipment and Control systems	Yes	
	所属等	Supervisor Electrical Services,Engineering and Technical Services,Kampala Capital City Authority(2012)				
	E-mail	[Redacted]				

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

東京航空計器(株)様

番号	研修員情報		問1	問2	問3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail				
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	: Speed Cameras	Yes
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads			
	E-mail				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa			
	E-mail				
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority			
	E-mail				
5	氏名	Mr. ALI Niaz ニアズ	Yes	Traffic Speed Control Devices	At present my organization does not deal in toll collection, may be in future if changed my organization.
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority			
	E-mail				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチエル	Yes. The session is useful for our organization to augment the lack of traffic enforcers in the field.	Speed camera.	N/A
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority			
	E-mail				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Speed enforcement system	Yes
	所属等	Civil Engineer, Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways			
	E-mail				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design, Installation and Commissioning of Airport and Office Gates	Yes
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)			
	E-mail				

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

(株)ワンフォール・ラボ様

番号	研修員情報		問1	問2	問3	参考 (その他のコメント)
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?	
1	氏名	Mr. ABOUENOUR Mohamed Refat Hosnri レファット	N/A	N/A	N/A	
	所属等	Engineer- responsible for Axial Loads and Land Transport,Land Transport,General Authority for Roads, Bridges and Land Transport (GARBLT)				
	E-mail					
2	氏名	Mr. ENNIM Kobina Bortsie コビナ	N/A	N/A	N/A	
	所属等	Principal Engineer,Planning and Development - Accra,Department of Urban Roads				
	E-mail					
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A	Mostly analytics. Interesting algorithm they used in collecting data from road users in Istanbul Turkey. I loved the idea- less cost highly effective. Has privacy issues. However it can be used to replace road side sensors where data from cell phones is sent to traffic control center and decision sent to signal controller.
	所属等	Director of Operations,Transport, Infrastructure and Public Works,County Government of Mombasa				
	E-mail					
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A	
	所属等	ITS Officer,Bus Services,Lagos Metropolitan Area Transport Authority				
	E-mail					
5	氏名	Mr. ALI Niaz ニアズ	Yes	People Flow Analysis Program (PFLOW) is used for Travel Demand Survey Studies which are very necessary for public transport planning	I am very much impressed by the methodology and accuracy People Flow Analysis Program. I would like to contact them.	
	所属等	Director ITS,Transport & Mass Transit Dept.,Sindh Mass Transit Authority				
	E-mail					
6	氏名	Ms. BIRUNG Rachel Malupeng レイチュル	Yes.This is useful on putting up commercial establishments because they can grasp the flow of people to properly decide where to build their business. I think it can also be used to predict traffic generation for businessman to make mitigation plan for traffic congestions in the future.	PFLOW	Maybe. I think we have this kind of system in our country but not as good as their system	
	所属等	Engineer II,Traffic Engineering Center - Traffic Signal Operation & Mgt Division,Metropolitan Manila Development Authority				
	E-mail					
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	The Usage of the big data from the smart phone	Maybe, because there will be some issue about how to get the probe data and the accuracy when using in Thailand.	
	所属等	Civil Engineer, Practitioner Level,Bureau of Highway Safety/Traffic and Transportation Survey,Department of Highways				
	E-mail					
8	氏名	Mr. SSENIONJO Abudallah アブ	N/A	N/A	N/A	
	所属等	Supervisor Electrical Services,Engineering and Technical Services,Kampala Capital City Authority(2012)				
	E-mail					

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

日本電気(株)様

番号	研修員情報		問1	問2	問3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosnni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport,Land Transport,General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail				
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	Smart Card Solutions	Yes
	所属等	Principal Engineer,Planning and Development - Accra,Department of Urban Roads			
	E-mail				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A
	所属等	Director of Operations,Transport. Infrastructure and Public Works,County Government of Mombasa			
	E-mail				
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A
	所属等	ITS Officer,Bus Services,Lagos Metropolitan Area Transport Authority			
	E-mail				
5	氏名	Mr. ALI Niaz ニアズ	Yes	All of the products related to assist the operations of BRT System.	Since I am working in Mass Transit Projects and their projects are perfect match with our needs. Therefore, would definitely would like to contact them.
	所属等	Director ITS,Transport & Mass Transit Dept.,Sindh Mass Transit Authority			
	E-mail				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチェル	Yes.It is useful to improve our public transportation especially buses.	Transportation Card System.	N/A
	所属等	Engineer II,Traffic Engineering Center - Traffic Signal Operation & Mgt Division,Metropolitan Manila Development Authority			
	E-mail				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Public Transportation system	No, because it is not related to my work.
	所属等	Civil Engineer. Practitioner Level,Bureau of Highway Safety/Traffic and Transportation Survey,Department of Highways			
	E-mail				
8	氏名	Mr. SSENIONJO Abudallah アブ	N/A	N/A	N/A
	所属等	Supervisor Electrical Services,Engineering and Technical Services,Kampala Capital City Authority(2012)			
	E-mail				

2019年度「ITS実務課題別研修」技術セミナー フィードバックシート

日立製作所 様

番号	研修員情報		問 1	問 2	問 3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosnni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail	[REDACTED]			
2	氏名	Mr. ENNIM Kobina Bortsie コビナ	Yes	Smartphone application for vehicle route management	Yes
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads			
	E-mail	[REDACTED]			
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa			
	E-mail	[REDACTED]			
4	氏名	Ms. ACHI Nneka Martha ネカ	N/A	N/A	N/A
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority			
	E-mail	[REDACTED]			
5	氏名	Mr. ALI Niaz ニアズ	Yes	Heavy Vehicle Control System	At present my organization does not deal in heavy traffic vehicle control, may be in future if changed my organization.
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority			
	E-mail	[REDACTED]			
6	氏名	Ms. BIRUNG Rachel Malupeng レイチエル	Yes, I think it is useful to provide reliable traffic services.	Vehicle route management and vehicle violation detection.	• Maybe we can contact them for the specifications and price quotations. The problem is that we are not allowed to put any products name/brand in the estimates, bid quotations and bid documents, we only just hope that Japanese companies will join in our bidding process.
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority			
	E-mail	[REDACTED]			
7	氏名	Ms. CHAIKASETSIN Sruangsang ポー	Yes	Traffic Management System	Maybe, because the presentation is about the proposal, not the past experience, so it can be the guarantee about the accuracy.
	所属等	Civil Engineer, Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways			
	E-mail	[REDACTED]			
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design, Installation of Control systems	Yes
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority (2012)			
	E-mail	[REDACTED]			

2019年度「ITS実務課題別研修」企業視察フィードバックシート

三菱重工機械システム(株)様

番号	研修員情報		問1	問2	問3
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosnni レファット	N/A	N/A	N/A
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)			
	E-mail				
2	氏名	Mr. ENNIM Kobina Bortsie コビナ	Yes	Electronic Toll Collection	Yes
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads			
	E-mail				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa			
	E-mail				
4	氏名	Ms. ACHI Nneka Martha ネカ	Yes	Electronic Toll payment	Yes
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority			
	E-mail				
5	氏名	Mr. ALI Niaz ニアズ	Yes	Electronic Toll Collection System and travel demand survey through mobile network	At present my organization does not deal in toll collection, may be in future if changed my organization.
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority			
	E-mail				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチェル	Yes. The session is useful because we can use their technology to improve and to unify our toll collections specially that some road users are using RFID technology right now.	RFID Technology and ANPR System (Automatic Number Plate Recognition)	• Maybe we can contact them for the specifications and price quotations. The problem is that we are not allowed to put any products name/brand in the estimates, bid quotations and bid documents, we only just hope that Japanese companies will join in our bidding process.
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority			
	E-mail				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	Traffic Management System	Yes
	所属等	Civil Engineer, Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways			
	E-mail				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design, Manufacture, Installation and Commissioning of ETC and ERP systems	Yes
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)			
	E-mail				

2019年度「ITS実務課題別研修」企業視察フィードバックシート

名古屋電機工業(株)様

番号	研修員情報		問1	問2	問3	参考 (その他のコメント)
			Was this session useful to solve the traffic issues in your country?	What kinds of services, techniques or items do you think are applicable for your country?	Do you want to continue to contact with them?	
1	氏名	Mr. ABOUELNOUR Mohamed Refat Hosni レファット	N/A	N/A	N/A	
	所属等	Engineer- responsible for Axial Loads and Land Transport, Land Transport, General Authority for Roads, Bridges and Land Transport (GARBLT)				
	E-mail	[Redacted]				
2	氏名	Mr. ENNIM Kobina Bortsie コピナ	Yes	The variable message sign, mobile VMS, traffic control centre	Yes	
	所属等	Principal Engineer, Planning and Development - Accra, Department of Urban Roads				
	E-mail	[Redacted]				
3	氏名	Mr. SHARIFF ALI ABDULRAHMAN アリ	N/A	N/A	N/A	Dealers in VMS technology. Have done for several highway companies in Japan. They are now looking for market abroad. Good project they did in Ahmedabad through JICA ODA.
	所属等	Director of Operations, Transport, Infrastructure and Public Works, County Government of Mombasa				
	E-mail	[Redacted]				
4	氏名	Ms. ACHI Nneka Martha ネカ	Yes	Projection of Traffic Condition in VMS	Yes	
	所属等	ITS Officer, Bus Services, Lagos Metropolitan Area Transport Authority				
	E-mail	[Redacted]				
5	氏名	Mr. ALI Niaz ニアズ	Yes	Electronic Potable and Fixed Road Signs and Information Boards to provide traffic information to ensure the safety and traffic flow of traffic.	At present my organization does not deal in installation of road signs and information boards, may be in future if changed my organization	
	所属等	Director ITS, Transport & Mass Transit Dept., Sindh Mass Transit Authority				
	E-mail	[Redacted]				
6	氏名	Ms. BIRUNG Rachel Malupeng レイチエル	Yes. It is useful because our organization is planning to have an additional VMS in other major thoroughfares of Metro Manila to provide real-time information and to have a mobile VMS for safety purposes especially on our maintenance activities	VMS System and Mobile VMS	* Maybe we can contact them for the specifications and price quotations. The problem is that we are not allowed to put any products name/brand in the estimates, bid quotations and bid documents, we only just hope that Japanese companies will join in our bidding process.	
	所属等	Engineer II, Traffic Engineering Center - Traffic Signal Operation & Mgt Division, Metropolitan Manila Development Authority				
	E-mail	[Redacted]				
7	氏名	Ms. CHAIKASETSIN Sruangsaeng ポー	Yes	VMS and Mobile VMS	Yes, because VMS is one of the ITS device that is during the development of Traffic control center of my work in Thailand.	
	所属等	Civil Engineer. Practitioner Level, Bureau of Highway Safety/Traffic and Transportation Survey, Department of Highways				
	E-mail	[Redacted]				
8	氏名	Mr. SSENIONJO Abudallah アブ	Yes	Design of Variable Message Signs	Yes	
	所属等	Supervisor Electrical Services, Engineering and Technical Services, Kampala Capital City Authority(2012)				
	E-mail	[Redacted]				

9. 最終成果発表会

参加者アンケート結果集計

ITS 実務課題別研修・最終成果報告会 ご参加者様 アンケート

本日は、JICA「ITS 実務課題別研修・最終成果報告会」にご参加頂きまして誠に有難うございます。本アンケートは、今後の同研修をより良いものとしていくべく実施させて頂くものです。お時間ございましたら、お手数ですがご協力頂ければ幸いです。 ※個別回答が分からないよう統計的に処理して使用させていただきます。

➤ ご所属先

- 民間企業(メーカー) 民間企業(コンサルタント) 行政機関 学術機関 その他

➤ 今まで本研修の最終成果報告会に参加した回数

- 1回目(初めて) 2回目 3回目以上

➤ 最終成果報告会に参加した理由 (複数回答可)

- 研修参加国の課題・計画を知るため 研修員と面識を得るため 所属先業務の参考とするため
 ITS-Japan からの案内があったため JICA 主催の報告会であったため
 その他 ()

➤ 最終成果報告会の参加にあたって最も期待していたこと

- 研修参加国の ITS 関連の課題・ニーズを知ること 研修参加国の ITS 関連の計画を知ること
 研修員と面識を得ること 所属先の海外業務の参考とすること 所属先の国内業務の参考とすること

➤ 前問の期待どおりでしたか

- 期待以上 期待どおり そこそこ期待どおり 期待以下

➤ 研修参加国のうち、元々 関心を持っていた国 (複数回答可)

- エジプト ガーナ ケニア ナイジェリア パキスタン フィリピン タイ ウガンダ

➤ 研修参加国のうち、最終成果報告を聞いて関心を持った国 (複数回答可)

- エジプト ガーナ ケニア ナイジェリア パキスタン フィリピン タイ ウガンダ

➤ 研修参加国のうち、全く関心がない国 (渡航不可や事業実施可能性がない等) (複数回答可)

- エジプト ガーナ ケニア ナイジェリア パキスタン フィリピン タイ ウガンダ

➤ 最終成果報告会は、ご自身やご所属先の業務の役に立ちますか

- 役に立つ まあまあ役に立つ 少し役に立つ 役に立たない 参考にはなる

➤ 今後も最終成果報告会を開催すべきだと思いますか

- そう思う まあまあそう思う 少しそう思う そう思わない 開催方法・建付けを変えるべき

➤ 今後も最終成果報告会があれば参加したいと思いますか

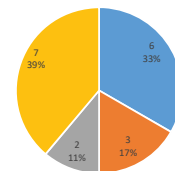
- そう思う まあまあそう思う 少しそう思う そう思わない

➤ その他 意見ございましたら下記にご記載ください (自由記述)

ご協力ありがとうございました。(アンケート用紙は、出入口付近の「回収 BOX」にご投函ください。)

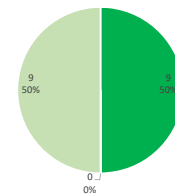
2019年度巻末資料-173

問① 所属先 (回答者18)

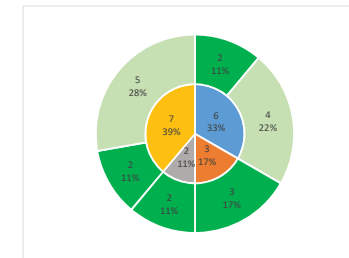


- 1. 民間企業(メーカー)
- 2. 民間企業(コンサルタント)
- 3. 行政機関
- 5. その他

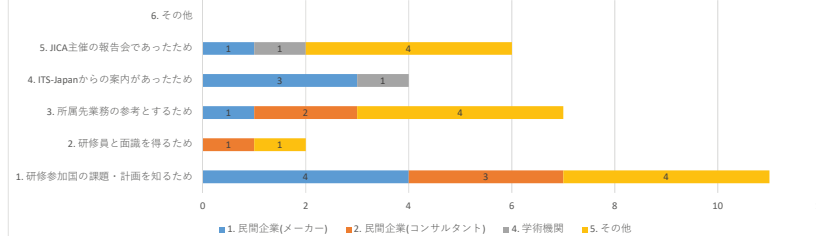
問② 参加回数 (回答者18)



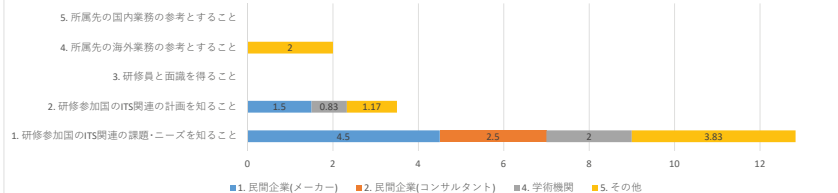
- 1. 1回目(初めて)
- 2. 2回目
- 3. 3回目以上



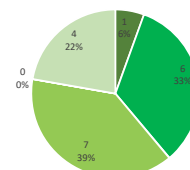
問③ 参加理由 (複数回答者9/18)



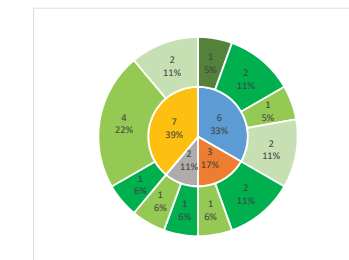
問④ 最も期待していたこと (複数回答者4/18 ※回答重みは1/重複数)

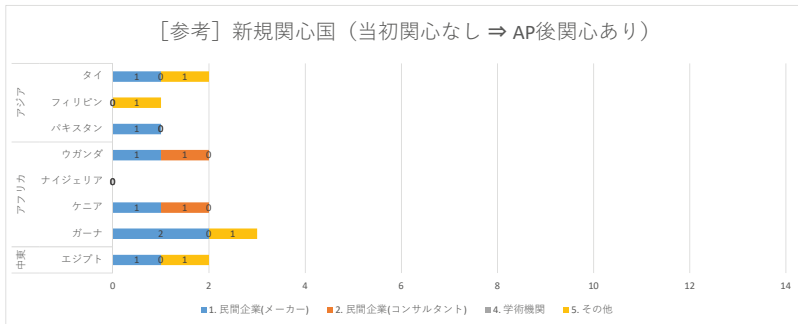
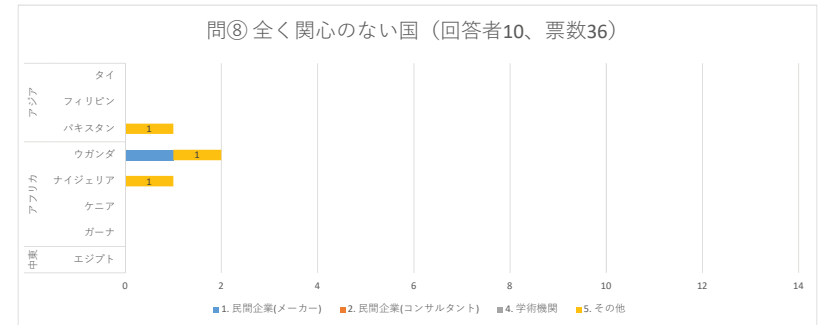
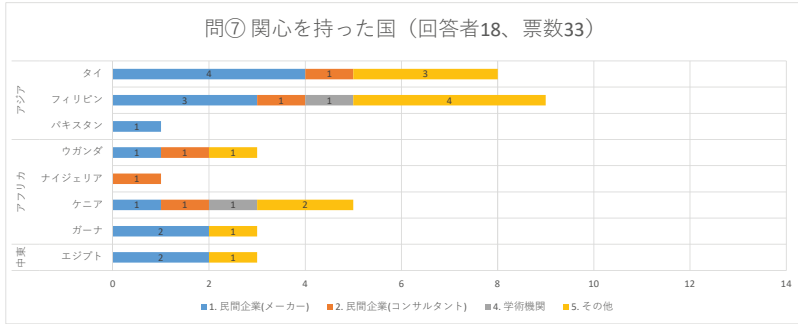
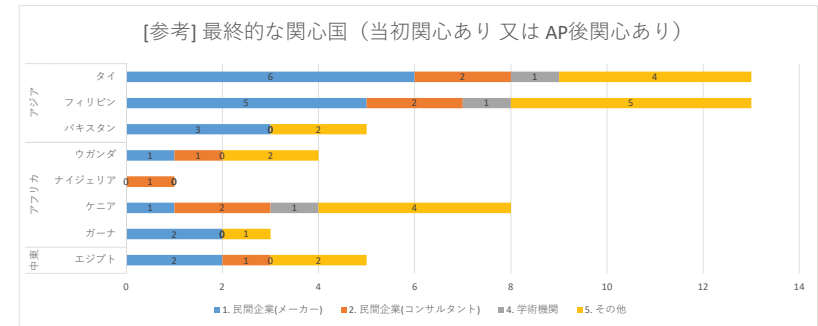
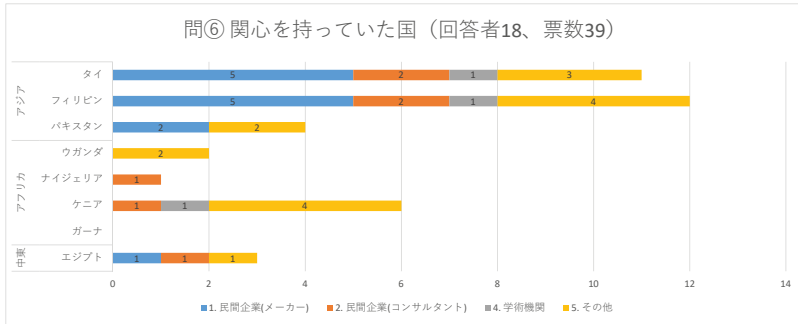


問⑤ 期待どおりであったか (回答者14、無回答4)

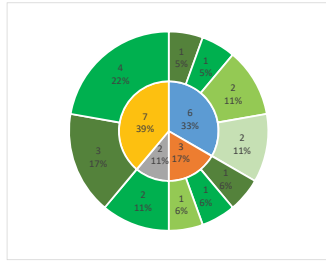
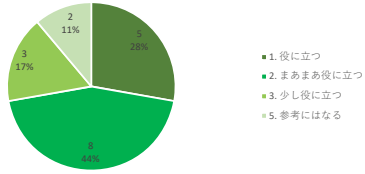


- 1. 期待どおり
- 2. 期待どおり
- 3. そこそこ期待どおり
- 4. 期待以下
- 5. 無回答

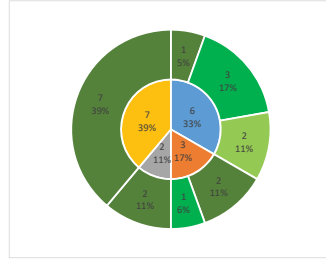
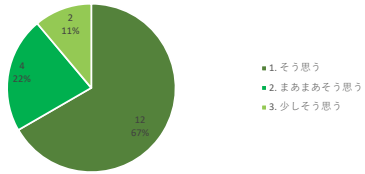




