

TUMI INITIATIVE'S TRANSFORMATIVE STORIES

SINGRA MUNICIPALITY, BANGLADESH: ENHANCING E-MOBILITY FOR SAFER AND CLEANER LOCAL TRANSPORT

Road safety is a top priority for Singra Municipality. Singra has successfully installed solar lights to increase visibility at night and is now focusing on e-mobility by promoting e-rickshaws as a safe, sustainable option for both public transport and health services.

ABOUT SINGRA

Located in the Natore District in the northwestern part of Bangladesh, Singra Municipality is a rural city that is vulnerable to climate impacts. Singra sits atop a flood-prone region nestled between the Atrai and Gurnai rivers, and experiences a depletion of ground water during the summer. Severe flooding happened in 1988, 1998, and 2011, when the flood level was one to two meters above the surface for more than two months.

Singra's employment largely depends on agriculture (42.46%) and small commercial activities (25.77%).



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Population (BBS 2011):

33,192 (2011, municipality area) – 321,000 (2011, district area)

Density: 3,304 persons/sq - growth rate: ~3.92%

Land area: 22,5 km² (municipality area) 307 km² (district area) 66.77 km of roads in the municipal area

- MODAL SPLIT
- 17% walking
 8% cycling
 1% rickshaw (pulled)
 43% e-rickshaw
 6% easy bikes
 16% motor cycle
 9% CNG auto



TARGETS by 2030

- 1. Zero emission public transport
- 2. 100% Solar Street Lights for the municipal area
- 3. 50% streets will have a footpath and cycling will be encouraged.

THE CRUCIAL ROLE OF RICKSHAWS IN SINGRA'S MOBILITY

Besides walking, cycling and, during floods, boats, three-wheelers are the most popular mode of short-distance transport in Singra Municipality. These include e-rickshaws and electric easy bikes, followed by CNG (compressed natural gas) rickshaws. CNG rickshaws and easy bikes function as a local public transport option, with fixed routes and stops, while e-rickshaws are more commonly used as taxis.

While e-mobility is on the rise around the world, Singra's level of electrification of short-distance transport is already remarkable: 90 percent of the rickshaws are is battery-powered, while only 10 percent are powered by CNG.

Short-distance motorized transportation in Singra is 90% electric and only 10% gas-powered.

E-vehicles in Singra provide a low-carbon, energy-efficient, cost-effective and quiet transport system for urban and rural areas, and they are well-suited for narrow streets given their limited size and speed.

E-rickshaws play a pivotal role in providing point-to-point connectivity and short-distance transport. Cars and vans are too large to travel on Singra's 62.77 kilometer-long road network due to the prevalence of narrow lanes. 46.89 percent of roads are one-way, 2.5-meter-wide streets for rickshaws and non-motorized transport (NMT), while 44.92 percent of the roads are between 2.5 meters and 3.5 meters wide. The east-west Natora-Bogra road, which is seven meters wide, is the only main road passing through the city center. Natora-Bogra is traveled by long-distance diesel-fueled buses and freight trucks.

E-rickshaws play a pivotal role in providing point-to-point connectivity and shortdistance transport on narrow lanes

The already limited size of the roads is effectively further reduced by road competition: moving vehicles share the roads with pedestrians, cyclists, and e-rickshaws parked on the side of the road due to lack of dedicated infrastructure such as sidewalks and parking facilities. Congestion in high-traffic areas, such as intersections and main bus stations, increases the risk of accidents. Road safety is, therefore, a major concern for Singra Municipality. This case story will focus on low-carbon projects that will create safer streets in Singra, and which can potentially become models for other small municipalities in Bangladesh.

THE CHALLENGE OF IMPROVING ROAD SAFETY

Around 20 to 30 accidents take place in Singra each month, according to Singra Municipality and the Rickshaw Driver Union, with about ten persons needing medical attention per month. Over-speeding, poorly designed and maintained roads, and inadequately retrofitted e-rickshaws are named as the main causes of these accidents.

