

Memorandum

To: U.S. Department of State, EAP/MLA, ASEAN/EAS Unit

From: Connor Carrera, Student, Wilbur Wright College

Subject: Making Smart Cities Meaningful for the Public—Traffic Congestion & Smart Cities

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Issue for Discussion

In Southeast Asia, traffic has increasingly been an issue, especially with the dramatic economic growth many of the countries have had. Often, it is congestion of streets and roads and it can't be easily fixed because of limited space and funds. According to the World Health Organization, 360,000 people die from road traffic incidents in the region which makes up 25% of the global traffic incident deaths. The United States, in comparison, only has 38,000 deaths, which is significantly less when it's considered how many Americans own vehicles in comparison to other countries. Clearly, there is an unproportional amount of deaths due to road traffic in Southeast Asia. For example, Thailand's roads are some of the most dangerous in the world (Tanaboriboon, et al). Thailand has the second highest road fatalities per capita, only surpassed by a very lawless Libya. In motorcycle deaths per capita, Thailand is number one. Many of these deaths are due to the very congested and unorganized streets but implementing smart city technology could help to solve the problem.

Smart City Solutions

Smart cities are urban areas that use different types of electronics and the internet to collect data and gain insight to be able to improve the city and the issues it is dealing with. Smart cities could have a huge impact on traffic, using real time data to streets not only for drivers, but also pedestrians. In an article by Transport Advancement, smart cities can implement Advanced Traffic Management systems, or ATMS. These ATMS use video detection and radar to try and safely guide traffic, and even specialize in accommodating to additional vehicle populations, which is very beneficial due to the high amount of motorcycles used in Southeast Asia. ATMS can also help with forecasting traffic, which could then be avoided because necessary planning by the AI could determine alternate traffic routes for cars/motorcycles.

Another huge impact that ATMS could have on Southeast Asia is helping to organize parking in the areas with a high amount of various activities and business centers. Yangon, the capital of the quickly developing Myanmar, has been having traffic issues in the Central Business District (CBD) where there is a high amount of activities and business centers (Khin, et al)). Many of these problems stem from parking issues because there is not as much space as there is people needing to park. Parking in certain areas could cause blockage on some roads and lead to jams. With ATMS, cars can be guided to near parking areas using a vehicle guidance system, which would make more room for traffic flow and decrease the amount of parking incidents.

Smart cities can implement adaptive traffic lights. The conventional traffic lights, which are pre-programmed, can be poorly designed and lead to more traffic jams. Adaptive traffic lights can change depending on what traffic is like, so if there is a buildup, the traffic lights can adjust to allow more traffic flow in that area. Adaptive Signal Control Technologies (ASCT) could allow for these types of traffic lights that change based on conditions rather than pre-programmed schedules (U.S. DOT)). Similar to

ATMS, ASCT uses sensors that are placed in strategic locations, data can be collected to help determine the colors of the lights and how the traffic should flow to avoid jams. Southeast Asian cities could benefit from this because the traffic lights would adapt to changing conditions on the streets, creating less of a risk for accidents.

A newer, but quickly advancing technology that could be implemented is the V2I communication system. This technology's purpose is to give the users real-time feedback of things happening on the streets around them (Rouse). The system works by connecting other cars to a central network so that the cars can share information using short-ranged frequencies to collect the data and then guide drivers based on that information. Some of the components include: traffic cameras, traffic lights, lane markers, streetlights, signage and parking meters. This could greatly benefit Southeast Asia because oftentimes when traffic jams occur, they only get worse and worse as the amount of people continue to build up. With a system implemented by the cities like the V2I, drivers could get real-time data and would be able to avoid traffic jams and take alternative routes instead of worsening the problem. The systems can also warn you of any coming danger, which could reduce the amount of deaths and injuries on the streets.

Considering the available technologies, smart cities could help solve traffic problems that could greatly benefit the people of Southeast Asia. Not only would it decrease the number of accidents and deaths, but it would also have a great impact on the environment. There would be less cars and bikes on the road, and they would not be idle just burning gasses and creating fumes. Although it can be said that taking part in these types of technology would impact the privacy of individuals, it would benefit their quality of life in a significant way.

Sources

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