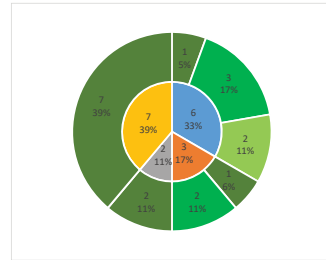
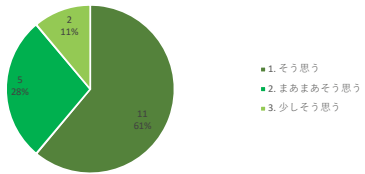
問⑨ 自身の役に立つか (回答者18)



問⑩ 開催を継続すべきか (回答者18)



問⑪ 参加希望 (回答者18)



自由記述

課題別研修の目標が明確になっているか疑問です。東大の先生方の講義が主なのか？各研修生が考えて成果としてまとめることのどちらが主でしょうか。後者に重点を置くべきと思います。
日本人の性格かもしれないが、あまりにQ&Aセッションが淋しい。また、プレゼン資料作成に対して助言をする必要を感じた。
フィリピン、タイなどではすでに日本のITSよりも先行しているのではないか？
最終成果報告会のプレゼンの最後に報告者（研修生）の責任の範囲で帰国後にやる事を列記してもらいたい。～なくても構わないので、研修生自の帰国後のAction（予定）とその結果を教えてください。
Slideの作り方は指導できないか？字が小さすぎる。色が薄すぎる。（karachiのは読めない）

10. 本邦企業発表 民間アンケート

2019年度ITS課題別研修 企業技術セミナーアンケート総括表

1. 基本情報	企業名	日本電気株式会社	株式会社ワンフォール・ラボ	東芝インフラシステムズ株式会社	東京航空計器株式会社	日立製作所	日本信号株式会社
2. 講義時間（今回は質疑応答を含めて30分間でしたが如何でしたか）	講義時間 “短い”、“長い”と感じた場合は、適正な時間と理由をお答えください。	短い これまでの経験上、プレゼン後の全体QAセッションや、自由に個別QAが出来る時間を十分に設けると、研修生の疑問解消や交流等、全体としてとても有意義な時間になる印象をもっています。今回は、もう少しQAの時間が確保出来ていればと思いました。	ちょうど良い	ちょうど良い	ちょうど良い TKKIにはQ&Aが無かった為、説明のみでは30分で良いと感じた。尚、Q&Aが多かった企業では、+10~15分は必要と感じたと想定します。	ちょうど良い	長い 前日に弊社事業所見学をしていただき、そこで質疑応答を含め、多くの話題をすでにしていたため。
3. 技術紹介（十分に自社の技術力(製品)などアピールできましたか）	技術アピール アピール度に拘らず、自由にお答えください。	出来た	わからない 質疑応答で、複数、ご質問頂きましたが、反応が、掴みづかったです	出来た 弊社の会社概要、ITSに関する取組内容、海外での実績について紹介させていただき、関心を持っていただけたかと思えます。	わからない 弊社としては、「交通取締り機材」の製品紹介は十分に実施できました。尚、研修国の現地状況・要望等の詳細が判らない中の説明でしたので研修生がどの様に受け止めたのかが判りませんでした。(Q&Aが無かったので、各研修国のニーズが大変気になっている。)	出来た	出来た 弊社事業所見学を頂いた際に、実機にも触れながら技術力のアピールを行いました。
4. 研修員（研修員の印象、意見、感想など）	研修員の印象などについて自由にお答えください。	時間的制約の関係もあると思いますが、質問をする際に、研修生の方ご自身の普通の業務やミッション等の説明も頂けると、こちらからもよりの確な意見や場合によっては次のステップについて議論することが出来るのではないかと思います。	1日の終了間際だったせいか、皆様、お疲れのように、感じました	自国の交通事情を改善するために何が出来るかを真剣に、熱心に考えている印象を受けました。	各国の研修員は、毎年目的を持って参加されており、大変熱心な方が多いと感じました。尚、ITSである為に、担当業務にも幅が有ります。「道路管理、都市交通、都市環境、インフラ整備、警察行政等」、幅広い業務の担当者の方が研修に参加されているので、カリキュラムの選定も大変な日程調整が必要とされるので、JICA、コンサル殿のご苦勞が理解できます。弊社がご紹介できるのは交通事故抑止する取締り機材ですので、交通事故防止に係りある方々に日本の取組みをアピールさせて頂ければ幸いです。	発表後にいくつか質問いただき、積極的な姿勢を拝見しました。	日本製品に非常に興味関心を有しているか、質問の様子からよくわかった。各個人のバックグラウンドがわかるCVのような資料を事前配布頂けると尚良かった。
5. 来年度の参加意思（来年度も技術セミナーを実施する場合は参加しますか）	次回参加意思 “参加しない”、“わからない”場合は、理由をお答えください。	参加する	参加する	参加する	参加する 参加希望です。尚、内容は今回と同様な「交通取締り機材」の紹介の見込みです。	参加する	参加する 弊社の技術は世界中どこでも求められているものと自負しており、機会があれば、毎年参加したい。
6. 現地セミナー（対象国は未定ですが、今回参加した研修員のうち1カ国に対して現地セミナーを開催する予定です）	セミナーへのご関心 “参加しない”、“わからない”場合は、理由をお聞かせください（対象国が営業地域外など）。	参加したい ※弊社希望国と合致しない場合は、別途相談させて頂ければと思います。	参加したい	わからない 対象となる国次第でご相談させていただきます。	参加したい ・現地セミナーを通じて、次の点に注目しています。 1) 現地国のニーズや担当部門等との交流・情報交換 2) 現地国での参入等の状況把握 ※現地国でしか把握できない様な、参入障壁や機材運用要求等の情報収集も可能な範囲で得ていきたい。 【記事】尚、現地調査団から調査結果からのニーズの要請や、訪問国決定時での弊社内の承認手続きが必須となります。	参加したい	参加したい アフリカ諸国にて交通信号システムの展開を考えており、機会があれば、参加したい。 尚、当社はこれまでザンビアやウガンダでのITSセミナーに参加した実績がある。
7. その他、改善点や意見・要望など	企業技術セミナー全般に係る改善点、意見、要望などあれば、忌憚のないご意見をお願いします。	研修員の関心のある領域（公共交通、道路等）別に技術セミナーを設けた方が研修員、企業双方にとって、より良いマッチングになると考えます。	参加されている方々の、課題意識や、各国における優先順位の高い課題（テーマ・プロジェクト）など、事前に把握できると良いと思いました	毎度、お声掛けいただきありがとうございます。	・「企業技術セミナー」について 1) 「本セミナー」で取締り機材をプレゼンさせて頂きましたが、Q&Aが無かったので、研修国の関心度が大変気になっております。可能ならば事前に各国のニーズチェックリスト等を頂けますと幸いです。 2) プレゼンのみの説明も良いが、デモ製品が持込み可能であれば展示等のアピールも実施したい。 3) 今後の参考に「本セミナー」に対する参加研修生のアンケート等を公開して頂けますと幸いです。 4) 今回は、企業参加(7社)に選定頂きました。今後も継続的な参加を希望しております。	注力国に対し、事業化へ向けた提案の機会もしたいため、対象国の地域を分散させて頂きたい。 また、今後の提案活動にもつなげたいため、若手のみならず、ある程度判断できる中堅クラスの方にも出席して頂きたい。	弊社事業所にお越しいただいた時点で、お疲れ気味であったため、研修生のスケジュールにやや余裕を持たせることが必要かと思料します。

回答
7社中6社

技術セミナー講義時間	ちょうど良い(4)、短い(1)、長い(1)
技術アピール	出来た(4)、わからない(2)
次回参加意思	参加する(6)
現地セミナー参加意思	参加したい(5)、わからない(1)

1 1 . 評価会要旨

評価会要旨

コース名	ITS(高度道路交通システム)実務		
日時・場所	2019年7月19日(10:00～11:15) JICA東京 セミナールーム402		
出席者	大口 敬	東京大学	生産技術研究所 教授
	戸谷 浩也	日本工営(株)	コンサルタント海外事業本部 開発事業部 交通計画室 課長
	望月 篤	日本工営(株)	交通都市事業部 都市交通計画部
	辻 英夫	日本工営(株)	国内事業本部 技師長
	椿 孝一	公益財団法人	日本交通管理技術協会 研究部 研究課 参事
(〇印は司会者)	伊関 道夫	日本工営(株)	コンサルタント海外事業本部 交通・都市事業部 交通計画室
	伊藤 賢一	JICA	東京センター 次長
	完山 洋平	JICA	社会基盤・平和構築部運輸交通・情報通信 グループ 第一チーム 兼 計画・調整課
	〇佐々木 準子	JICA	東京センター 経済基盤開発・環境課 研修員 8名 および研修監理員 1名

司：時間が限られているので、コメントの一部を取り上げ、質問したい。『案件目標を達成しましたか』という質問に対し、8名全員が『4(十分に達成できた)』と答えており、問題ない。設定した3つの単元目標についても4または3と答えており、問題なかった。『必要ではなかった科目』に注目したい。ネカさんが警視庁交通管制センターを挙げているが、なぜか。

ネカ(ナイジェリア)：記入場所を間違えた。『特に有益であった科目』のつもりだった。

司：『道路管理』が必要ないというのは、鹿野島准教授と上條准教授の講義か。

アブ(ウガンダ)：そうだ。自分は電気技師であり、交通信号の設置と維持管理を担当している。自分の職務と関連していない。

司：この道路管理1と2について他に意見はあるか。

レイチェル(フィリピン)：ITSの適用やインフラと深いつながりがあるため、自分にとっては有益である。

司：アリさんが『自動運転』を挙げているが、6/22の中野准教授の『機械工学1、2』の講義か。

アリ(ケニア)：自動運転よりも交通安全や道路利用者教育の内容がもっとある方がよい。日本では既に政府や産業界で自動運転の議論が進んでいるが、本国では議論も導入もできない。

大口：中野准教授と自分との間に伝達ミスがあった。話題を変えて、既存の技術、例えば、車両の安全機能が向上したら社会にどんな影響を及ぼすかや、ヒューマンマシンインターフェースといったことをもっと入れて欲しいと依頼したつもりだった。

望月：日本における自動運転は、安全支援や衝突防止等、交通安全から始まっている。日本の自動運転の歴史を盛り込むべきだと思う。

司：『扱われなかったが、含むべき科目』について、ネカさんがBRT(バス高速輸送システム)におけるITSを挙げ、理由を「ITSにおいて公共交通を無視することはできない。また、交通管制センターにより、道路利用者は様々な目的地に容易にたどり着くことができるようになっている。従って、公共交通の運行と交通管制センターを一体化させる必要がある。」としている。付け加えることはあるか。

ネカ：記載した通りで、付け加えることはない。

司：その科目を取り入れるとしたら、何を知りたいか。

ネカ：バスの運行。

司：運行管理センターのようなものか。

ネカ：全て見たい。スケジュール管理、運転手の挙動、発券業務、オフピーク時間帯へのピークシフト等。

司：ニアズさんが『公共交通におけるITS技術の活用』を挙げ、理由を「自分は公共交通を扱う組織から来ている。日本のように、本国でも公共交通と民間交通は別々に管理されている。本コースではバス優先の信号制御しか取り上げなかったが、公共交通における別のITS技術も紹介すべきである。」と述べている。付け加えることはないか。

評価会要旨

コース名	ITS(高度道路交通システム)実務		
ニアズ(パキスタン)：BRTその他の公共交通の運行支援として、自動料金収受、車両位置自動表示システム等の技術があり、NECの説明に含まれていた。どんな問題に直面しているのか、バス事業者と話し合ってみたい。自分の組織では信号制御は適用できないため、組織としてどのようにバスの運行管理を行っているのかわかりたい。			
司：アリさんが『ITS導入前及び導入中の市民教育』を挙げている。理由は「日本がいかんして、交通安全や法規遵守を国民に周知してきたのか、また、いかんしてITS機器使用について理解促進を図ってきたのか、本コースでは明確に説明されなかった。」ということだ。			
アリ：講義の中で、3E(Engineering, Education, Enforcement)について説明があった。技術と取締りについてはよくわかったが、教育の部分は質問しても不明瞭だった。法や規則の遵守について日本はどんな戦略を用いたのか。これを理解できれば取締りも容易になる。取締りは困難な課題であるが、それは教育が困難だからである。講義で取り上げてもらえることを期待する。			
大口：言う通りだ。内容をそのレベルまで拡大するかという議論は常にしている。交通安全や危機管理の総合コースを別に立ち上げようか…。これは歴史や文化と密接に関連した問題で、理解するのは容易ではない。難しい問題だが、検討して改善するよう努力する。			
司：レファットさんが『重量計測システム』を挙げ、理由を「大型車の過積載による道路の損傷は主要な問題の一つである。」としている。			
レファット(エジプト)：コンサルタントチームとも話したが、次回のコースでは取り入れてもらえることよい。複数の国が主要な問題として直面している。阪神高速職員も同じことを言っていた。			
大口：日本も同じである。			
司：本邦企業による技術セミナーで言及した企業があったのではないか。			
レファット：阪神高速から秤量所やWIM(走行車両重量計測)について聞いた。過積載車は通過できないとは知らなかった。WIMのスピード上限は30km/hだということだが、ドライバーは減速しない。これについて説明して欲しい。減速しなければ正確に量れない。			
戸谷：他の道路事業者から来ている研修員はどうか？途上国では大型車の規制は大きな問題であり、似たような課題を抱えているのではないか。			
コピナ(ガーナ)：同感。重要である。本コースに取り入れてもらえれば役に立つ。大きな荷重は道路の破損を早める。ガーナではハイウェイ沿いの橋梁に車重計がある。過積載車はそこに近づくと荷物を減らし、後でまた積み込む。			
レファット：重荷重は事故原因の一つであるため、罰金の計算は多くの国にとって問題である。維持管理費と同額にするか、それより少なくするのか。			
大口：日本には厳しい罰則はない。罰金計算には維持管理費が関連しており、維持管理費の計算はそれぞれが独自に行っている。日本では人だけでなくインフラも高齢化している。インフラの維持管理の予算が不足している。インフラのための合理的な財源が必要だが、まだ構築できていない。			
司：ポーさんが『ITSの維持管理戦略』を挙げ、理由として、「既にコースに含まれているが、簡単な説明のみである。しかし、重要な内容だと思う。」と述べている。			
ポー(タイ)：タイには多くのITS技術があり、限られた予算の中でいかに維持管理費の財源を得るか知りたい。本コースではあまり触れられなかった。日本はどのようにしているか事例を示してもらおうとよい。			
コピナ：ある講義で、維持管理の実践において、欠陥がなくても一定期間で設備更新するという話があった。これはやらなければならないことか。機能しているかに関わらず更新は必要か。			
大口：日本では、ITSインフラのみならず、他の多くの分野でこういう戦略をとっている。これは証拠に基づき分析に支えられている。講師として相応しい人間を探してみる。			
司：講義や視察について、コメントや要望はないか。			
ニアズ：名古屋電機工業の視察において、SOP(標準作業手順書)の話が出た。これを取り入れるべきである。			

評価会要旨

コース名	ITS(高度道路交通システム) 実務
戸谷：高速道路会社による情報提供にSOPが使われる。情報をVMS（可変情報版）に表示したり、事故から復旧後、情報表示をやめるタイミング等を規定している。情報提供は一例だが、そういう知識を得たいということか。	
ニアズ：そうだ。技術の効率的活用が目的である。自国で修正可能なので、知識が欲しい。	
司：グループワークのことを聞きたい。2回設定したが、適切だったか。	
レファット：コンサルタントチームと話し合う方がよかった。大変効果的だった。	
司：個別相談会のようにか。	
レファット：そうだ。国によって課題が異なる。	
アリ：自分にとってはグループワークは効果的だった。大学、産業、コンサルタントといった異なる職業の強みがうまく融合され、それぞれの視点や異なるレベルの情報を得ることができ、大変有効だった。次回は毎週実施すべきである。	
司：個別相談会は有用だったか。	
アリ：自分はケニアに3年滞在したことのある阪神高速の室長と話したが、よい相談の機会になった。技術面に加え社会面、文化面もわかっているので、どんな質問をしても基本的な理解を得られた。	
司：4日間の研修旅行では、3社を訪問した他、地方文化に触れる時間をとるべく、京都モーニングツアーや名古屋城視察を組み込んだ。すぐに東京に帰ったかった研修員もいれば、楽しんで研修員もいたと思う。日程について何かあるか。	
ニアズ：100年前の文化を見たが、現代の文化はどうか。	
大口：原宿。	
司：地方文化を知ることも大切だ。	
コピナ：歴史を学ぶことは大切で、刺激的だった。京都が都だったことや、将軍について学んだ。もっと増やした方がよい。	
レファット：京都は見ると見るものがたくさんあるので、もう1日延長すべきだ。	
アリ：名古屋城で待に会うこともできた。	
司：JICAのサービスについて、大部分をJICA東京で過ごしたわけだが、食事について、どんなメニューが欲しいか要望を教えて欲しい。	
ネカ：アフリカ料理が欲しい。	
コピナ：JICA中部では食事の選択肢が多かった。JICA東京は昼も夜も同じメニューで、選ぶのが困難だった。ネカさんと同じくアフリカ料理が恋しかったので、提供して欲しい。週に1~2回出れば嬉しい。	
アブ：メニューの他に調理法の問題がある。料理が油っこい。	
ネカ：揚げ物は油っこくても仕方ない。フライドチキンが嫌なら他の物を選ぶべきだ。	
アブ：油が多すぎる。	
司：外国にいる時、食べ物とはとても大切だ。JICA中部の方がよかったと伝えておく。	
ニアズ：賛同できない。中部には1~2日ただけだ。もっと滞在したら意見が変わるかもしれない。	
レファット：同じ金額で外食する方がよい。店はたくさんあり、毎日替えることができる。JICA東京で食べる選択肢もあってよいが、ミールカードは無くして欲しい。	
司：ミールカードには意味がある。過去に研修員が何も食わずにお金をためていて、問題になった。	
レファット：大人だから、お金を節約して死んだとしても問題ない。	
司：JICAにとっては客人だから、問題である。	
ネカ：中部との違いはメニューから選ぶか、サンプルから選ぶかだけである。どちらも種類があるので、そのままでもよい。ただし、アフリカの名前がついていても、日本の風味を感じた。アフリカ人が作り方を教えてらよい。	
司：最善を尽くす。他に要望やコメントはないか。	
複数研修員：よかった。	

評価会要旨

コース名	ITS(高度道路交通システム) 実務
ネカ：コース中、繰り返しが多かった。複数の講師がセンサーや交通について話したので、フィードバックシートにも同じことを繰り返し書いた。重複を減らすとよい。	
アリ：繰り返しには許容範囲がある。ある概念を紹介するためには説明しなければならない情報がある。VICS（道路交通情報通信システム）を説明するにはJARTIC（日本道路交通情報センター）を説明しなければならない。避けられない重複は許容範囲である。	
大口：いつも直面する難問である。これまで6年間の経験を基に、7年目の今年、講義にいくつかの変更を加えた。講師に対し、ある話題に焦点を絞るよう依頼した。よくなったところもあるが、重複の問題もまだ残っている。ある程度の繰り返しは避けられないが、更に調整に努める。	
司：帰国後アクションプランの進捗を報告して欲しい。困難があればいつでも連絡して欲しい。7か国の研修員との関係を更に深めて欲しい。	
ネカ：最後の講義（関本准教授）は素晴らしかった。対話的に質問し、全員の参加を促した。講義を聞いていると眠くなるので、講師は質問するとか、何かした方がよい。講義中に質問できればより双方向的になる。	
レファット：講義時間は60分を超えるべきではない。90分は長い。	
ネカ：対話的ならよい。	
司：休憩をはさんだらどうか。90分は長過ぎるか。	
コピナ：大丈夫だ。	
レファット：長い。	
大口：場合による。	

2020 年度 ITS 実務課題別研修 巻末資料

ページ

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1. ブラッシュアップ研修資料

JICA Knowledge Co-Creation Program

Practical Technology on Intelligent Transport Systems (ITS)

24 Nov, 2020
Institution of Industrial Science, University of Tokyo
(Prof. Takashi OGUCHI)

1

Reforming the "follow-up" action

- JICA team visits a country, where is the one of all the countries of the participants in the knowledge co-creation program, to gather information and hold a follow-up seminar after the knowledge co-creation program on ITS as a rule.
- However, because of the COVID-19 pandemic in this year, JICA made a decision to modify the "follow-up" action as for holding this "Online Brush-up Seminar" asking all the participants to join the knowledge co-creation program on ITS held in 2019.
- I'm happy that six participants out of eight join this seminar.
- **Welcome back, Rachel-san (Philippines), Nneka-san (Nigeria), Kobina-san (Ghana), Refat-san (Egypt), Niaz-san (Pakistan), and Ali-san (Kenya).**

2

Plan of the "Online Brush-up Seminar"

- All the participants are requested to give a presentation on the situations for preparation of the implementation of ITS, and/or issues facing in each country during the "Sharing Time" at first.
- Discussions by all the participants, following the presentations from all participants above, mainly focuses on the process of the ITS implementations in the countries.
- At the last, the "Latest trends on ITS" is delivered.

3

The expected outcomes

- It is expected that the participants will get hints or ideas to promote the implementations of ITS in their own countries through the Discussions.
- Independent consultations will give you more specific resolutions of issues related to promote any ITS project in each country.
- Both participants and JICA team will enhance the human network.

Enjoy !