To improve their business and working conditions, rickshaw pullers sometimes convert their vehicles from manual power to motor power, often by installing second-hand or substandard engines. This practice is illegal and potentially harmful when the vehicle is not retrofitted adequately, because manually powered rickshaw is designed to handle much lower speeds than a motorized one, and can lose control at higher speeds.



INTRODUCING E-RICKSHAWS AS DOOR-TO-DOOR EMERGENCY VEHICLES

To offer affordable, reliable and accessible door-to-door emergency transportation, two electrified rickshaw ambulances will be introduced to provide emergency responses and provide health-supporting services.

Singra's hospital is located about 1.5 kilometers north of the city hall. The hospital serves not only Singra Municipality but the entire district (Upazila). Victims of traffic accidents are treated in this facility, with the frequency of accidents peaking during festivals. Particularly challenging for the hospital are large accidents involving more than ten injured persons. The hospital has one traditional ambulance, which is used exclusively for long-distance transfers of patients to bigger cities. The limited number of ambulances and the narrow roads lead to a lack of emergency rescue capability. Currently, emergency patients in Singra use rickshaw vans and other similar vehicles as improvised emergency vehicles.

Singra Municipality is planning to purchase two e-ambulances, which are smaller in size than the traditional ones, and thus better able to offer door-to-door emergency services. In addition, ambulance drivers will receive a first aid training course, and the e-vehicles will be equipped with a basic medical kit. These measures are expected to reduce both medical response time and the severity of the cases arriving at the hospital.

This project is highly transformative because rickshaws are one of the most widespread means of transport in Bangladesh, and often operate with outdated two-stroke engines or lead-acid battery systems.By providing environmentally-friendly upgrades to the rickshaw, municipalities like Singra could dramatically improve their local environment.



Singra Municipality is aiming to set an example for similar cities in Bangladesh. Singra is planning to add solar charging components to the e-vehicles and/or the charging garage and is applying for national funding to improve the main road (Natore-Bogra) and introduce dedicated lanes for slower vehicles.

SOLAR STREET LIGHTS FOR ROAD SAFETY AT NIGHT

Between April 2016 and December 2017, Singra Municipality installed 363 solar-powered street lights covering approximately 40 percent of the road network within Singra's municipal area. ICLEI South Asia provided technical support and Bangladesh Climate Change Trust (BCCT) funded the project with a grant of approximately 200,000 Euros.

Thanks to the installed solar-powered street lights, streets became safer and more secure during the night as solar lamps are not affected by electric load shedding. It is estimated that Singra Municipality is saving 12,500 Euros in electricity bills per year.

Singra Municipality is aiming to power all street lights in the municipal area with solar power by 2030.





"Bangladesh is one of the most vulnerable countries to the impact of climate change in the world. It is impossible for one city or even a whole country to fight climate change alone. But it will be possible if we join forces and every city in the world will act against climate change."

> Md Zannatul Ferdous Mayor, Singra Municipality

KEY CONTACTS

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ACKNOWLEDGMENTS

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ADDITIONAL RESOURCES

Singra Municipality. (2018). Singra Municipality Installed 363 Solar Street Lights. Retrieved from https://www.youtube.com/ watch?v=C85LKOy2in4

ICLEI. (2014). City Resilience Strategy: Singra

The Transformative Urban Mobility Initiative (TUMI) enables leaders in developing countries and emerging economies to create sustainable urban mobility. It offers technical and financial support for innovative ideas. In TUMI the German Federal Ministry of Economic Cooperation and Development (BMZ) has brought together some of the world's leading institutions working on sustainable mobility with city networks and think tanks to implement projects on site where they are needed most. Partners include ADB, CAF, WRI, ITDP, UN-Habitat, SLoCaT, ITDP, ICLEI, GIZ, KfW and C40. transformative-mobility.org

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