International Smart and Sustainable Transport Workshop 2018

"Sustainability is the goal, smartness is the tool." – ICLEI

The International Smart and Sustainable Transport Workshop held last April 11 to 13, 2018 in Taipei, Taiwan brought together public service professionals, academe, and NGO representative in Asia-Pacific to discuss transportation challenges commonly faced by cities in the region.

Organized by the ICLEI Kaohsiung Capacity Center (KCC), Intelligent Transportation Society of Taiwan (ITS Taiwan), and the Advanced Public Transportation Research Center at the National Taiwan University (APTRC), the three-day workshop emphasized how emerging technologies are revolutionizing the movement of people and goods. Experts led by the Ministry of Transportation and Communications (MOTC), National Taiwan University (NTU), ITS Taiwan, and ICLEI KCC showcased some of Taiwan's experiences in integrating ecomobility and intelligent technologies in enabling cities to become smarter and more livable.

ICLEI Southeast Asia Secretariat (ICLEI SEAS) facilitated the participation of selected Southeast Asian cities, academe, and NGO representing 4 countries in the said workshop. These included Pasig City, Tarlac City and Quezon city (Philippines); Jakarta and Pekanbaru (Indonesia); Pakse (Lao PDR) and Penang (Malaysia). Representatives from the academe and NGO - National Center for Transportation Studies of the University of the Philippines Diliman and the Institute for Transportation and Development Policy (ITDP – Indonesia), respectively - also participated in the workshop. Their participation was funded by MOTC. They were joined by ICLEI SEAS Project Officers, Ms. Pamela Cabacungan and Ms. Nisa Nidasari. Other participants from SEA included official from Thailand and Viet Nam.

Planning for an ecomobile neighborhood

Last October 2017, the Kaohsiung City Government in cooperation with ICLEI KCC hosted the EcoMobility Congress. During this activity, the neighborhood of Hamasen in Kaohsiung held a month-long demonstration of car-free and ecomobile environment and lifestyle.

Various free ecomobile services were offered to the community including parking lots outside the neighborhood, electric shuttles, public transportation packages, low carbon logistics, and electric vehicle rentals. The festival also featured local cultural activities that cultivated social cohesion in the neighborhood. The Hamasen experience showed that multi-stakeholder participation is vital to ensure inclusivity and success in designing and implementing ecomobility initiatives.

> ***Ecomobility*** is travel through integrated, socially inclusive, and environmentally-friendly transport options, including and integrating walking, cycling, wheeling, and commuting.

Taking off from this experience, workshop participants joined a walking tour in a neighborhood in Taipei. They observed existing livable transport environment such as the provision of Bike Sharing System (Youbike), integrated public transport system (MRT & BRT), pedestrian safe and friendly environment and smart travel card system. Through a guided participatory discussion, the delegates then simulated planning for ecomobile neighborhood by taking on the roles of different stakeholder groups (e.g. local and foreign students, children, elderly, handicapped, business-owners) within a community.

The participants walked on a pedestrian-only street (green line) as they joined a guided walking tour to observe existing mobility conditions within a neighborhood in Taipei (left). By taking on the roles of different stakeholders in a community, the group simulated a participatory planning session for implementing ecomobile initiatives in the observed neighborhood (right).

Keeping the arteries working efficiently and safely

During the workshop's second day, participants attended a technical tour on Taipei's smart inner city and intercity public transportation system.

The Taipei City Hall Bus Station is a multi-purpose transportation complex that serves as a hub for both buses and metro. The station caters to both short- and long-distance bus services thereby making easy and efficient conveyances within and outside Taipei City.

Providing intercity transportation services also fosters economic development in areas outside Taipei City. For example, the Jiaoxi Bus Transfer Station serves as a hub for local buses and inter-city buses between Taipei and Yilan County. The establishment of this link makes Yilan County easily accessible for local and foreign visitors to explore attractions such as waterfalls and spring parks; boosting the area's local tourism.

The tour also demonstrated intelligent transportation technologies that address scooter safety such as Roadside Smart Pillar developed by the Institute for Information Industry (III). The participants got a chance to see firsthand how the Roadside Smart Pillar system works on dangerous road sections areas near Fo Guang University, Yilan. The system links the transmitters installed in front of the motorcycles with the smart system at the cross road which could activate the warning signals on the dashboard of each motorcycle so as to decrease the frequency of accidents.

Further, the tour visited PingLin Traffic Control Centre to see a demonstration of traffic management and automated traffic enforcement in the SyueShan tunnel, as well as Bus on Shoulders (BoS) and Mainline Metering.

MOTC led a technical tour of the Taiwan City Hall Bus Station (left). Institute for Information Industry demonstrated the functionalities of the Roadside Smart Pillar (right).

Making sense of big data

Robust and sound data is crucial in designing efficient and effective traffic and transport management system. Big data derived from geo-environment conditions, vehicle users, population distribution, land use plans, and traffic enforcement records can influence better urban mobility planning.

While developers can transform data into practical and useful information for users and planners, limitations in data availability and accessibility hinder advancement toward smart urban mobility. Furthermore, governments are also responsible for setting up regulations on data sharing mechanisms and protecting user's privacy by ensuring responsible use of personal information.

Rising up to these challenges, the International Integrated Systems, Inc. Taiwan developed the Public Transport Data eXchange (PTX). PTX collects all static and dynamic public transport data, converts these into a standard schema, and then makes it publicly available through an open application program interface (API). The API allows other developers, companies, and platforms including Google to utilize quality and real-time data and provide information (e.g., bus stations, routes, estimated arrival time, and mobility options) to end-users.

On the other hand, the MOTC's thrust is to continuously enhance its use of data analytics and visualization platform to guide transportation system management and operation policies, strategies, and performance measures. This is characterized by its Mobility as a Service (MaaS) approach, which aims to solve the gap and service shortage of public transport and reduce private vehicle ownership. MaaS targets mobility behavior change by providing users with more options and incentivizing the changes in their behaviors as defined by their mobility preferences.

Mobility as a Service (Maas):

- Using a digital interface to source and manage the provision of transportation related services which meets the mobility Requirements of a customer
- using a data analytics and visualization platform to guide the transportation system management and operation policies, strategies, and performance measures.

This approach is exemplified in the *Umaji,* a journey planner mobile app that provides personalized travel advice to users. It is a powerful tool for transfer and journey planning, offering optimal travel time and routes. With its user preference analysis and learning feature, the app also provides special offers, discounts or to encourage people to drive at off-peak times or use alternative public transportation options.

Participants brainstormed which among the initiatives showcased throughout the workshop can be adapted in their respective cities.

Toward the end of the workshop, participants agreed that despite differences in local situations, there are a number of similar challenges being experienced in the region. These included concerns on sustainable urban mobility, smart public transport, intelligent transport technology, and traffic safety.

Participants exchanged learnings and ideas regarding the different initiatives shared throughout the workshop and identified which can be adapted/adopted in their respective cities considering local context. It was further emphasized that intelligent and innovative technologies can be used as tools to plan and implement environmentally-sound and socially inclusive solutions for a smart and sustainable transport system.

One of the important takeaways from the workshop is that better urban mobility planning translates to decreased traffic congestion, reduced traffic accidents, improved air quality, and more mobility options for users, among others as evident in Taipei City's experiences.

Participants of the International Smart and Sustainable Transport Workshop 2018