4

**TRANSPORT AND MASS TRANSPORT DEPARTMENT
GOVERNMENT OF SINDH, PAKISTAN**

**Integrated Intelligent Transport System (IITS)
For the Karachi Mass Transit Plan**

Niaz Ali

November 24, 2020



2020年度卷末資料一4

ITS Tender Floated for Bidding

GOVERNMENT OF PAKISTAN
MINISTRY OF PLANNING, DEVELOPMENT & SPECIAL INITIATIVES
NOTICE INVITING TENDER (RE-BIDDING)

Sindh Infrastructure Development Company Limited (SIDCL), MoPD&SI, Government of Pakistan, invites sealed bids on lump sum basis from interested Firms / Manufacturers/ Suppliers for the supply of following items, under Public Procurement Rules 2004 for Green and Orange Lines Bus Rapid Transit System (BRTS) in Karachi:

Scope: Design, Delivery, Installation, Support and Maintenance and Transfer of an Integrated Intelligent Transport System (IITS) for **Package_A** (Automatic Fare Collection AFC, Automatic Vehicle Location AVL, incl. Operation Control Center OCC Functionality, Software for Real Time Passenger Information RTPi and Business Intelligence and Analyses Software BIAS).

1. The bid is open for all Firms/ Manufacturers/ Suppliers meeting the following basic qualification criteria and other detailed criteria provided in the bidding documents:

Description	Requirement
Eligibility: Reputable Manufacturer, either itself or through authorized local partner/ agent/ representative for the specific tender, subject to following: Certification/ Registration (Must Meet) NTN, and Sales Tax (Must Meet) Foreign entities: Tax certificate of the country duly attested by Pakistani Consulate of their country.	To be provided
Registration with income tax department/ FBR	To be provided
Minimum Net Worth	Proportionate to JV share Not less than PKR 700 Million
Average Annual Turnover	Not less than PKR 700 Million
List of litigation (if any) their nature and status/ outcomes	To be provided
Affidavit/ Undertaking of black listing history, if any. Any firm remain blacklisted at the time of submitting this tender is ineligible.	To be provided
Other requirements: As provided in the bidding documents	

2. Open Competitive Bidding under Public Procurement Rules 2004 (**Single-Stage Two Envelope bidding procedure (Rule 36b)**), with response time for international bidding is used.

3. Tender Documents will be issued w.e.f. 16th Nov, 2020 on application on Original Letter Head along with Pay Order of PKR. 5,000/- in favour of Sindh Infrastructure Development Co. Ltd.

4. Soft copy of the RFP may be downloaded from SIDCL website. The bidder shall then submit it in hard along with the Pay order of Rs. 5,000 in favour of the employer, at the time of bid submission.

5. All technical bids must accompany an Original Bid Security for the amount of not less than 2% in the form of Deposit at Call or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a Foreign Bank duly counter guaranteed by a Scheduled Bank of Pakistan.

6. Pre-bid Meeting: 30th Nov 2020 (Monday) at 2:30 p.m. at address below. Questions/ Queries shall be provided 03 days in advance (through email or hardcopy at the given address).

7. Submission Date: By 16th Dec, 2020 (Wed) up to 3:00 p.m., Opening at 3:30 p.m. same day.

8. Place of issuance, submission and opening as below:

Chief Executive Officer
SINDH INFRASTRUCTURE DEVELOPMENT COMPANY LTD (SIDCL)
6th Floor, Extension Block, Bahria Complex IV, Gizri, Karachi
Tel: 021-35155101, Fax: 021-35155102, info@sidcl.com.pk, www.sidcl.com.pk

GOVERNMENT OF PAKISTAN
MINISTRY OF PLANNING, DEVELOPMENT & SPECIAL INITIATIVES
NOTICE INVITING TENDER (RE-BIDDING)

Sindh Infrastructure Development Company Limited (SIDCL), MoPD&SI, Government of Pakistan, invites sealed bids on lump sum basis from interested Firms / Manufacturers/ Suppliers for the supply of following items, under Public Procurement Rules 2004 for Green and Orange Lines Bus Rapid Transit System (BRTS) in Karachi:

Scope: Design, Delivery, Installation, Support and Maintenance and Transfer of an Integrated Intelligent Transport System (IITS) for **Package_B** (OCC Video Wall System, Hardware for Real Time Passenger Information RTPi, Communication Network, Security & Surveillance, Energy Management System and Signal Priority System)

1. The bid is open for all Firms/ Manufacturers/ Suppliers meeting the following basic qualification criteria and other detailed criteria provided in the bidding documents:

Description	Requirement
Eligibility: Reputable Manufacturer, either itself or through authorized local partner/ agent/ representative for the specific tender, subject to following: Certification/ Registration (Must Meet) NTN, and Sales Tax (Must Meet) Foreign entities: Tax certificate of the country duly attested by Pakistani Consulate of their country.	To be provided
Registration with income tax department/ FBR	To be provided
Minimum Net Worth	Proportionate to JV share Not Less than PKR 500 Million
Average Annual Turnover	Not Less than PKR 500 Million
List of litigation (if any) their nature and status/ outcomes	To be provided
Affidavit/ Undertaking of black listing history, if any. Any firm remain blacklisted at the time of submitting this tender is ineligible.	To be provided
Other requirements: As provided in the bidding documents	

2. Open Competitive Bidding under Public Procurement Rules 2004 (**Single-Stage Two Envelope bidding procedure (Rule 36b)**), with response time for international bidding is used.

3. Tender Documents will be issued w.e.f. 16th Nov, 2020 on application on Original Letter Head along with Pay Order of PKR. 5,000/- in favour of Sindh Infrastructure Development Co. Ltd.

4. Soft copy of the RFP may be downloaded from SIDCL website. The bidder shall then submit it in hard along with the Pay order of Rs. 5,000 in favour of the employer, at the time of bid submission.

5. All technical bids must accompany an Original Bid Security for the amount of not less than 2% in the form of Deposit at Call or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a Foreign Bank duly counter guaranteed by a Scheduled Bank of Pakistan.

6. Pre-bid Meeting: 30th Nov 2020 (Monday) at 2:30 p.m. at address below. Questions/ Queries shall be provided 03 days in advance (through email or hardcopy at the given address).

7. Submission Date: By 16th Dec, 2020 (Wed) up to 4:00 p.m., Opening at 5:00 p.m. same day.

8. Place of issuance, submission and opening as below:

Chief Executive Officer
SINDH INFRASTRUCTURE DEVELOPMENT COMPANY LTD (SIDCL)
6th Floor, Extension Block, Bahria Complex IV, Gizri, Karachi
Tel: 021-35155101, Fax: 021-35155102, info@sidcl.com.pk, www.sidcl.com.pk

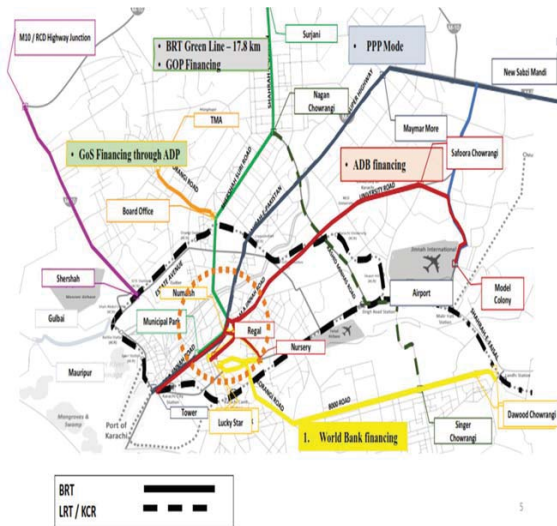
Karachi Public Transportation Improvement Plan

The Karachi Transportation Improvement Plan (2030) was developed by the Japan International Cooperation Agency (JICA) in 2012.

Implementation Status:

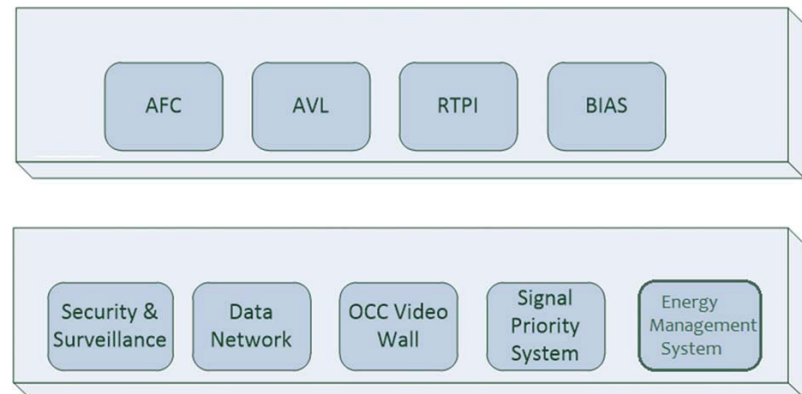
Infrastructure works has been completed, **Tender for installation and operations ITS has been floated for 2 BRT Lines (Green & Orange)**

- Green Line 21 KM- 21 Stations
- Orange Line 4.5 KM - 4 Stations



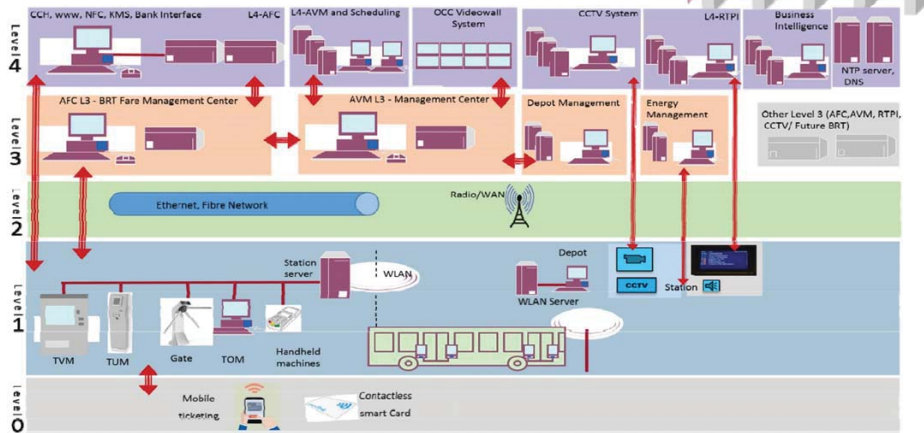
Source: Karachi Transport Improvement Plan 2030

IITS Project Description



IITS System Components

System Architecture



An integrated unified solution for Intelligent Transportation Systems (ITS)

Automated Vehicle Management

- Functions
 - Managing the schedule of whole Bus fleet
 - Dispatch control
- Raising satisfaction of transport system users (higher ridership)
 - providing accurate information to passenger information systems
- Improving resource utilization (effectiveness)
 - reducing number of buses and drivers required for the same service quality



Automatic Fare Collection

- Manage all Types of Fare Structure as per Fare Policy
- Integrated Fare System”, fares to be charged regardless of the mode of public transport
- Contactless travel media and mobile Ticketing/NFC
- Automatic entry and exit gates at stations, stationary and handhelds Vending machines, Office machines, inspection and validation machines
- Effective revenue protection



Real Time Passenger Information System (RTPI)

Passengers will be informed about the service times and schedules at bus stops and stations and POI. Information will be presented on Dynamic Passenger Information displays (DPI) or ordinary static Passenger Information printouts. This information (production and estimated timetable) will be provided by the Automatic Vehicle Management system (AVM).

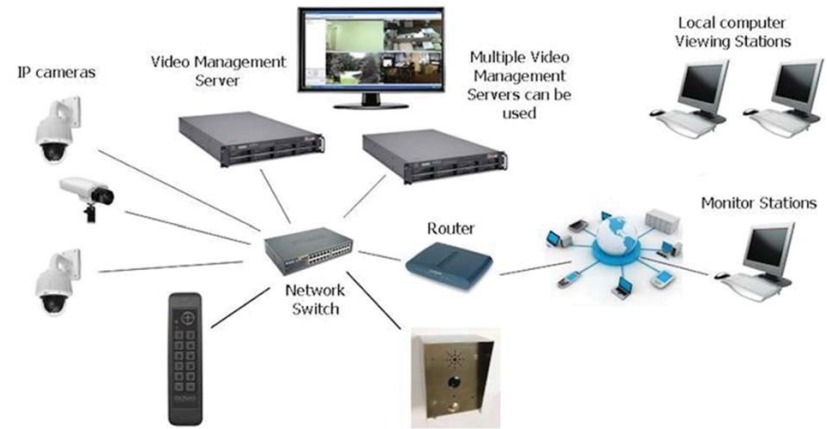


Communication Network

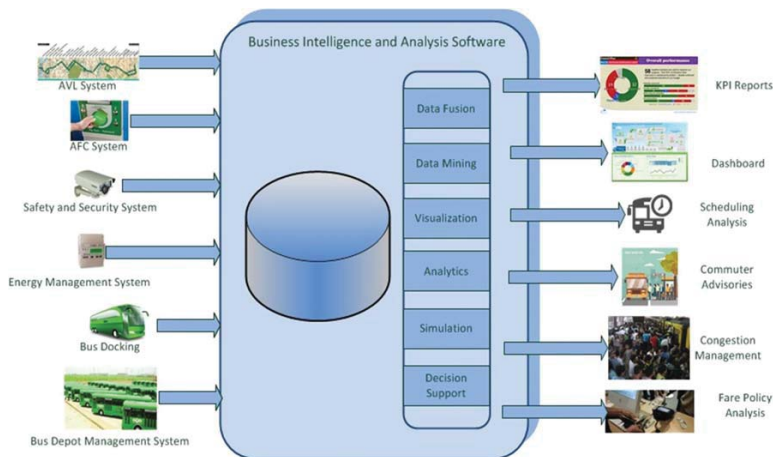
- Backbone Communication Infrastructure
- Local Area Network for Bus Station
- Command & Control Centre Campus LAN
- Bus to OCC communication
- Bus Depot Campus LAN
- Provide reliable, secure and resilient communication service to all elements of IITS
 - Provide network connection at all locations
 - 99.999 % availability
 - Business Continuity
 - Security
 - Scalability



Security & Surveillance



Business Intelligence and Analysis Software (BIAS)

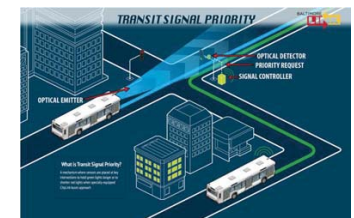
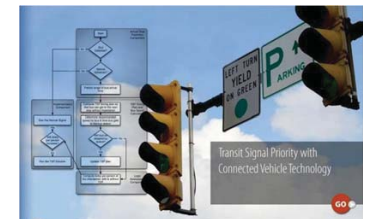


Signal Priority System

Active priority System providing priority control based on Bus position.

Integrated with the AVM system to obtain the bus position in real time.

Implements algorithms for priority provision for Buses



Energy Management System

Monitoring and recording of energy consumption at key points using AMR meters

Energy Management Software for recording energy data from AMR

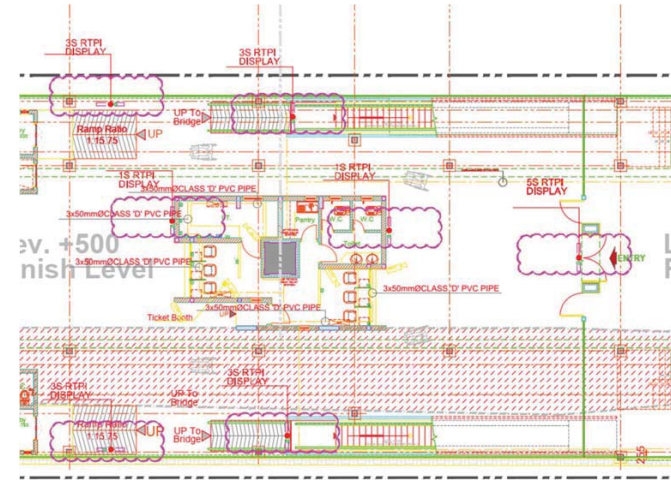
Granular energy flow monitoring to identify areas to reduce energy consumption.

Monitoring of electricity quality by continually monitoring and logging key electrical parameters.

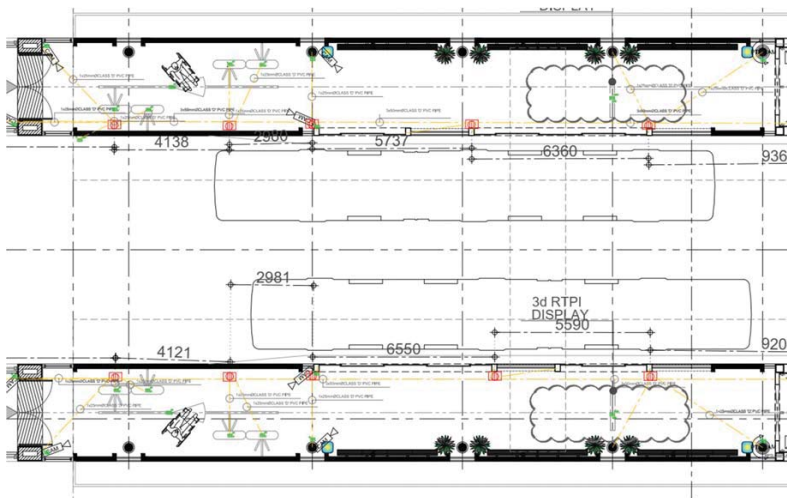
Prevent fuel pilferage by monitoring energy consumption from generators and alternate energy sources



Station Drawing with ITS Elements and ducting



Station Drawing with ITS Elements and ducting

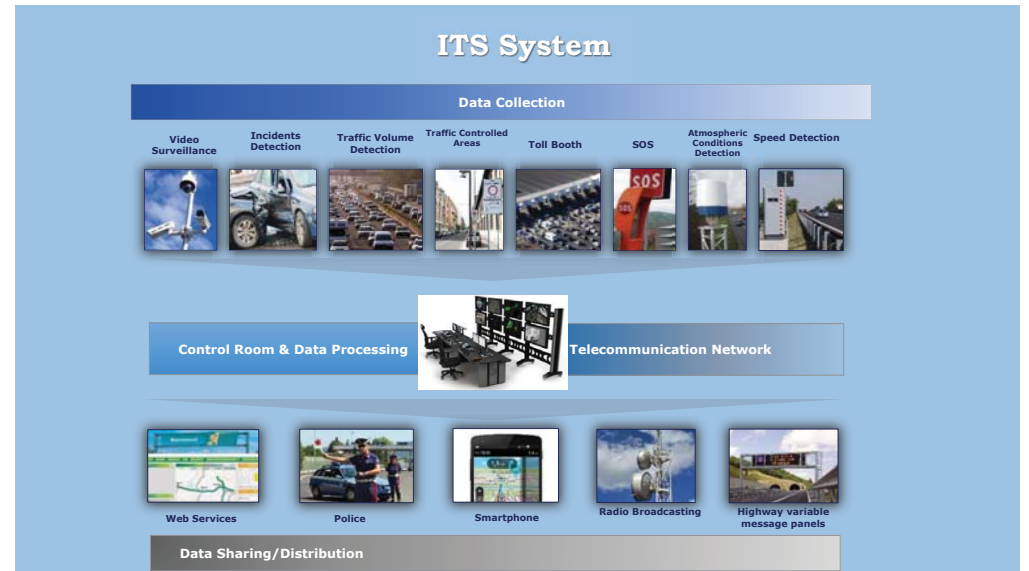


Thank You





1



Road name	Length
Cairo-Alexandria Desert Road	220
Ain El-Sokhna Rd (cairo/katamya)	110
Cairo / Ismailia	195
Cairo / Suez desert Rd	134
Shubra / Banha	40
Regional Ring Rd	380
Total	1079

Phase 1 Road Network


2

The Latest trends on ITS

24 Nov., 2020

Institution of Industrial Science (IIS) &



Mobility Innovation Collaborative Research Organization (UTmobl) 

the University of Tokyo (UTokyo) 

Prof. Takashi OGUCHI

1

COVID-19 impacts on mobility in Japan

3

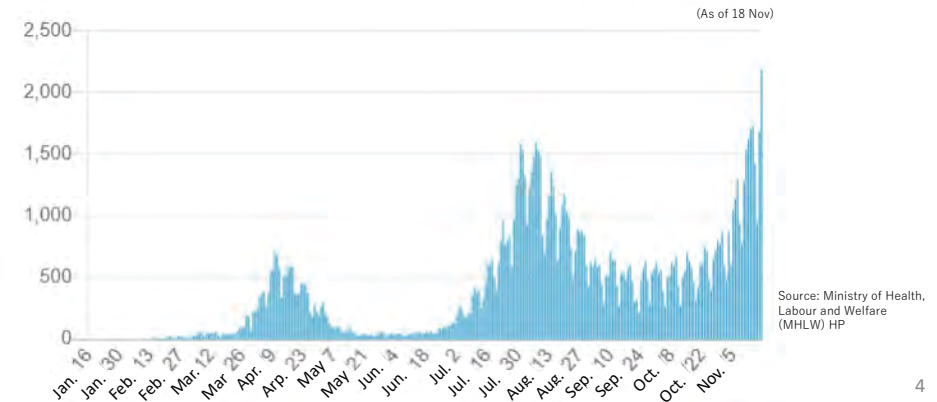
Agenda

1. Overview on the **COVID-19 impacts on mobility in Japan**, and introducing a proposal on "Mobility vision for post covid-19" by UTmobl in the Univ. of Tokyo
2. History of implementation of the **GTFS data in Japan**
3. Traffic management plan of road network in Tokyo for Olympic / Paralympic games including **dynamic pricing**
4. Introduction of the "ITS R&R Experiment Field" and the "Long-term FOT on automated shuttle bus" by **UTokyo**

2

No. of positive cases of COVID-19 in Japan

2,179 people
(Cumulative: 122,562 people)



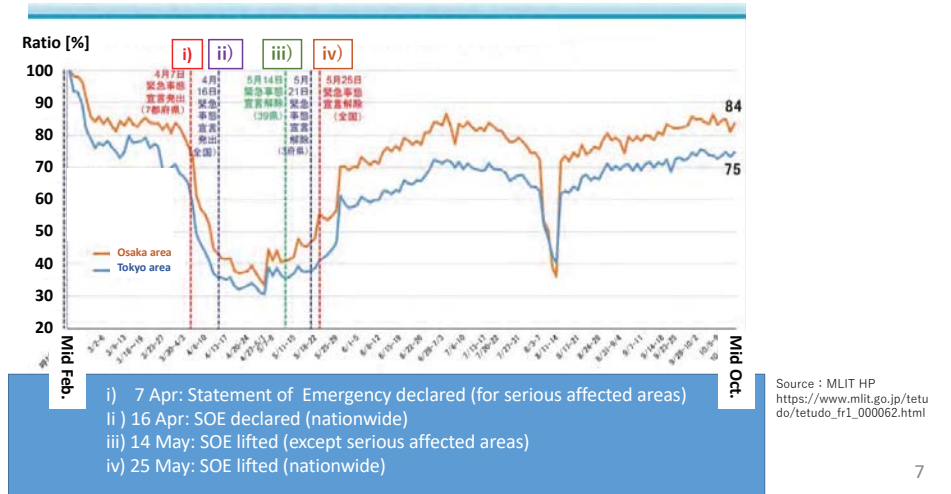
4

Cumulative No. of death of COVID-19 in Japan



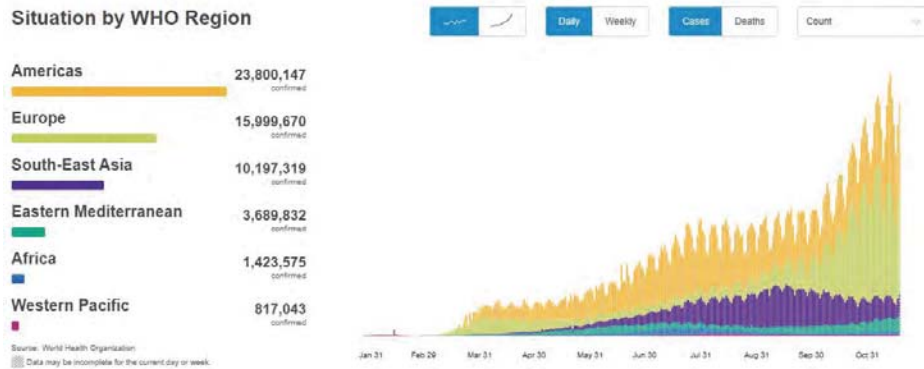
5

Transition of passengers in major train stations in Tokyo and Osaka areas



7

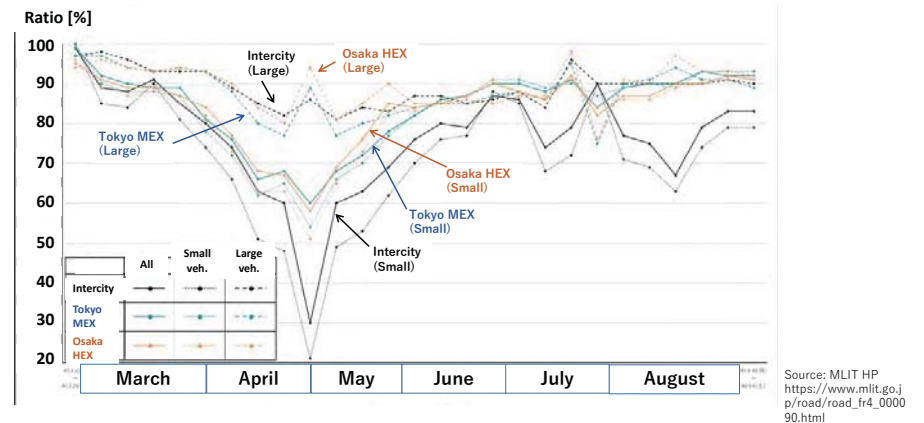
No. of positive cases in the world



Source: WHO HP

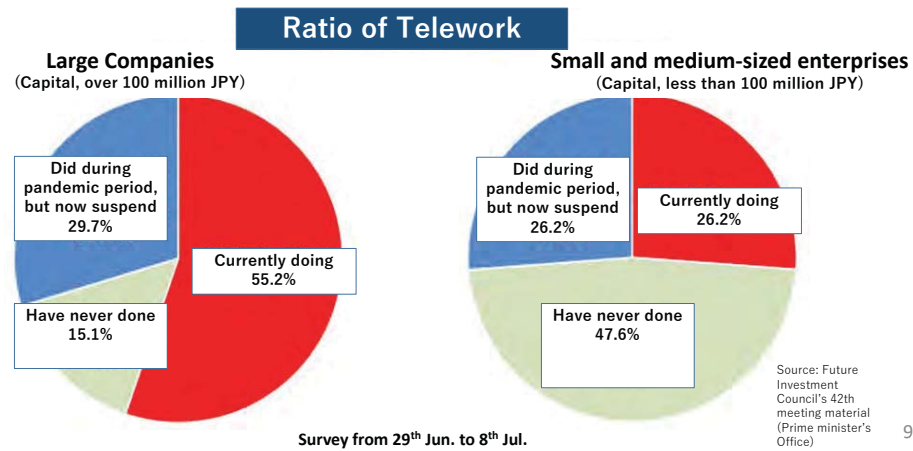
6

Transition of traffic volume on major expressways [ratio to the volume of previous year]

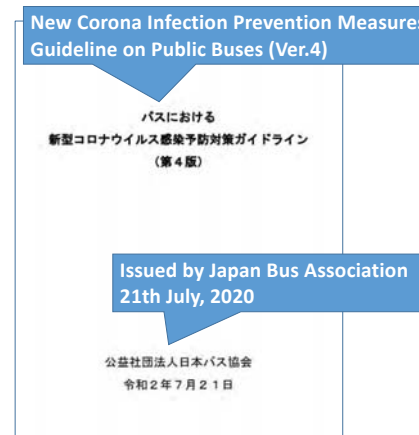


8

Situation of Telework (Remote work) in Japan

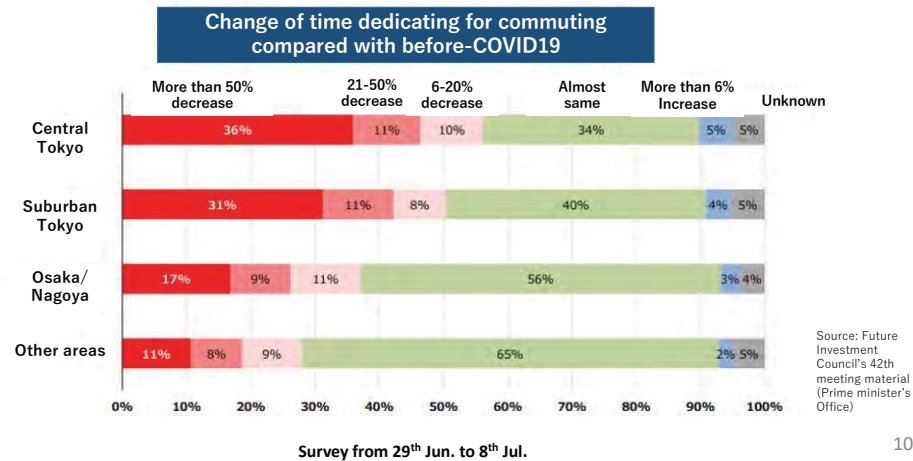


Short-term countermeasures by Transp. Operators



- These kinds of "guidelines" are prepared by sectors.
- The first version of those guidelines were issued in early May around.
- Most of those guidelines are usually prepared by each corresponding business association.
- Basic ideas and some samples that operators (member or each association) should follow are described.

Change of Work Style



Example: Actual infection countermeasures (by Kanto Bus Company)



Information provision for expected-passengers on congestion levels of expressway bus (non-reserved type) in past one week

Inbound → During travel planning, travelers can choose less-congested service to mitigate infection risks.

月日	曜	5:00	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	19:30	20:30	
11/9	M		57%	14%	23%		50%	16%	46%		39%	27%	23%	14%	32%	34%	46%	25%	36%	21%	14%	11%	
11/10	Tu		48%	36%	46%		39%	25%	48%		41%	11%	43%	16%	27%	26%	25%	32%	27%	27%	16%	9%	
11/11	W		30%	18%	39%		34%	25%	43%		41%	16%	30%	21%	59%	14%	27%	11%	16%	16%	8%	7%	
11/12	Th		39%	23%	64%		46%	34%	41%		41%	21%	36%	16%	25%	16%	18%	16%	25%	39%	14%	21%	
11/13	F		9%	32%	27%	75%	39%	43%	48%	99%	41%	21%	46%	30%	34%	32%	50%	27%	27%	59%	57%	23%	34%
11/14	Sa		32%	43%	27%	66%	50%	73%	55%	75%	30%	64%	82%	86%	59%	61%	43%	32%	23%	41%	32%	23%	16%
11/15	Su		18%	21%	25%	36%	23%	59%	48%	50%	30%	49%	39%	46%	50%	61%	66%	61%	82%	64%	66%	43%	32%

Outbound

月日	曜	7:40	9:00	10:30	11:30	12:30	13:30	14:30	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	22:00	23:00	
11/9	M		59%	23%	46%	34%	25%	59%	52%	41%		59%		61%	46%	34%	36%		56%		23%	46%	18%
11/10	Tu		25%	11%	25%	16%	14%	32%	41%	50%		52%		73%	36%	55%	43%		64%		30%	25%	34%
11/11	W		23%	14%	30%	18%	18%	36%	16%	77%		30%		55%	27%	23%	50%		46%		36%	32%	32%
11/12	Th		21%	23%	25%	9%	23%	36%	33%	34%		59%		80%	43%	23%	56%		64%		35%	41%	32%
11/13	F		36%	36%	52%	25%	25%	41%	43%	41%	23%	59%	30%	46%	57%	50%	82%	61%	48%	66%	59%	59%	50%
11/14	Sa		46%	52%	66%	48%	46%	64%	71%	61%	27%	43%	36%	64%	64%	55%	59%	30%	34%	21%	66%	48%	61%
11/15	Su		39%	75%	59%	46%	30%	34%	43%	96%	50%	77%	48%	75%	64%	64%	66%	73%	57%	45%	61%	91%	64%

Source: Kanto railway bus HP

Mobility Vision for Post-Corona Era Ver. 1.0

24th Oct, 2020

Mobility Innovation Collaborative Research Organization (UTmobi), The University of Tokyo

1. Efforts to level demand and utilization of the margin generated by it
2. Further engagement of public sector in public transport
3. Technology development and installation of new mobility services and realization of integrated mobility services by MaaS
4. Technology development and system design that contribute to improvement of efficiency and productivity of logistics
5. Responding to existing mobile demand

Mobility Vision for Post-Corona Era

BACKGROUND of the disclosure of this "Mobility Vision";

- COVID-19 has brought drastic impact to our society as well as mobility field.
- It is an appropriate opportunity to re-think value of mobility in middle and long period and propose future vision of mobility from the comprehensive perspective.

Some of programs has been planned but never realized due to various barriers and constraints. Change of social structure gives them proper chances to promote those programs.

1. Efforts to level demand and utilization of the margin generated by it
 - Efforts should be made to level demand. From the perspective of the supply side, it will lead to the efficiency of the business. From the perspective of the demand side, it will lead to the improvement of comfort. At the same time, it will be in line with the measures to prevent the current infectious disease countermeasures.
 - The space of supply capacity generated by demand leveling should be utilized for future mobility improvement*.
 - * For example, in road traffic, secure driving space for various mobile objects such as bicycles, automated-driving vehicles, and ultra lightweight vehicle. In railways, urban railways that can always be seated.

2. Further engagement of public sector in public transport
 - Keeping public transport service is essential as a last resort to guarantee the right of mobility for all. What is required not only from the viewpoint of economic principles but also from the viewpoint of enhancing the public interest.
 - Cooperation between transportation operators, which are mainly in the private sector, and public sector is more important than ever. Especially, regarding institutional and financial support by public sector, it should be further strengthened in consideration of a broader social perspective, not only transportation policy but also welfare policy.
 - Regarding the roles of the private and public sectors, better methods should be examined and implemented without being bound by past methods.

3. Technology development and installation of new mobility services and realization of integrated mobility services by MaaS

- Aiming for a **universal mobility society**, in order to provide optimal mobility for diverse people, in addition to improving conventional mobility services, technological development related to **new forms of mobility services***¹ should be promoted. At that time, improving productivity is also a crucial demand, and **technological development of mobility services***² should be promoted with **unmanned and labor-saving** in mind. In addition to **technological development of the mobility object itself**, it is necessary to formulate related **technical standards**, examine **business feasibility**, secure **driving space**, etc., and prepare related **laws and government ordinances**.
 - * 1 For example, on-demand mobility services, ultra lightweight vehicle, and sharing services
 - * 2 For example, a public transport service using an unmanned automated driving vehicle (level 4), etc.
- On the premise that there are multiple mobility services, **MaaS** (Mobility as a Service), which provides integrated services to users such as operation information, seat reservations, and payments, should be more enhanced and its introduction and dissemination should be promoted. **Collaboration** across different transportation **services**, public transport **operators**, and **industries** is essential, and **standardization and collaboration on data** should be promoted. At that time, it is desirable to promote cooperation with policies and demonstrations by smart cities.

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The history of GTFS data in Japan

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4. Technology development and system design that contribute to improvement of efficiency and productivity of logistics

- Technological development and system development that contribute to the **efficiency and productivity of logistics** from the aspect of mobility should be proactively promoted.
- It is also important to work on **"Logistics MaaS"** that realizes optimal logistics by linking logistics / commercial distribution **data** and **functional automation** of logistics including **loading & unloading**. At that time, the **fusion** of passenger transportation and freight transportation should be considered.

5. Responding to existing mobile demand

- Assuming that still in the far future there will be certain mobility demand remained, it should be possible to meet the **remaining mobility demand** even when the spread of infectious diseases has ended.

Many of the above measures could not be implemented even if they wanted to implement them, but the large-scale changes in society that started with infectious disease countermeasures are an opportunity to solve these problems at once.

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GTFS (General Transit Feed Specification)

- De facto format for public transportation schedules
- Containing schedules, stops and related data in CSV format



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Applications of the GTFS data

- Journey planning (Google Maps etc.) is a typical application
- The data is applicable for multiple purposes



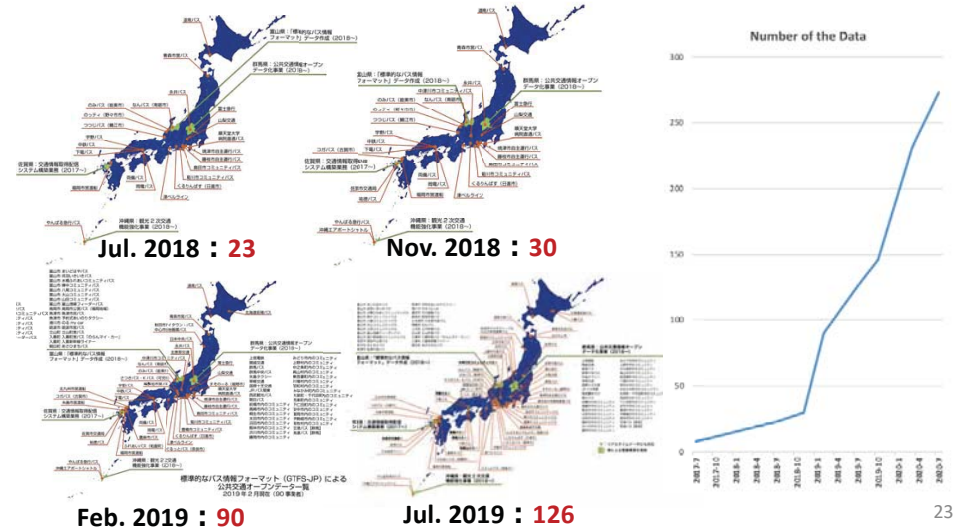
Journey Planning Apps



Passenger Information System



Analysis and Planning of the network



2020年度巻末資料-14

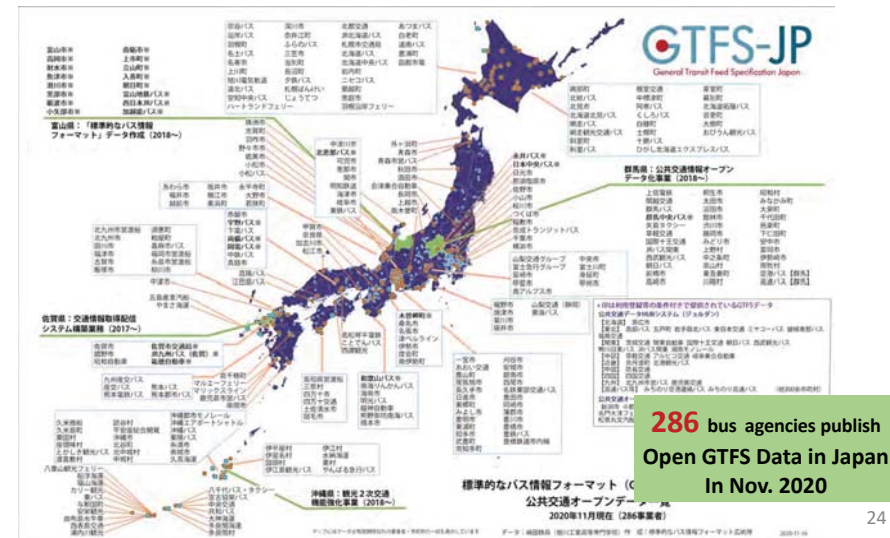
21

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Worldwide transit agencies are publishing GTFS data

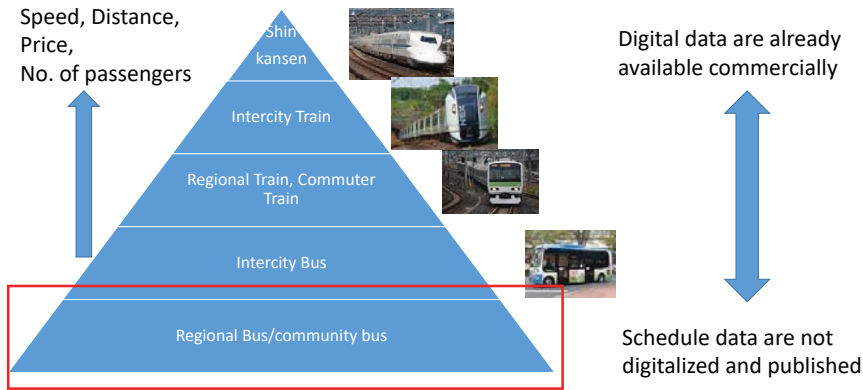
1296 providers in 675 locations as of Nov. 22, 2020

Source: <http://transiffeeds.com>



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Bottom-up approach for Open Transit Data in Japan



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GTFS-JP Promoting Team



- A group of people involved in the GTFS data making and maintenance
- Development of tools to create GTFS data
- Give a lecture to create data for a bus company



- **Member**
 - Researcher
 - App developer
 - System developer for bus agency
 - Transit consultant
 - Municipal office
 - Route bus agency

Academia, Industry, and Government Collaboration



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GTFS-JP specification was standardized GTFS-JP spec. in March 2017 by Japanese government

- A Japanese data standard compatible to the worldwide GTFS
- Mainly focus on route bus schedules

26

Development of Tools to Make GTFS Data

tools are freely available for bus companies



- Excel-based tool for small bus agencies



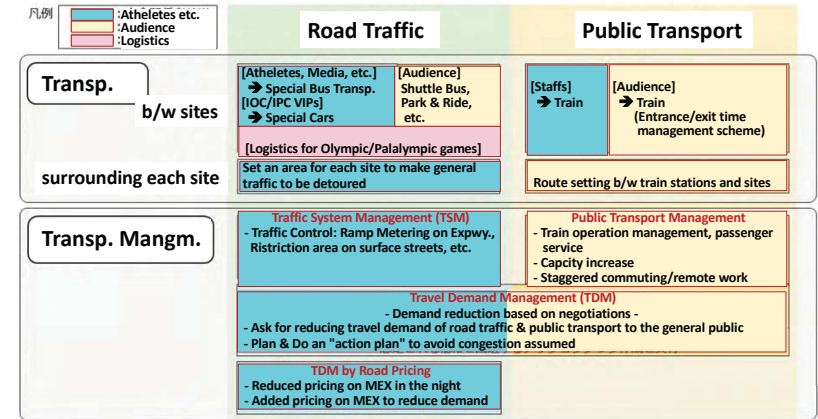
- bus schedule management system for professional-us

28

Many bus companies are making GTFS data and publishing them as open data by themselves



Overall Transport Management Scheme

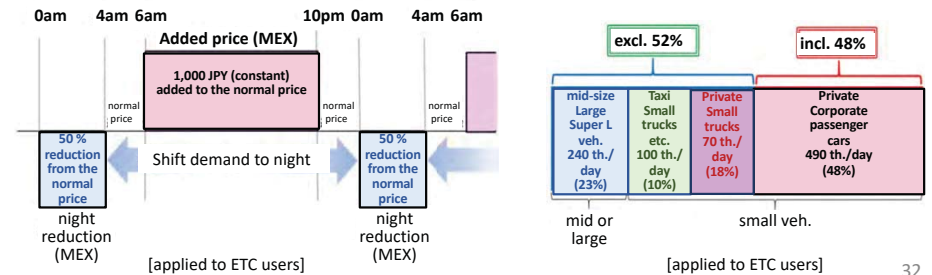


Traffic management plan of road network in Tokyo for Olympic / Paralympic games including dynamic pricing

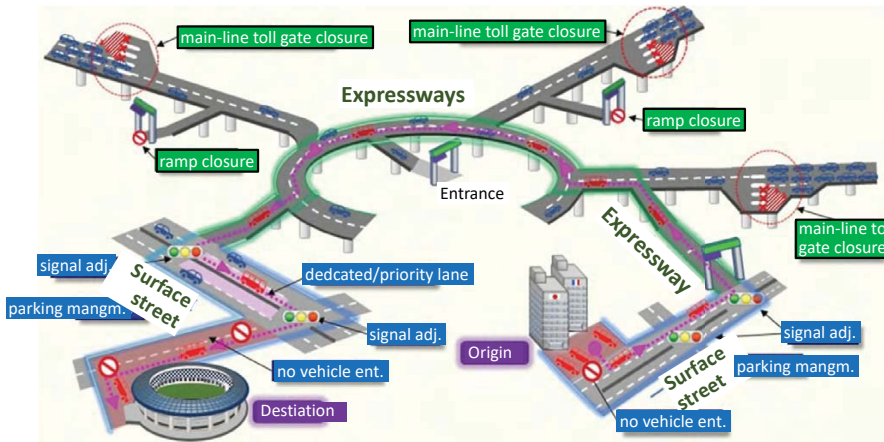
based on the description in <https://tokyo2020.org/ja/games/transportation-management/>

Dynamic (congestion) Road Pricing Plan

- The 1st trial to introduce dynamic road pricing for congestion mitigation
 - ← The price in toll roads (expressways) in Japan was defined based on the concept for paying off of road construction loans.



Additional Traffic System Management (TSM)



33

ITS R&R Experimental Field



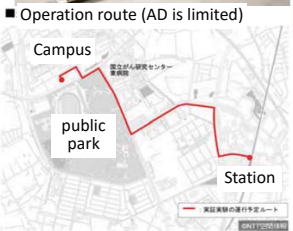
35

ITS R&R Experiment Field & Long-term FOT on automated shuttle bus by UTokyo

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Long-term FOT on automated shuttle bus

- FOT for transp. business with automated driving (AD) with a part of operation length 2.6km (connecting the nearest station and Kashiwa campus of UTokyo) had started from Nov. 2019.
- AD is with SAE Level 2; testing locationing technology not only by GNSS but also by utilizing magnetic markers on road surface.
- Business partners: ... forming an eco-system
 - [Academia] UTmobi, IIS, and GSFS of UTokyo
 - [Local Government & public body] Kashiwa City, UDCK
 - [Transp. operator] Tobu Bus East
 - [Fleet provider] Mitsubishi Autolease Co., Ltd.
 - [Veh. manufacturer] As-mobi, Aichi Steel Corp.
 - [App. provider] BOLDLY Co., Ltd.
 - [Real estate] Mitsui Fudosan Co., Ltd.
 - [Insurance] Sompo Japan Insurance Inc.
 - [Consultant] Pacific Consultants Co., Ltd.



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2. ブラッシュアップ研修資料 (個別コンサルテーション)

Additional power system of traffic signal for blackout

Lithium battery System



- ★ condition
- traffic signal = LED traffic signal (standard type)
- power supply time 2- 8hours
vehicle signal 6, traffic signal for pedestrian=8
- restart time: no temporary blackout
- the update period: about 8 years
- price :one million three hundred thousand yen

Additional power system of traffic signal for blackout

Portable Generator



- ★ condition
- traffic signal = LED traffic signal (standard type)
- power supply time: 5- 6hours
vehicle signal 6, traffic signal for pedestrian=8
- the update period: about 19 years
- restart time: one minute (not to be included the conveyed time (signal controller side from the office))
- price :six hundred thousand yen

Additional power system of traffic signal for blackout

Automatic start System



- ★ condition
- traffic signal = LED traffic signal
- duration: 24hours
vehicle signal 6, traffic signal for pedestrian=8)
- the update period: about 19 years
- price :two million three hundred thousand yen
- power supply time: one minute

Traffic Signal Blackout Measures in Japan

Dec.25, 2020
 Atsushi MOCHIZUKI
 Nippon Koei Co.,Ltd.

2. LED Traffic Signal with Solar Power and battery



(Source) <https://funatowato.exblog.jp/16354232/>

1. Additional power system of Traffic signal for blackout (in case of disaster)

信号機電源付加装置(常設式)の種類

Automatic start system	Lithium battery System	Portable Generator
Duration:24hour 【対応信号機】 全ての信号機に対応 【電力供給までの時間】 約1分間停電 【設置場所】 歩道上に設置 【単価】 【更新基準】 約230万円 概ね19年 【保守点検経費】 約1~5万円/1年	Duration:2~8hour 【対応信号機】 LED化された信号機に対応 【電力供給までの時間】 瞬時 【設置場所】 信号柱への設置が可能 【単価】 【更新基準】 約130万円 概ね8年 【保守点検経費】 約1~5千円/1年	可搬式発動発電機を常設の保管庫に収納 Duration:5~6hour 【電力供給までの時間】 警察官による操作が必要 【単価】 【更新基準】 約60万円 概ね19年 【保守点検経費】 約1.5~2万円/1年
		

(Source) https://www.npa.go.jp/yosan/kaikei/yosankanshi_kourituka/27review/pdf/27-41sannkousiryo.pdf

3. Waterproof Traffic Signal



(Source) <https://www.kyosan.co.jp/english/product/traffic02.html>

Introduction of JICA's cooperation on ITS

June 24, 2019

KANYAMA Yohei
 Infrastructure and Peacebuilding Dept.,
 Japan International Cooperation Agency (JICA)

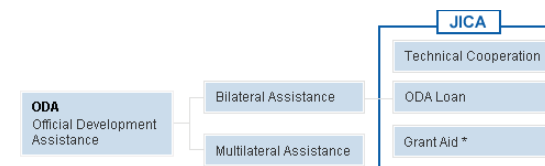
Contents

1. Introduction of JICA's approach to ITS
2. Example of Examples of Cooperation ITS Projects between JICA

1. Introduction of JICA's approach to ITS

About JICA

ODA is broadly divided into bilateral aid, in which assistance is given directly to developing countries, and multilateral aid, which is provided through international organizations. JICA provides bilateral aid in the form of **Technical Cooperation**, Japanese **ODA Loan** and **Grant Aid**.

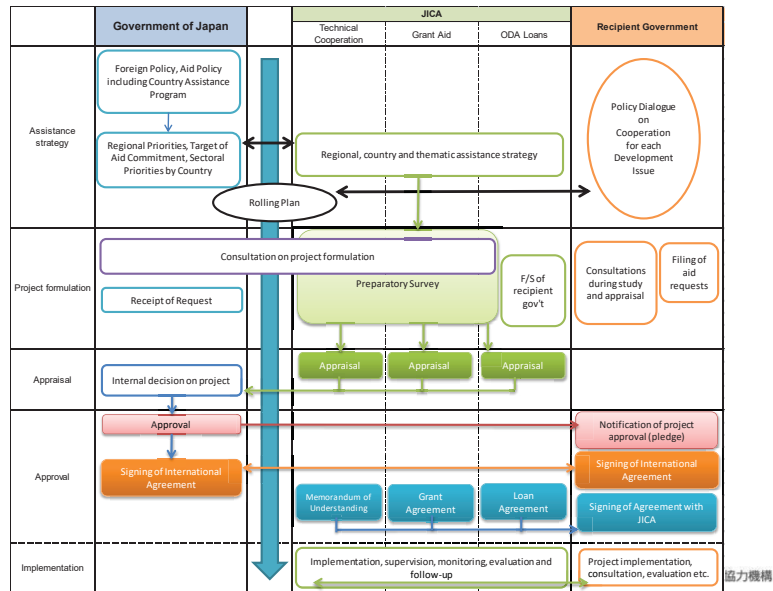


*This excludes Grant Aid which the Ministry of Foreign Affairs will continue to directly implement for the necessity of diplomatic policy.

Other Types of Assistance

- Citizen Participation (Volunteers, JICA Partnership Program)
- Emergency Disaster Relief

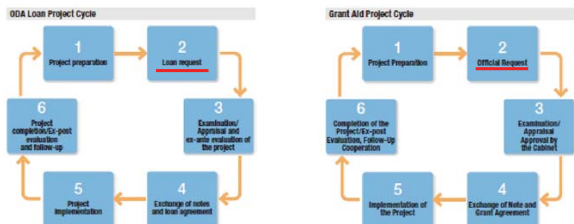
Japan's ODA



Japan's ODA

Technical Cooperation, Japanese ODA Loan and Grant Aid

Beginning points of those schemes are REQUEST from each countries.



2. Examples of Cooperation ITS Projects between JICA and Japanese Company

Solution Menu

1. ITS Master Plan Project
2. Traffic Control System for Expressway
3. Traffic Information Provision
4. Traffic Signal Control
5. Traffic Demand Management (Road Pricing)
6. Traffic Demand Management (Smart Parking)
7. Toll Collection ETC
8. Data collection and Provision (Floating Car Data)
9. Road Operation and Maintenance
10. ITS Seminar

No. 4 Traffic Signal Control

The Project for Development of Traffic Management System in Phnom Penh

Project name: The Project for Development of Traffic Management System in Phnom Penh

Project Area: Phnom Penh Capital City / Kingdom of Cambodia

Owner: The Kingdom of Cambodia Phnom Penh Capital City



Department of Public Works and Transport

Fund: Grants-in-aid project by JICA

Grant limit: 1.7 billion yen

Execution Period: From December 2015 (On-going)

Constructor: Sumitomo Electric Industries, Ltd. /Mitsubishi Corporation

Objectives and Overview:

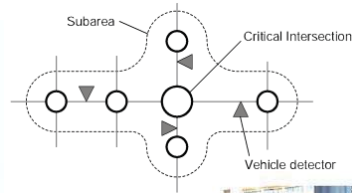
This Grant Aid Project is aimed at installing

- 100 new traffic signals at selected intersections (inclusive of the 64 inner city signalized junctions out of the total of 69 existing signalized junctions in Phnom Penh)
 - A centralized traffic control center which together form a computerized signal control
 - Surveillance system capable of on-line and real time systematic control functions
- Contribute to mitigating the existing traffic congestion and aids in the improvement of traffic operation and urban living environment in Phnom Penh.

Source: JICA THE PREPARATORY SURVEY FOR PROJECT OF DEVELOPMENT OF TRAFFIC MANAGEMENT SYSTEM IN PHNOM PENH PREPARATORY SURVEY REPORT

No.4 Traffic Signal Control

The Project for Development of Traffic Management System in Phnom Penh



Source: Sumitomo Electric Industries, Ltd
国際協力機構

Source: THE PREPARATORY SURVEY FOR PROJECT OF DEVELOPMENT OF TRAFFIC MANAGEMENT SYSTEM IN PHNOM PENH

Project Goal and Objective

Project Goal

<Overall Goal>

Coordination for Urban road traffic management in Dhaka City is established.

<Project Objective > “Capacity Development”
Function for road traffic management is strengthened.

Objectives

To develop the expected output and establish project goals by conducting project activity based on the R/D on “Dhaka Integrated Traffic Management Project”.

2. Dhaka Integrated Traffic Management Project



Project Output

Output

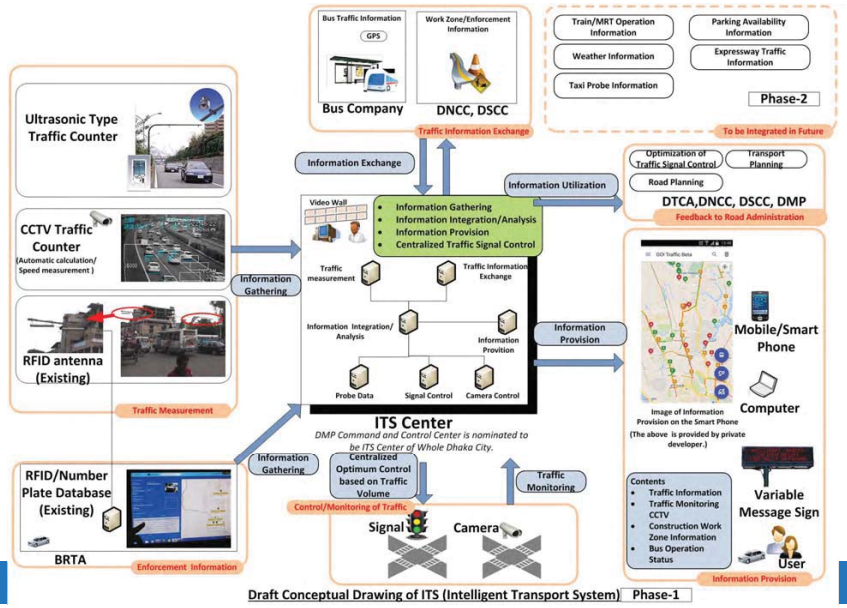
OUTPUT 1:
Implementation mechanism of road traffic management with concerned organization is set up.

OUTPUT 2
Technology for intersection improvement is developed.
• Intersection Improvement Manual

OUTPUT 3
Capacity on collection and analysis of road traffic information is enhanced.
• Manual for Installation and Operation of ITS Equipment
• Comprehensive Road Traffic Control System Plan

OUTPUT 4
<Formulation capacity on road traffic regulation is enhanced.>
• Action Plan for Design and Enforcement Mechanism of Road Traffic Regulation
• Action Plan for Road Traffic Safety Programmes for Drivers and Pedestrian

Image of Comprehensive Road Traffic Control System Plan



Contents of Pilot Project

Target intersection of Pilot Project will be improved by...

- **Intersection Improvement**
 - Additional right turn lane
 - Lane marking
 - Expansion of waiting space for pedestrian etc.
- **Installation of ITS**
 - Actuated traffic signal
 - CCTV and vehicle detector
 - Synchronization with traffic signal and railway crossing etc.



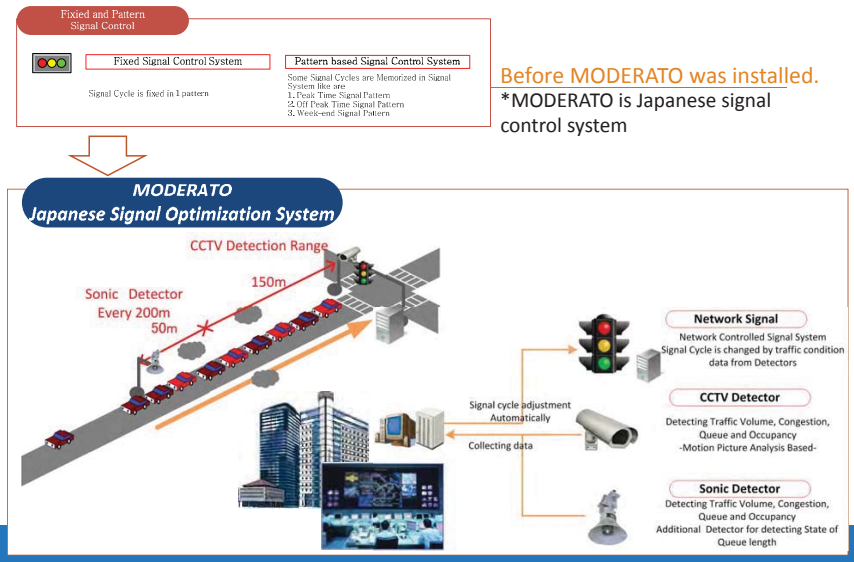
Image of Vehicle Detector

2020年度卷末資料—24

Location of Pilot Project

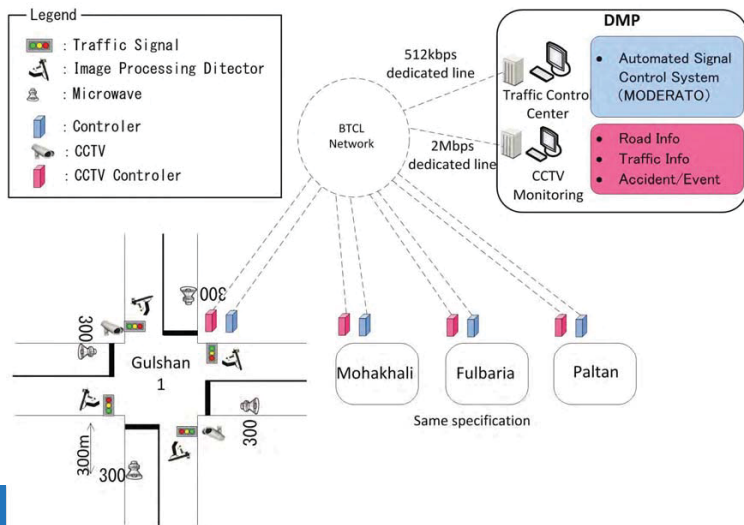


Installation of Traffic Signal System (1)



Installation of Traffic Signal System (2) NIPPON KOEI Challenging mind, Changing dynamics

System Detail



2020年度巻末資料—25

Procedure of Realizing the JICA Traffic Safety Project (Assumed)

~ End June 2019	Submission from DMP -> Bangladesh Police -> Ministry of Home Affairs -> Planning Commission -> Economic Relations Division, Ministry of Finance <i>*Application form should be ranked to "Priority A" on the project list called 'Submission of Project Proposals for Japanese Technical Cooperation for FY 2020' by ERD, ministry of Finance.</i>
10 Jul. 2019	Deadline of 'Submission of Project Proposals for Japanese Technical Cooperation for FY 2020' from ERD to JICA Bangladesh Office
10 Jul.~	Evaluation in JICA Bangladesh Office and Embassy of Japan -> sent to JICA Headquarter in Tokyo
Aug.~	Evaluation in JICA Headquarter and Ministry of Foreign Affairs of Japan
Mar. 2020	Procurement of Consultant for 'Detailed Design Survey' for the Project
Mar.- Jul. 2020	Detailed Design Survey <i>*Survey team conducted by JICA will visit Dhaka and stay for 2 weeks in Mar.-Apr.2020.</i> RD(Record of Discussion) between BD government and JICA
Aug. 2020	Procurement of Consultants for the JICA Traffic Safety Project <i>*2-3 weeks for proposal formulation and 10 days for evaluation</i>
Sep. 2020	Commencement of the JICA Traffic Safety Project

Road Traffic Signal Control Method

1. 1. Fixed cycle control

1.1 Multi-stage pre-timed cycle control

Change the control pattern (cycle length, split) for each weekday / holiday and time zone

Features: Commonly used. It is necessary to change the pattern at the site according to the change of traffic flow.

1.2 Coordinated Multi-stage pretimed cycle system control (green wave control)

Synchronize signals at multiple intersections on a line (cycle length, offset)

Features: Smooth traffic flow when there are many signals on one line.

2. 2. Sensor-type Traffic Signal control

2.1 Terminal control

2.1.1 Gap sensitive control

Observe the traffic volume in a certain lane (right turn lane), and when there is no right turn traffic, stop the green light and allocate the blue time to the main traffic.

Features: Efficient signal operation is possible. Requires a sensor to observe the lane (CCTV, etc.).

2.1.2 Public transport (bus) sensitive control

Control the signal so that it is easier for public transportation to pass when it approaches the signal.

Features: Requires communication means between bus and signal (optical communication is used in Japan, CCTV is also possible)

2.1.3 Simple semi-sensitive control

Give the right of way only when there is secondary road traffic, and eliminate unnecessary stops of main road traffic.

Features: Sensors are required on the secondary road (CCTV, optical beacon). Adopted when the traffic on the secondary road is light.

2.1.4 Full sensitive control

Control signals by measuring traffic in four directions.

Features: Requires sensors (CCTV, optical beacon, loop coil). Control is possible according to the traffic volume in each direction

2.1.5 Profile signal control method

When the traffic flowing out from the upstream intersection reaches the downstream intersection, data is collected by a sensor installed upstream, predicts and transmits to the signal at the next intersection, which is optimal for the traffic volume.

Features: Without a central center, control according to traffic volume is possible to some extent (linear, area). Sensor required (CCTV, optical beacon, loop coil).

2.2 Central control method

2.2.1 MODERATO: Management by Origin-Destination Related Adaptation for Traffic Optimization

Optimal traffic actuated signal control in real time by measuring cue length in 4 directions (Japan) Control in an area.

Features: Area control is possible according to the degree of congestion in four directions. Requires sensors to measure the length of cue (150m, 300m, 500m, 1000m)

2.2.2 SCOOT: Split Cycle Offset Optimization Technique

Signal control by estimating the arrival time of a car from the assumption that the car detected by the detector installed upstream of the stop line will reach the stop line at a constant speed (UK).

2.2.3 SCAT: Sydney Coordinated Adaptive Traffic System

Signal control using data from a loop detector installed near the stop line (Australia)

2.2.4 Others (ITACA, RONDO, UTOPIA)

2.2.5 Latest trends Signal control using AI, probe car data, CCTV image big data is being researched and tried.

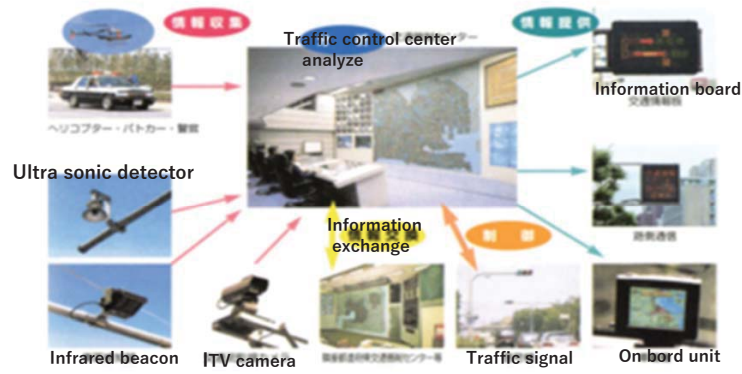
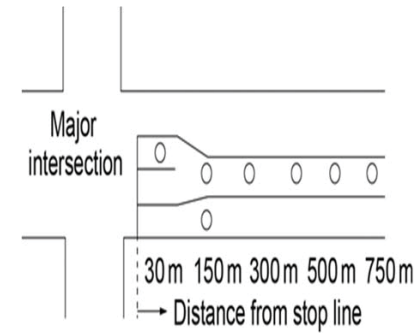


図2 交通管制システムイメージ図
Traffic control center image

standard arrangement of detectors



Source: History of Traffic Signals in Japan, UTMS Society of Japan
Figure 2.1.1: Standard arrangement of detectors

MODERATO system

○Concept

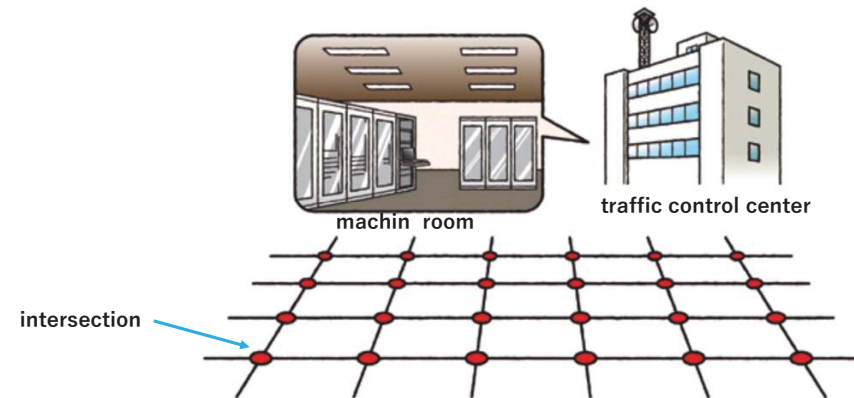
- ①decrease traffic congestion
- ②decrease traffic injury

○Characteristic

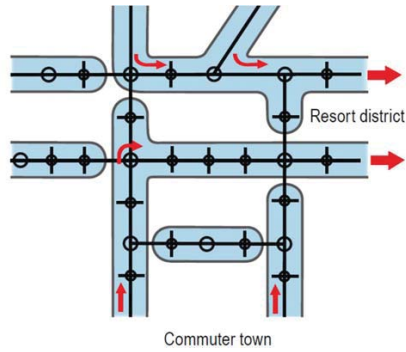
- ①area signal control
- ②Off-peak traffic control (create safe traffic flows minimize delays)
- ③near saturation control
- ④Over saturated traffic control
(balance control traffic passage maximization control)
- ⑤policy execution control

○additional system (Universal Traffic Management System)
for example: PTPS(public transportation priority system)

●Area signal control

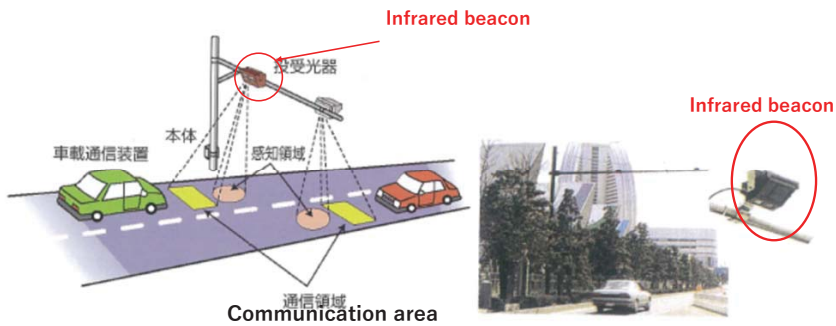


●Area signal controal

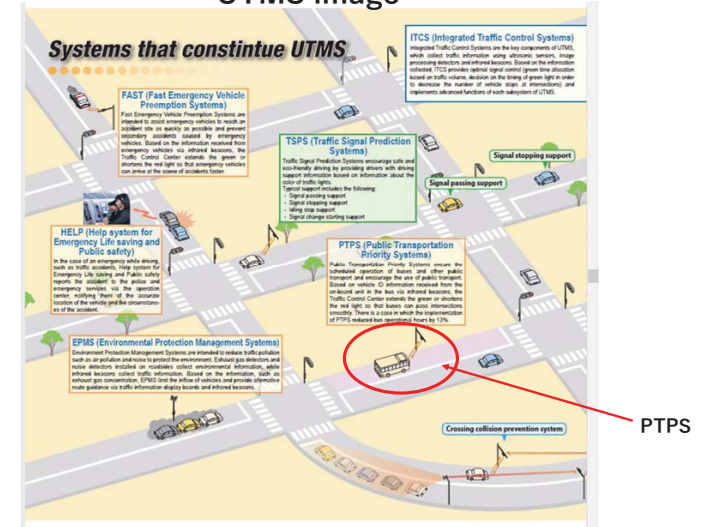


2020年度卷末資料—28

Additional system : key infrastructure (Infrared beacon)
 (New interactive system send GPS information of the bus on cell phone to traffic control center)

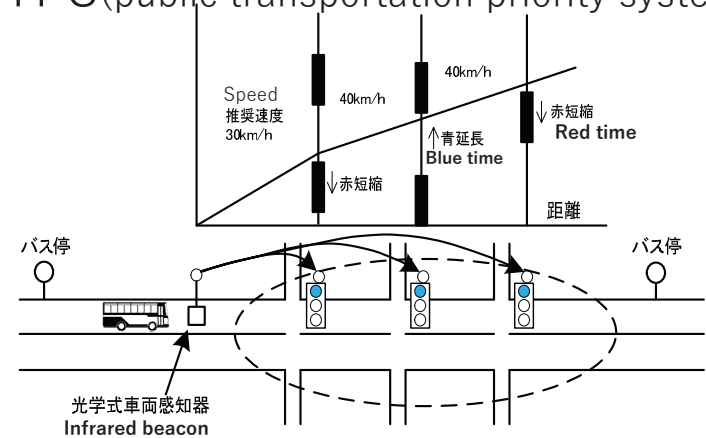


UTMS image



●example

PTPS(public transportation priority system)

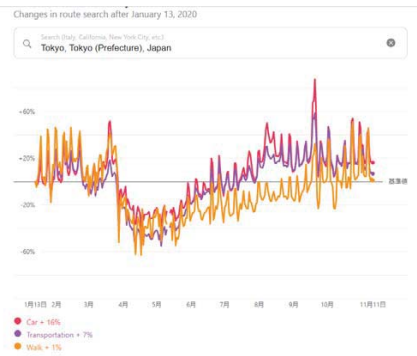


COVID-19 Response in Japan and the world

Jan.19, 2021
 Atsushi MOCHIZUKI
 Nippon Koei Co.,Ltd.

1. COVID-19 Impact on Transportation in Japan

Ghp dqg#3hfdq#lq#Sxedf#Wudqvsruwdrq



(Source) <https://covid19.apple.com/mobility>

Fdsdfw#Dlp lwdwq e|#VrfdqG lwdqfjq



(Source) <https://www.irasutoya.com/>

2. Basic Concept to cope with COVID-19 (in transportation field)

- ✓ Contactless / Automation
- ✓ Social Distancing
- ✓ TDM(Transportation Demand Management)
- ✓ Demand Response
- ✓ Hygiene Management
- ✓ Traceability
- ✓ DX(Digital Transformation)

3. Effort for COVID-19 Response (Ex.1) Introduction of Fully Contactless Payment

P dggdwrul#iru
 HWF2Fdkdvwv#lWwærrrk



(Source) <https://www.mlit.go.jp/road/tr/yuryou/7pdf/1.pdf>

Wudqvsruwdrq#F#Fduq
 l#P relh#Dss1



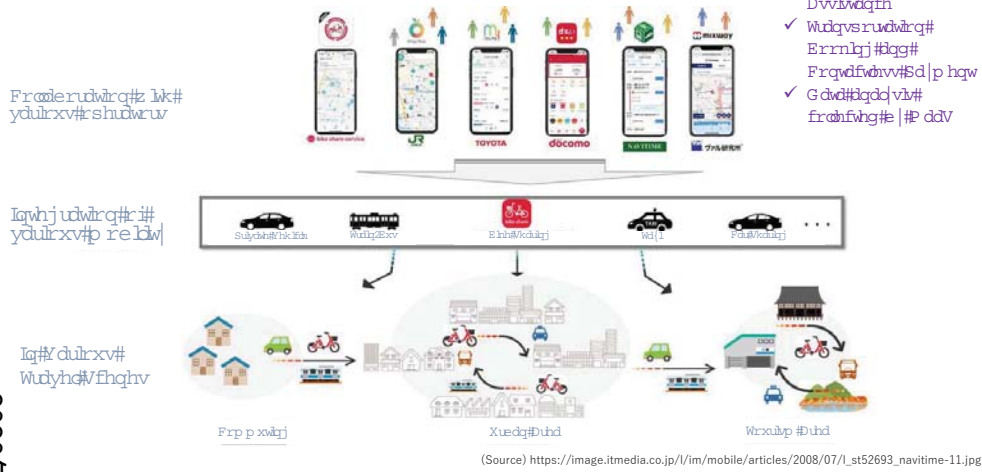
(Source) <https://matsunosuke.jp/mobile-suica/>

Dxwqrp rxv#Exv#
 z lW#ldfdqUhfrrjqWdrq



(Photo by Mochizuki)

(Ex.2) Support from MaaS (Mobility as a service)

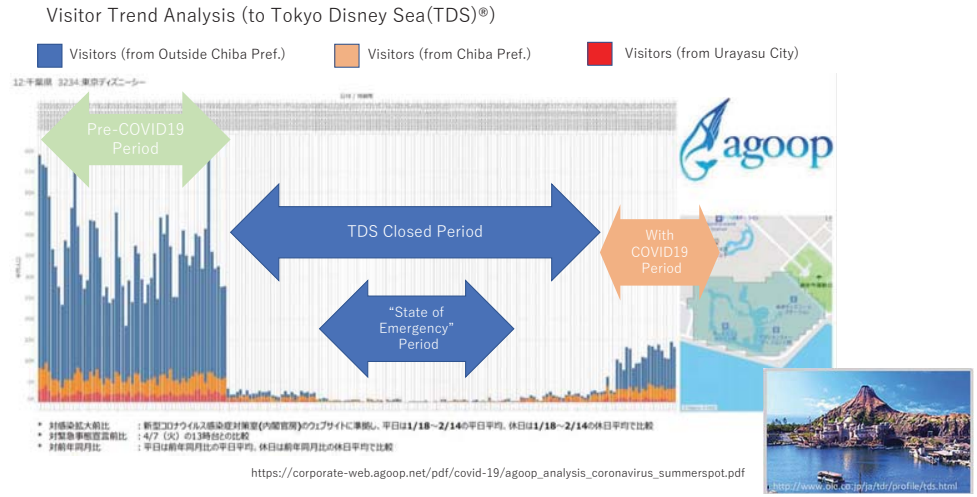


2020年度巻末資料—30

(Ex.3) Monitoring system in public facilities



(Ex.4) Monitoring Passenger Flow / Density from Mobile Big Data



(Ex.5) Automation Robots in the Station (Takanaka Gateway Station, Tokyo)



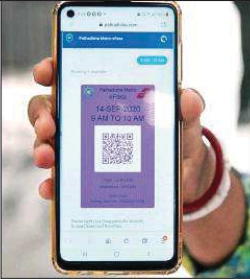
(Ex.6) Reservation and Passenger Control (Kolkata Metro, India)



Pic: Amit Moulick

TWEAK IN ALGORITHM

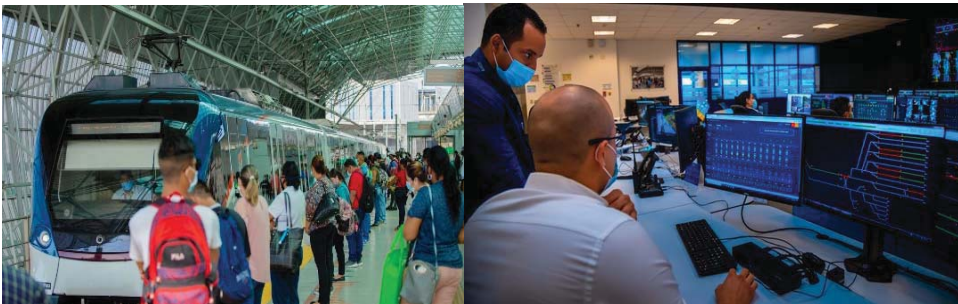
- 20% increase in booking caps for the busy stations
- Increase at Dum Dum, M G Road, Esplanade, Kalighat, Mahanayak Uttam Kumar, Kavi Nazrul, Kavi Subhas
- The objective is to accommodate more genuine commuters
- On Monday, 53,000 passes were issued, but only 20,000 rode the Metro
- Many complained of not getting free slots
- Tweaks in booking slots have to be dynamic, based on footfall data analysis
- 400 people can ride an eight-coach train at a time
- There are 110 trips on north-south line daily
- There were 47,000 bookings on Thursday, but Only 26,000 riders
- Metro wants to accommodate 1 lakh passengers daily



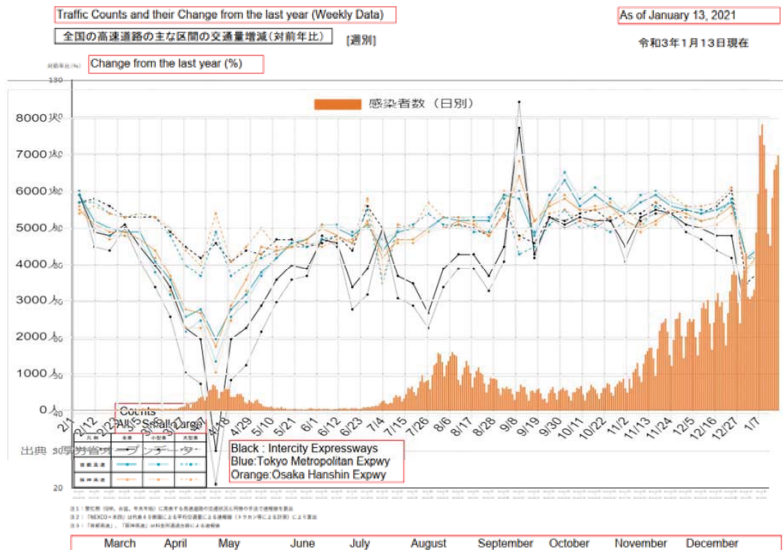
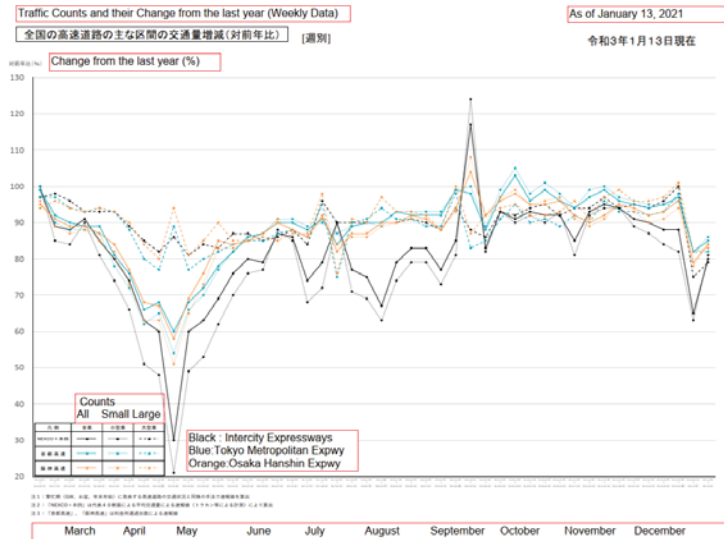
A rider's colour-coded e-pass

(Source) <https://timesofindia.indiatimes.com/city/kolkata/metro-hikes-e-pass-cap-at-busy-stns-cuts-limit-for-gitanjali-netaji-bhavan/articleshow/78176411.cms>

(Ex.7) Utilization of AI for Train/Passenger Flow Control (Demand response, Panama)

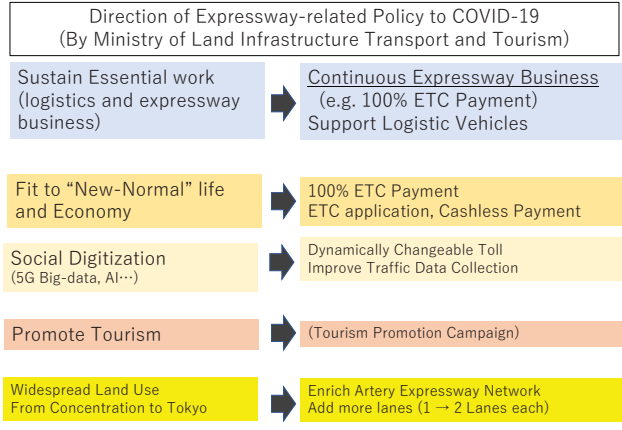


(Source) <https://www.alstom.com/press-releases-news/2020/6/alstom-offers-artificial-intelligence-solution-ensure-passenger>



新型コロナウイルス感染症に対応した高速道路施策の方向性(たたき台)

＜施策＞	＜施策＞
＜エンゲージメントの持続性強化＞ ○国民生活・国民経済の安定確保に必要不可欠な物流事業やそれを支える高速道路会社の業務を継続することが必要	＜高速道路会社の事業継続＞ ○新型コロナウイルス特措法に基づく指定公共機関への位置付け ○ETC専用化による料金収受員の感染防止 ○物流事業者への支援 ○物流事業者の労働安全確保のためのSA/PA駐車マスの拡充や一時退避 ○特許許可システムの改善等
＜ニューノーマルな暮らしや経済活動への対応＞ ○新型コロナウイルス感染拡大防止のため、非接触対策やキャッシュレスの推進が必要	○料金のETC専用化(再掲) ○ETC技術の多様な分野への拡大 ○SA/PAにおけるキャッシュレス決済の推進
＜行政運営等のデジタル化推進への取組＞ ○デジタル化(5G、ビッグデータ、AI等)活用による運営・プロセスの効率化・高度化により、利用者への迅速な情報提供や、機動的に利用者の行動変容を促す仕組みが必要	○機動的な料金変更が可能となる料金システム ○交通データ集計の合理化による迅速な情報提供
＜観光業の字回復＞ ○経済の字回復に向けた、観光需要の喚起が必要	○Go to Travel事業の推進
＜国土利用の集中から、分散への転換＞ ○東京一極集中に伴うリスクを減少・回避するため、集中から分散へ国土の在り方を根本から変えていくことが必要	○主要幹線ネットワークの強化 ○計画的な車線増による暫定車線区間の解消



Tokyo traffic situation in covid -19

traffic volume and congestion in tokyo

	traffic volume(the number of run vihcle · km) (full-day avelege and average during the day in tokyo)			congestion(congestion length Km/H) (full-day avelege and average during the day in tokyo)		
	2020year	2021year	YoY(%)	2020year	2021year	YoY(%)
Jan	21,977,386	21,896,868	99.6%	1,087	1,078	99.2%
Feb	22,673,820	22,923,593	101.1%	1,290	1,307	101.3%
Mar	23,231,670	22,618,975	97.4%	1,589	1,320	83.1%
Apr	22,925,200	19,987,046	87.2%	1,200	598	49.8%
May	22,178,342	19,581,371	88.3%	1,080	624	57.8%
Jun	22,937,643	22,703,382	99.0%	1,361	1,362	100.1%
Jul	23,350,149	22,938,616	98.2%	1,534	1,526	99.5%
Aug	22,889,188	22,658,740	99.0%	1,540	1,433	93.1%
Sept	23,177,655	23,149,023	99.9%	1,685	1,693	100.5%
Oct	22,374,916	22,871,456	102.2%	1,367	1,403	102.6%
Nov	22,984,945	22,793,224	99.2%	1,528	1,447	94.7%
Dec	-	-				

©definition of congestion length : under traffic run speed 20km/H)

※during a lock-out period:

- ① traffic volume decrease by about 12%
- ② traffic congestion decrease by about 50%
- ③ it seem vehicle speed and road fatalities increase in number

※the other moon :

- traffic volume and traffic congestion decreasing almost have no alteration

※cause:

public transportation facility, such as railway usage, decrease and the vehicle of commuting usage in an individual increased

3. 新規研修資料

Welcome to JICA KCCP Program!

Today's Agenda

1. Introducing each other

Please tell us your calling name.

2. Outline for the Course of 16th - 18th Feb.

3. Group Work Session in the Course

Purpose, Grouping for Group Work and How to Carry out the Group Work
Confirmation of Your Group, and Other Remarks

4. Practice Zoom Meeting

How to share your screen, how to use chat box, etc...

5. Other Remarks

Please feel free to ask questions

2. Outline for the Course of 16th - 18th Feb.

(Please see the attached Program Schedule in Excel Format.)

Participants of JICA KCCP Program

(1)	Mr. RECIO Vincent Joel	Philippines	(7)	Ms. MAHMUD Halima	Nigeria
(2)	Mr. LUEANPECH Pornnarong	Thailand	(8)	Mr. UNOGWU Onjefu	Nigeria
(3)	Mr. AZIZ Aamir	Pakistan	(9)	Mr. MOMOH Samuel	Nigeria
(4)	Mr. BWIKA Mwinyi	Kenya	(10)	Mr. ZIRIKANA Francois	Rwanda
(5)	Mr. BOGE Alphonse	Tanzania	(11)	Ms. TAHIRU Nadrata	Ghana
(6)	Mr. WASSWA Joel	Uganda			

3. Group Work Session

The following are proposed grouping drafted by consultant team based on the questionnaires. We wish to finalize with you considering your preference, etc.

Group A: Traffic Management 1 including traffic signal, vehicle registration, traffic control in the city, etc.

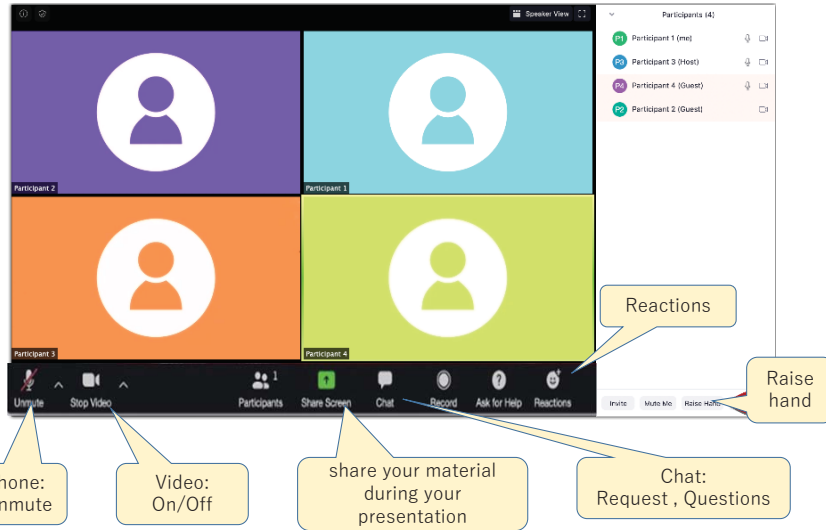
- Mr. WASSWA (Uganda)
- Mr. MOMOH Samuel (Nigeria)
- Mr. RECIO Vincen (Philippine)
- Ms. TAHIRU Nadrata (Ghana)

Group B: Traffic Management 2 including traffic signal, urban road management, expressway management, etc.

- Mr. Mr. BWIKA Mwinyi (Kenya)
- Mr. AZIZ Aamir (Pakistan)
- Mr. LUEANPECH Pornnarong (Thailand)

Group C: Traffic Management 3 including public transport measures, urban transport measures, etc.

- Ms. MAHMUD Halima (Nigeria)
- Mr. UNOGWU Onjefu (Nigeria)
- Mr. ZIRIKANA Francois (Rwanda)
- Mr. BOGE Alphonse (Tanzania)



Thank you for making your time to join us today.

We are looking forward to seeing you again on 16th February.

Have a good day!!

5. Other Remarks

1. **the Zoom link** will be informed a couple of days before the KCCP Program by Ms. Marutani from JICA Tokyo.
2. **Please access to the link 15-20 minutes before the program starts** so that we can check the connection and attendance.

Concerned Personnel (1)

Institute of Industrial Science, The University of Tokyo

Name: *Mr. Takashi OGUCHI*
 Professor, ITS Center, Institute of Industrial Science,
 The University of Tokyo
 Email: [REDACTED]

Name: *Mr. Hideyuki KANOSHIMA*
 Associate professor, ITS Center, Institute of Industrial
 Science, The University of Tokyo
 Email: [REDACTED]

Japan International Cooperation Agency (JICA)

Name: *Ms. Rie MARUTANI*
 Program Officer, Economic Infrastructure Development
 and Environment Division, JICA Tokyo
 Email: [REDACTED]

Name: *Ms. Junko SASAKI*
 Chief, Economic Infrastructure Development and
 Environment Division, JICA Tokyo
 Email: [REDACTED]

Name: *Mr. Takeshi NITO*
 Infrastructure Management Dept., JICA HQ
 Email: [REDACTED]

Name: *Mr. Shuntaro KAWAHARA*
 Senior Advisor, Infrastructure Management
 Dept., JICA HQ
 Email: [REDACTED]

Name: *Ms. Tomomi MINE*
 Interpreter and Coordinator of this course, "ITS"
 Email: [REDACTED]

*First name, *SIR NAME*

Concerned Personnel (2) - *Consultant Team*

Name: *Mr. Hiroya TOTANI*
 Organization: Nippon Koei Co., Ltd.
 Email: [REDACTED]

Name: *Mr. Atsushi MOCHIZUKI*
 Organization: Nippon Koei Co., Ltd.
 Email: [REDACTED]

Name: *Mr. Michio ISEKI*
 Organization: Nippon Koei Co., Ltd.
 Email: [REDACTED]

Name: *Mr. Hideo TSUJI*
 Organization: Nippon Koei Co., Ltd.
 Email: [REDACTED]

Name: *Mr. Koichi TSUBAKI*
 Organization: Japan Traffic Management
 Technology Association
 Email: [REDACTED]

Name: *Mr. Toshihiro YOSHIDA*
 Organization: Japan Traffic Management
 Technology Association
 Email: [REDACTED]

Name: *Mr. Takumi UNO*
 Organization: Hanshin Expressway Co., Ltd.
 Email: [REDACTED]

Introduction of JICA's cooperation on ITS

June 24, 2019

KANYAMA Yohei
 Infrastructure and Peacebuilding Dept.,
 Japan International Cooperation Agency (JICA)

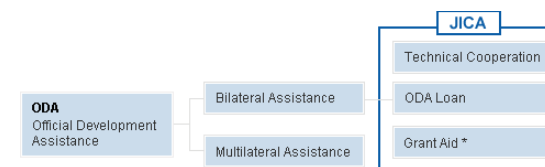
Contents

1. Introduction of JICA's approach to ITS
2. Example of Examples of Cooperation ITS Projects between JICA

1. Introduction of JICA's approach to ITS

About JICA

ODA is broadly divided into bilateral aid, in which assistance is given directly to developing countries, and multilateral aid, which is provided through international organizations. JICA provides bilateral aid in the form of **Technical Cooperation**, Japanese **ODA Loan** and **Grant Aid**.

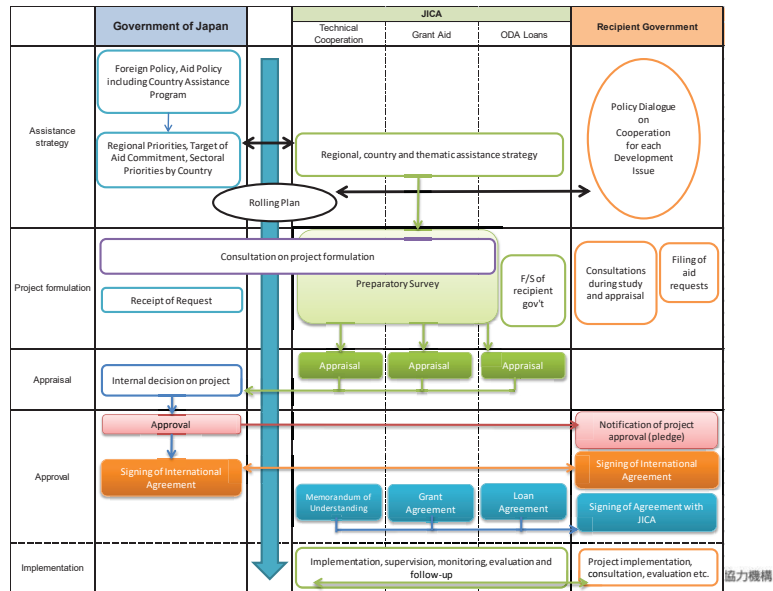


*This excludes Grant Aid which the Ministry of Foreign Affairs will continue to directly implement for the necessity of diplomatic policy.

Other Types of Assistance

- Citizen Participation (Volunteers, JICA Partnership Program)
- Emergency Disaster Relief

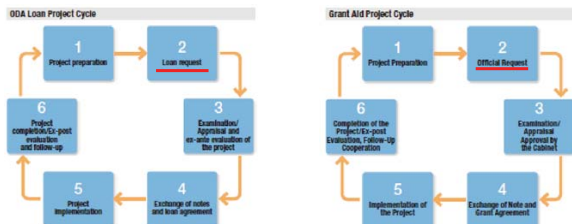
Japan's ODA



Japan's ODA

Technical Cooperation, Japanese ODA Loan and Grant Aid

Beginning points of those schemes are REQUEST from each countries.



2. Examples of Cooperation ITS Projects between JICA and Japanese Company

Solution Menu

1. ITS Master Plan Project
2. Traffic Control System for Expressway
3. Traffic Information Provision
4. Traffic Signal Control
5. Traffic Demand Management (Road Pricing)
6. Traffic Demand Management (Smart Parking)
7. Toll Collection ETC
8. Data collection and Provision (Floating Car Data)
9. Road Operation and Maintenance
10. ITS Seminar

No. 4 Traffic Signal Control

The Project for Development of Traffic Management System in Phnom Penh

Project name: The Project for Development of Traffic Management System in Phnom Penh

Project Area: Phnom Penh Capital City / Kingdom of Cambodia

Owner: The Kingdom of Cambodia Phnom Penh Capital City

Department of Public Works and Transport



Fund: Grants-in-aid project by JICA

Grant limit: 1.7 billion yen

Execution Period: From December 2015 (On-going)

Constructor: Sumitomo Electric Industries, Ltd. /Mitsubishi Corporation

Objectives and Overview:

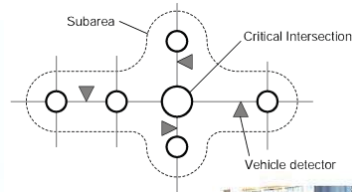
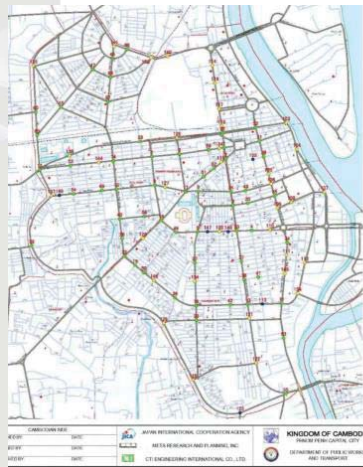
This Grant Aid Project is aimed at installing

- 100 new traffic signals at selected intersections (inclusive of the 64 inner city signalized junctions out of the total of 69 existing signalized junctions in Phnom Penh)
 - A centralized traffic control center which together form a computerized signal control
 - Surveillance system capable of on-line and real time systematic control functions
- Contribute to mitigating the existing traffic congestion and aids in the improvement of traffic operation and urban living environment in Phnom Penh.

Source: JICA THE PREPARATORY SURVEY FOR PROJECT OF DEVELOPMENT OF TRAFFIC MANAGEMENT SYSTEM IN PHNOM PENH PREPARATORY SURVEY REPORT

No.4 Traffic Signal Control

The Project for Development of Traffic Management System in Phnom Penh



Source: THE PREPARATORY SURVEY FOR PROJECT OF DEVELOPMENT OF TRAFFIC MANAGEMENT SYSTEM IN PHNOM PENH

Source: Sumitomo Electric Industries, Ltd
国際協力機構

Project Goal and Objective

Project Goal

<Overall Goal>

Coordination for Urban road traffic management in Dhaka City is established.

<Project Objective > “Capacity Development”
Function for road traffic management is strengthened.

Objectives

To develop the expected output and establish project goals by conducting project activity based on the R/D on “Dhaka Integrated Traffic Management Project”.

2. Dhaka Integrated Traffic Management Project



Project Output

Output

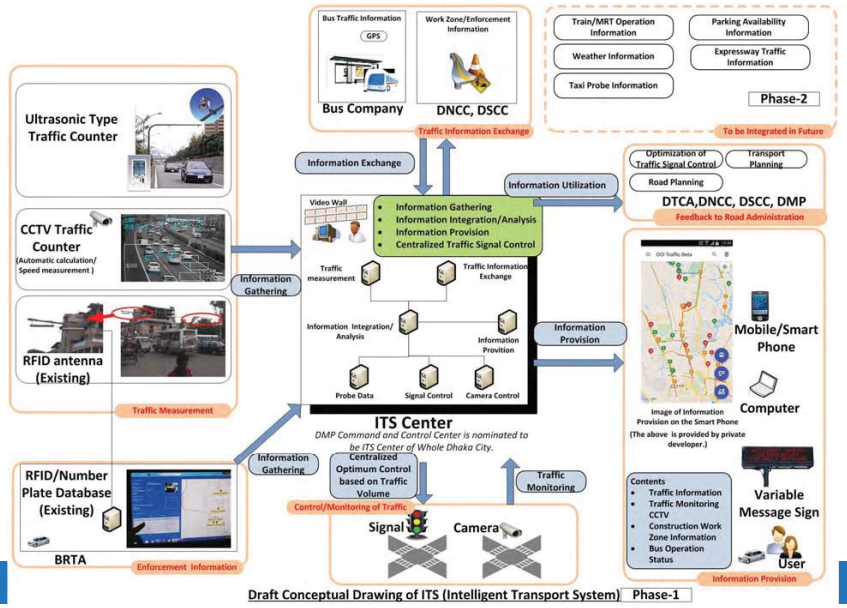
OUTPUT 1:
Implementation mechanism of road traffic management with concerned organization is set up.

OUTPUT 2
Technology for intersection improvement is developed.
• Intersection Improvement Manual

OUTPUT 3
Capacity on collection and analysis of road traffic information is enhanced.
• Manual for Installation and Operation of ITS Equipment
• Comprehensive Road Traffic Control System Plan

OUTPUT 4
<Formulation capacity on road traffic regulation is enhanced.>
• Action Plan for Design and Enforcement Mechanism of Road Traffic Regulation
• Action Plan for Road Traffic Safety Programmes for Drivers and Pedestrian

Image of Comprehensive Road Traffic Control System Plan



Contents of Pilot Project

Target intersection of Pilot Project will be improved by...

- Intersection Improvement
 - Additional right turn lane
 - Lane marking
 - Expansion of waiting space for pedestrian etc.
- Installation of ITS
 - Actuated traffic signal
 - CCTV and vehicle detector
 - Synchronization with traffic signal and railway crossing etc.



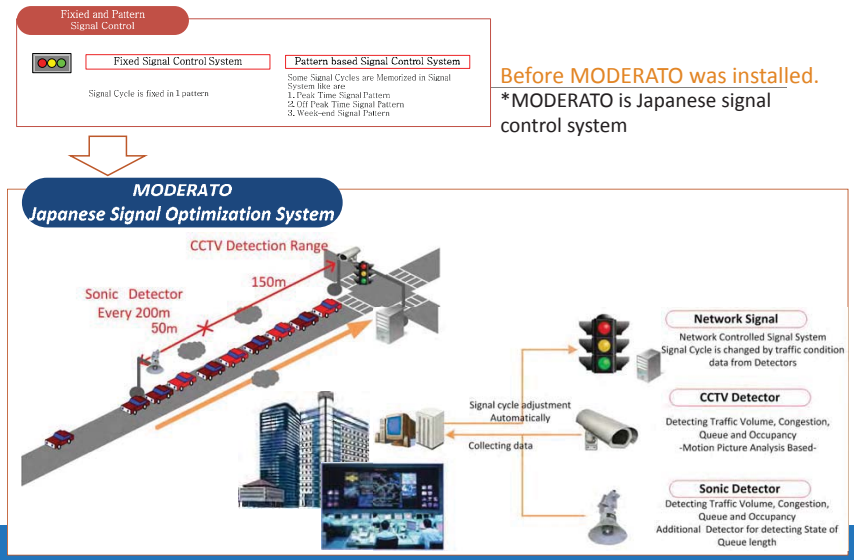
Image of Vehicle Detector

2020年度卷末資料-41

Location of Pilot Project



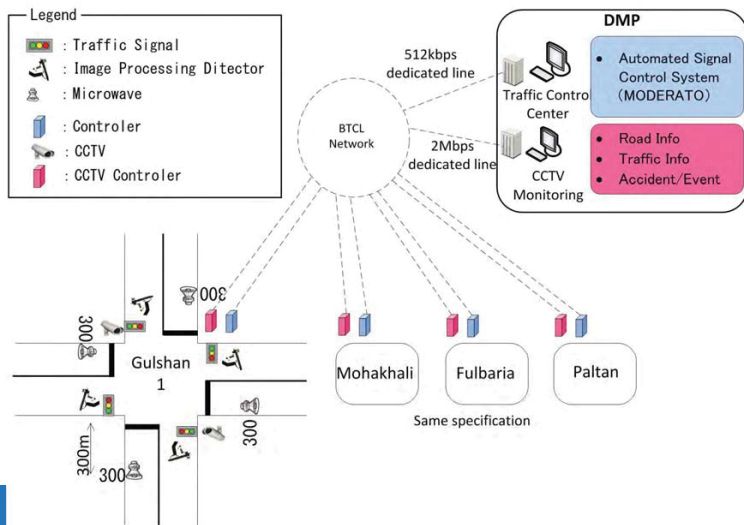
Installation of Traffic Signal System (1)



Before MODERATO was installed.
*MODERATO is Japanese signal control system

Installation of Traffic Signal System (2) NIPPON KOEI Challenging mind, Changing dynamics

System Detail



2020年度巻末資料—42

Procedure of Realizing the JICA Traffic Safety Project (Assumed)

~ End June 2019	Submission from DMP -> Bangladesh Police -> Ministry of Home Affairs -> Planning Commission -> Economic Relations Division, Ministry of Finance <i>*Application form should be ranked to "Priority A" on the project list called 'Submission of Project Proposals for Japanese Technical Cooperation for FY 2020' by ERD, ministry of Finance.</i>
10 Jul. 2019	Deadline of 'Submission of Project Proposals for Japanese Technical Cooperation for FY 2020' from ERD to JICA Bangladesh Office
10 Jul.~	Evaluation in JICA Bangladesh Office and Embassy of Japan -> sent to JICA Headquarter in Tokyo
Aug.~	Evaluation in JICA Headquarter and Ministry of Foreign Affairs of Japan
Mar. 2020	Procurement of Consultant for 'Detailed Design Survey' for the Project
Mar.- Jul. 2020	Detailed Design Survey <i>*Survey team conducted by JICA will visit Dhaka and stay for 2 weeks in Mar.-Apr.2020.</i> RD(Record of Discussion) between BD government and JICA
Aug. 2020	Procurement of Consultants for the JICA Traffic Safety Project <i>*2-3 weeks for proposal formulation and 10 days for evaluation</i>
Sep. 2020	Commencement of the JICA Traffic Safety Project

Participants of JICA KCCP Program 2021

Group A: Traffic Management 1 including traffic signal, traffic control in the city, etc.					
(1)	Mr. WASSWA Joel	Uganda		(2)	Mr. MOMOH Samuel Nigeria
(3)	Mr. RECIO Vincent Joel	Philippines		(4)	Ms. TAHIRU Nadrata Ghana
Group B: Traffic Management 2 including Traffic signal, urban road management, expressway, etc.					
(5)	Mr. BWIKA Mwinyi	Kenya		(6)	Mr. AZIZ Aamir Pakistan
(7)	Mr. LUEANPECH Pornnarong	Thailand			
Group C: Traffic Management 3 including public transport measures, urban transport measures, etc.					
(8)	Ms. MAHMUD Halima	Nigeria		(9)	Mr. UNOGWU Onjefu Nigeria
(10)	Mr. ZIRIKANA Francois	Rwanda		(11)	Mr. BOGE Alphonse Tanzania



Mr. WASSWA Joel



- Country:
 - Uganda
- Position/Department/Organization:
 - Manager Traffic Management and Control, Engineering and Technical Services, Kampala Capital City Authority



Mr. MOMOH Samuel



- Country:
 - Nigeria
- Position/Department/Organization:
 - 2I/C Planning Research and Statistics, Planning Research and Statistics Unit, Directorate of Road Traffic Services Abuja



Mr. RECIO Vincent Joel



- Country:
 - Philippines
- Position/Department/Organization:
 - Project Evaluation Officer II, Traffic Engineering Center / Planning and Design Division, Metropolitan Manila Development Authority (MMDA)



Mr. BWIKA Mwinyi



- Country:
 - Kenya
- Position/Department/Organization:
 - Senior ITS Analyst, Traffic Management and Road Safety, Kenya Urban Roads Authority



Ms. TAHIRU Nadrata



- Country:
 - Ghana
- Position/Department/Organization:
 - AG. Traffic Engineer, Traffic and Development, Department of Urban Roads



Mr. AZIZ Aamir



- Country:
 - Pakistan
- Position/Department/Organization:
 - Assistant Engineer, Planning and Development Department, Government of Balochistan



Mr. LUEANPECH Pornnarong



- Country:
 - Thailand
- Position/Department/Orgnization:
 - Engineer, Operation Planning Department, Expressway Authority of Thailand



Mr. UNOGWU Onjefu



- Country:
 - Nigeria
- Position/Department/Orgnization:
 - Principal Technical Officer, Directorate (VIO) Head Office Mabushi Abuja, Directorate of Road Traffic Services, FCT



Ms. MAHMUD Halima



- Country:
 - Nigeria
- Position/Department/Orgnization:
 - Senior Planning Officer, Economic Planning Research & Statistics, Federal Capital Territory Administration



Mr. ZIRIKANA Francois



- Country:
 - Rwanda
- Position/Department/Orgnization:
 - Safety and Licensing Compliance Senior Engineer, Transport, Ministry of Infrastructure



Mr. BOGE Alphonce



- Country:
 - Tanzania
- Position/Department/Orgnization:
 - Road Transport Officer,
Directorate of Transport Services,
Ministry of Works, Transport and
Communication

OGUCHI, Takashi



- ▶ Organization : The University of Tokyo (UTokyo)
- ▶ Position : Director of Advanced Mobility Research Center (ITS Center) and Professor in Institute of Industrial Science (IIS). [Additional affiliation] Professor in Mobility Innovation Collaborative Research Organization (UTmobI) [<http://www.transport.iis.u-tokyo.ac.jp/>]
- ▶ Hobbies: Listen varieties of music, playing flute, driving a car, playing golf (cannot drink at all, unfortunately).

KANOSHIMA, Hideyuki

- ▶ Organization : The University of Tokyo (UTokyo)
- ▶ Position : Associate Professor in Institute of Industrial Science (IIS). [Additional affiliation] Associate Professor in Mobility Innovation Collaborative Research Organization
- ▶ Hobbies: Travel to Central Asia, South Asia and Middle east



ITO, Masaki



- ▶ Organization : The University of Tokyo (UTokyo)
- ▶ Position : Project Lecturer in Institute of Industrial Science (IIS)
- ▶ Hobbies: Computer programming, Taking bus and trains, Listening to old Japanese pop music

TORIUMI, Azusa

- ▶ Organization : The University of Tokyo (UTokyo)
- ▶ Position : Research Associate in Institute of Industrial Science (IIS).
- ▶ Hobbies: Seeing musical, visiting historical sites, currently started Yoga by watching YouTube



Hiroya TOTAINI (Consultant Team Leader)



- ▶ Organization : Nippon Koei Co.,Ltd.
- ▶ Position : Transport Planning & Management Dept.
- ▶ Hobbies/Passion or Work Experience :
Work: ITS Planning
Hobbies/Passion: Chinese Martial arts (Tai-chi, and Xing Yi Quan)

Atsushi MOCHIZUKI (Consultant Deputy Team Leader)

- ▶ Organization : Nippon Koei Co.,Ltd.
- ▶ Position : Railway Planning Dept.(2020-),
Urban and Transportation Planning Dept.(2000-2020)
- ▶ Hobbies/Passion or Work Experience :Planning and Evaluation for public transportation and ITS also loves traveling on public transportation



Hideo TSUJI



- ▶ Organization : Nippon Koei Co.,Ltd.
- ▶ Position : Chief Engineer, Transportation Operations
- ▶ Hobbies/Passion or Work Experience :
Work: Transport Planning , ITS planning
About 45 countries visited (Philippines, Thailand, Pakistan, Kenya, Nigeria, etc.)
Hobbies/Passion: Golf

- ▶ Organization : Hanshin Expressway Co., Ltd
- ▶ Position : Assistant Manager, International Business and Cooperation Office
- ▶ Passion or Work Experience :Designing Traffic Signboard and Reduction of Traffic Accidents on Urban Expressway
- ▶ Hobbies/ Driving, Ski, Listening to Classical Music

Takumi UNO



Koichi TSUBAKI



- ▶ Organization : Japan traffic management technology association
- ▶ Position : councilor of the research dept
- ▶ Hobbies/Passion or Work Experience : Worked for the traffic enforcement div. of NPA and traffic control center of the YAMAGUCHI prefecture Police.
- ©worked for the royal Thai police of traffic Dept

Toshihiro YOSHIDA



- ▶ Organization : Japan traffic management technology association
- ▶ Position : Director of the research dept.
- Hobbies/Passion or Work Experience : Worked for the traffic management div. of National Police Agency of Japan(NPA) and Tokyo Metropolitan Police dept.
- Hobbies: Travel

Noboru KONDO (Support Member for Group Work)



- ▶ Organization : Nippon Koei Co.,Ltd.
- ▶ Position : Transport Planning & Management Dept.
- ▶ Hobbies/Passion or Work Experience : Work: ITS Planning, Geometry Design
Hobbies: Travel, Listening to Music,

Michio ISEKI



- ▶ Organization : Nippon Koei Co.,Ltd.
- ▶ Position : Transport Planning & Management Dept.
- ▶ Hobbies/Passion or Work Experience : Work: ITS Planning
Hobbies: Baseball, Shopping, Watching Movies

Takeshi NITO



- ▶ Organization : JICA
- ▶ Position : Infrastructure Management Dept.
- ▶ Hobbies: Trekking, Snowboarding

- ▶ Organization : JICA
- ▶ Position : Senior Advisor (Highway and Transportation)
- ▶ Hobbies/Passion: Travel & Driving
- ▶ Work Experience : Highway and Transport Planning/ Worked for Ministry of Land, Infrastructure, Transport and Tourism

Shuntaro KAWAHARA



Rie MARUTANI



- ▶ Organization : Economic Infrastructure Development and Environment Div. JICA Tokyo
- ▶ Position : Programme Officer of ITS
- ▶ Experience : Swimming Coach & Former JICA Volunteer in Samoa

Tomomi MINE



- ▶ JICA Training Coordinator
- ▶ When the pandemic is controlled,
I want to relax in hot springs!

What is ITS, ITS Planning and Important Considerations for Implementation

16th February, 2021

Nippon Koei and Hanshin Expressway JV

Table of Contents

- Transport Measures and ITS
- ITS Planning and Examples
- Some Important Considerations for Implementation of ITS

Transport Measures and ITS

Page 3

Typical Measures in Transport Sector and Examples of ITS



Typical Measures in Transport Sector and Examples of ITS

Transport Measures

■ Hard Measures

- Increasing Infrastructure Capacity
 - ✓ Road Network, Bypass Road Development
 - ✓ Grade Separation Development
 - ✓ Public Transport Development, etc.
- Enhancing Efficiency
 - ✓ Junction Improvement, Signal Improvement
 - ✓ Pavement Maintenance
 - ✓ Transport Hub Development, etc.

■ Soft Measures

- Traffic Demand Management
 - ✓ Route/Time Alteration Encouragement
 - ✓ Transport Mode Alteration Encouragement, etc.
- Enhancing Efficiency
 - ✓ Public Transport Operation
 - ✓ Transport Usage Convenience (E-payment, etc.)

Examples of ITS

- Planning by utilizing traffic data (identifying bottleneck location, understanding demand of movement, etc)

- Introducing facilities, e.g. signals, parking system

- Providing traffic information (congestion, travel time, etc.)

- Bus operating system, bus location system

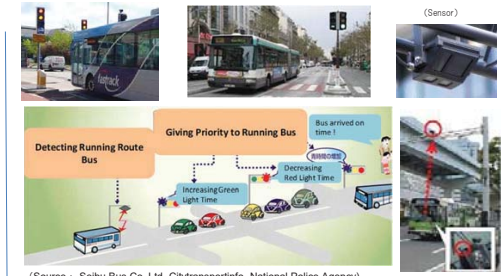
- Smart card payment, etc

Some Examples of ITS

ITS for Public Transport



BRT: Bus Rapid Transit
(Fare Collection, Information Provision, Control Center)



Bus Priority System



Common Mobility Card
(Single Card Used for Different Transport)

ITS for Environment (Combination of Measures and Technology)



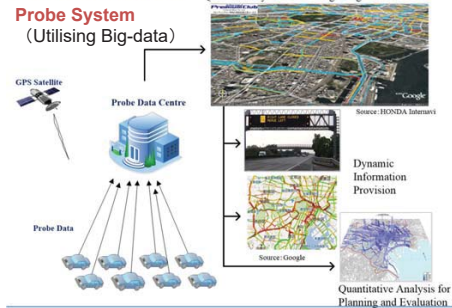
Special discount according to usage history to encourage park-and-ride
Park & Ride and Electric Vehicle

2020年度卷末資料—50

Page 5

Some Examples of ITS

Traffic Data Utilization for Planning and Traffic Information Provision



City Traffic Control

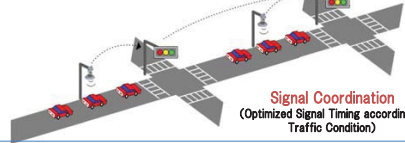
Electronic Road Pricing



(Controlling in-flow traffic into core area in City)...

Signal Coordination

(Optimized Signal Timing according to Traffic Condition)



ITS Planning with Examples

Parking Management

Parking System



Multi-story Parking

Parking Availability and Fee Collection

ITS for Expressway



Highway Traffic Management System
(Ensuring Safety and Expressway Management)

Environment Road Pricing
(Guiding Traffic by Applying Different Toll Fee)

Page 8

Preferable Steps for Successful Introduction of ITS in General

Preliminary Survey

- Clarifying current condition and plans of ITS in entire region in principle, it would be better that ITS is planned together with transport plan.
- Identifying issues and requirement in the region
- Preliminary consideration of required policy
- Preliminary consideration of potential ITS Menus, and etc.

ITS Master Plan (or ITS Planning)

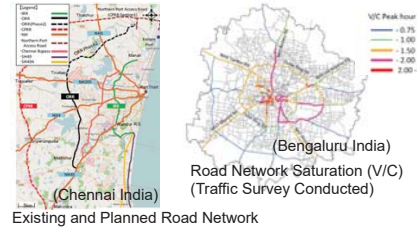
- Setting out ITS policy In line with National / State Transport Policy
- Identifying ITS menus Incorporating ITS World Trend
- Short, mid and long – term implementation plan
- Setting up required organisation
- Planning budgeting scheme, and etc

Project Implementation

- Design, procurement and installation in line with ITS Master Plan Policy
- Operating ITS under scheme identified by ITS Master Plan
- Carrying out capacity building programme planned by ITS Master Plan

Reviewing Current Condition and Identifying Issues (Example)

<Road Transport Condition / Plans>



<Existing ITS and Plans>

- Traffic Management Centre of Traffic Police
- Traffic signals are available but not working
- VMS are installed but only static message..



<ITS Stakeholders>

- Finding out Stakeholders in Transport Sector, not only ITS
- Finding out their roles as well

<Related Policies in the Country>

- NUTP (National Urban Transport Policy) Emphasizing Data Utilization in Transport Sector)
- Smart City Mission across Country



<Tech. Directions in the Country>

- RFID Standard for ETC
- Common Mobility Card Policy for Public Transport

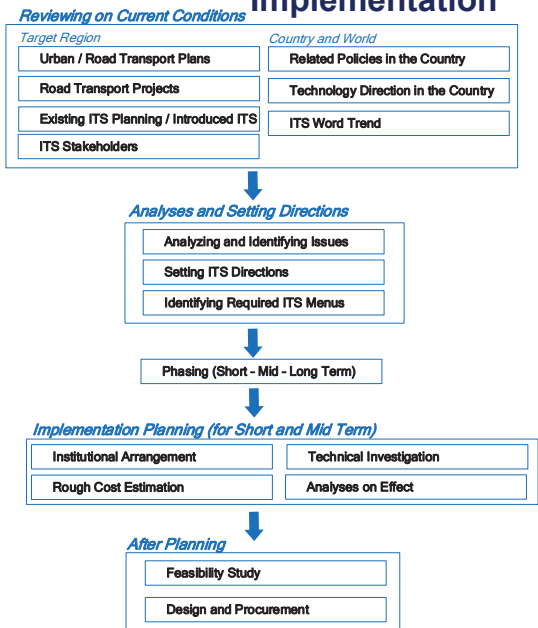


<Tech. Trends in the World>

- R&D for Automated Vehicle
- Big Data, Emerging Sensing Technologies, etc.

Source: Final Report of the Master Plan Study on the Introduction of ITS in Bengaluru and Mysore in India, 2015, JICA and Final Report of Data Collection Survey for Chennai Metropolitan Region ITS in India, 2017, JICA

General Flow for ITS Planning and Implementation



Planning Stage

- <Note>
- ✓ Left shown is a general flow.
 - ✓ Thus, studies after planning i.e. Feasibility Study, Designing/Procurement can also be done together with planning.

For Implementation

Identifying Issues and Setting Directions (Example)

In Terms of System, Transport, Organization, etc.

(Extracted Example)

System	- CCTVs are installed across metropolitan area - But there is no system to collect and utilize quantitative transport data
Road Transport	- Roads in the core area of the city are saturated. - Metros are under construction, but transferring facility and information is not considered, etc.
Organization	- A lot of organizations are involved in the transport sector, but the coordination among them is not sufficiently done. - The individual systems are being introduced without harmonization, etc.

Setting Directions

(Extracted Example)

Accessibility	Making Traffic Information Available for All Promoting People-centred mobility Improving Connectivity in the Region
Efficiency	Providing Integrated Traffic Information Service Contributing Efficient Road and Transport Management
Safety	Reducing Traffic Accident, Supporting for Traffic Vulnerable, etc.

Directions Set Out in Existing Transport Master Plan (If it is available)

Productivity, Environment, etc. as well (as deemed necessary)

Setting ITS Directions (Example)

Directions

Setting ITS Strategies

(Extracted Example)

- Quantitative Data Collection, Analysis, Storage, Utilization and Provision
- Integration and Utilization of Data and Information Available in Various Sources
- Centrally Coordinated Administrative Structure to Realise Proper Coordination
- Proper Decision Making on Urban Transport
- Proper Traffic Control and Management, Road Management, Traffic Demand Control
- Efficient Public Transport Connectivity
- ITS Promotion and Coordination with ITS National Policy

Listing ITS Component Candidates

(Extracted Example)

ITS Focus Area	ITS Component Candidates
Quantitative Traffic Information	- Probe Data Collection - Highway Traffic Management System etc.
Traffic Management Assistance	- Traffic Monitoring System - Traffic Signal System etc.
Traffic Demand Management	- Electronic Road Pricing System - Toll Collection System etc.
Assisting Measures on Traffic Accidents and Safety	- Traffic Monitoring System - Traffic Accident Management System etc.

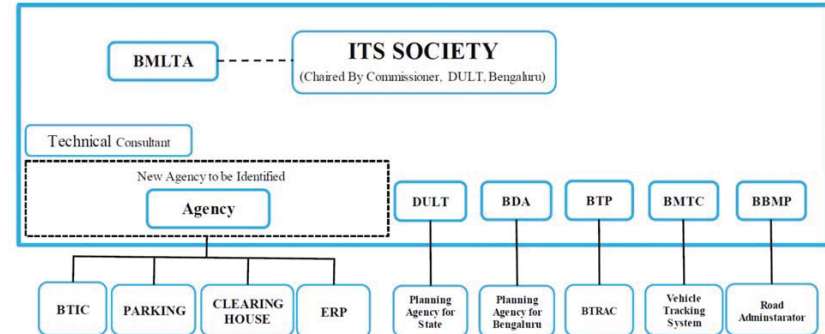
Then Finalizing ITS Menus, referring existing conditions and etc.

Source: Final Report of the Master Plan Study on the Introduction of ITS in Bengaluru and Mysore in India, 2015, JICA

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Institutional Arrangement (Example)

Case-1



Source: Final Report of the Master Plan Study on the Introduction of ITS in Bengaluru and Mysore in India, 2015, JICA

- ✓ ITS Society: Newly set up constituted by senior members of related organizations in transport sector, and made legal body.
- ✓ BMLTA: Existing high-level decision making body on urban transport in Karnataka State formulated under Indian National Policy
- ✓ The related organizations work under the authority of ITS Society

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Image of Formulated Implementation Schedule (Example)

Technical Prequisite For ITS and Major Event	Short Term										Mid Term					Long					Remarks				
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2017	2018	2019	2020	2021	2022	2023	2024	2025		2026	2027		
Standardization of Vehicle Number Plate	Preparation of tender for standardization number plate in underway																								
Clearing house and Common Mobility Card	Preparation of tender for clearing house system etc.																								
Chennai Pumping Ring Road																									
Outer Ring Road (Phase-2) (Construction of Bypass System)																									
Metro Phase-1	Metro Phase-2 is under planning																								
Metro Phase-1 Extension																									
MRTS Phase-2 Extension																									
Selected ITS Components	Short Term										Mid Term					Long					Remarks				
Chennai Traffic Information Centre (CTIC)											(Expansion)											CTIC will be expanded in the future e.g. probe data from buses and commercial vehicles, additional ATIS according to expansion of road network, change in traffic pattern and etc.			
Probe System																									
Automatic Traffic Control/Adaptive System (ATIS)																									
CCTV Traffic Monitoring System																									
Flood Measurement and Warning System																									
Information Provision Through Internet (SMS)																									
Traffic Management Centre for Traffic Police (TMC)	Brown line in the chart indicates modification of existing centre																								
Variable Message Sign System																									
Area Traffic Signal Control System (ATSC)	ATSC will be installed in 2 stages 1st stage: Installing 150 ATIS in core area 2nd stage: Installing 200 ATIS in the area accessed by bypass road, Chennai Bypass and Signal.																								
Command Control Centre for City Bus (CCC)																									
Bus Monitoring System (BMS)																									
Passenger Information System (PIS)	ATIS systems need to be completed before CTIC starts operation.																								
Electronic Ticket Management System (ETM)																									
Highway Traffic Management System for CPFR																									
Toll Management System for CPFR																									
Weight in Motion System for CPFR																									

Preparation (Design, Procurement, Installation, etc.)
Operation

Source: Final Report of Data Collection Survey for Chennai Metropolitan Region ITS in India, 2017, JICA

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Some Important Considerations for Implementation of ITS
(Lessons Learned from Ground Activities through Our Experiences)

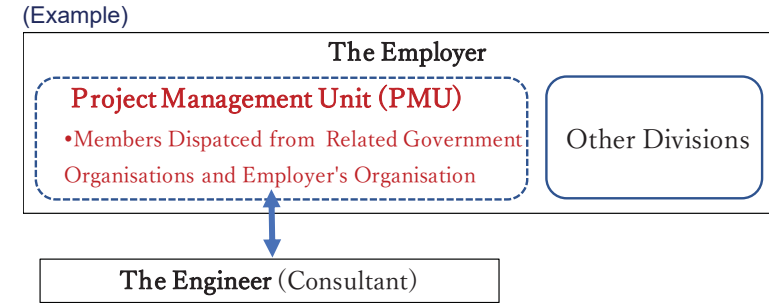
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Importance of Coordination between Civil Package and ITS



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Cross-organizational Issues and Example of Solution



- ✓ The Employer directly contracts with the Engineer (Consultant).
- ✓ Various organizations are related in the ITS Project.
- ✓ Accordingly the close and continuous coordination is critical.

Therefore

- Project Management Unit (PMU) was established.
- Members are dispatched from the related organizations.
- The cross-organizational coordination is ensured under the responsibility of PMU.
- The Engineer (Consultant) works with the authority delegated from the Employer (PMU).

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Source: Final Report of Preparatory Study for Chennai Peripheral Ring Road Development in India

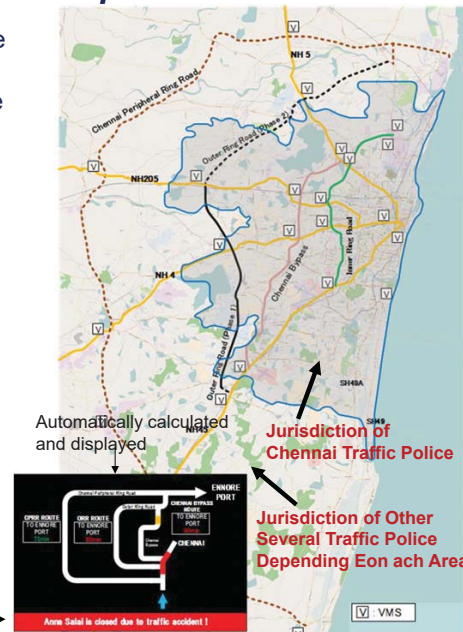
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Jurisdictional Issues and Example of Solution

- Variable Message Sign Boards (VMS) were planned across entire metropolitan area
- Information needs to be provided under the authority of Traffic Police
- ✓ But several different traffic police are involved across the entire target area

Therefore

- ITS centre and all VMS will belong to and be managed by a single organization
- Police personnel from all involved Traffic Police will station at ITS centre.
- The information will be provided under the responsibility of each Traffic Police.
- Maintenance of roadside equipment will be taken care by a single organization.
- All above arrangements were realized under the authority of PMU.



Manually inputted as necessary →

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Source: Final Report of Preparatory Study for Chennai Peripheral Ring Road Development in India

Importance of Clarifying Demarcation of Related Organizations

(Example)

System	Subsystem	Project Phase			
		Procurement	Operation	Maintenance	Ownership
Traffic Information System	Traffic Information Center	Smart City Corporation	Smart City Corporation	Smart City Corporation	Smart City Corporation
	Probe System / Internet System				
	Traffic Detection System				
Traffic Control System	Traffic Management Center	Smart City Corporation	Traffic Police	Smart City Corporation	Traffic Police
	Signal System				
	CCTV System				
Bus System	Bus Management System	Smart City Corporation	Bus Operator	Smart City Corporation	Bus Operator
	Bus Location System				

Source: Edited by JICA Study Team based on Final Report of Preparatory Study for Chennai Peripheral Ring Road Development in India

- Several organizations are involved in ITS project.
- Three systems are inter-related in the above example.
- It is important to clarify the roles of the related organization *by Project Phase* and have consensus.
- In the above example, it was agreed that Smart City Corporation, a counter-part of the project, takes responsibilities of the above shown together with Service Level Agreement Evaluation

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Other Remarks for Smooth Implementation

◆ Importance of Basic Design: Level for Specifying Requirement

ITS is generally procured in the form of 'Design Build' (Performance based Design) but how detail shall it specify the requirement ?

- ✓ If too detail: You may loose opportunity of the best fitted technology.
- ✓ If too high-level: You may not gain what you want.

Design Stage = Key Factor for Project

◆ Importance of Contractor Procurement

- ✓ Various enquiries from potential bidders need to be timely handled
- ✓ ITS bidding documents with proposed technologies need to be properly evaluated ***Capability for Procuring the Contractor is Important***

◆ Importance of Construction/Installation Management

- ✓ Various systems are usually complicatedly inter-related
- ✓ Civil construction and ITS installation are closely related

Proper Management for Construction/Installation is Important

Thank you