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 piloting e-rickshaws as a sustainable public transport and health service for safer streets.

ABOUT SINGRA

Located in the Natore District in the North-Western part of Bangladesh, Singra Municipality is a climate vulnerable rural city. Singra is sitting atop a predominantly flood prone region nestled between the Atrai and Gurnai rivers and experiencing depletion of ground water during summer. Severe flooding happened in 1988, 1998 and 2011, when the flood level was 1 to 3 meters above the surface for more than 2 months.

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

Map data ©2019 Google

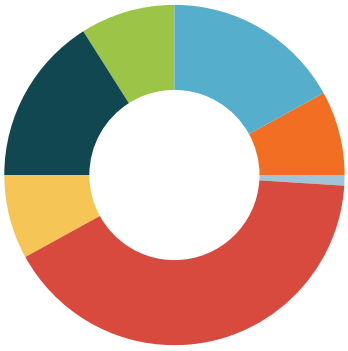
Population (BBS 2011):
33,192 (2011- municipality area) - 321,000 (2011- district area)

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

Land area: 22,5 km2 (munipality 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 boats during floods, three-wheelers are the most popular mode of short-distance transport in Singra Municipality: e-rickshaws and electric easy bikes, followed by CNGs (compressed natural gas operated rickshaws). CNGs and easy-bikes operate as public transport with fixed routes and stops to collect passengers; e-rickshaws instead 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% of the rickshaws are battery-operated, while only 10% are CNG-operated.

> *Short-distance motorized transportation in Singra is 90% electric and 10% fueled by compressed natural gas*

These e-vehicles provide with a low-carbon, energy-efficient, cost-effective, and silent transport system for urban and rural areas and they are better suited for narrow streets with 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 km-long network of mostly narrow lanes: 46,89% of roads are just 2.5-meters-wide one-way streets for rickshaws and non-motorized transport (NMT), while 44.92% of the roads are between 2.5m and 3.5m wide. The east-west Natora-Bogra road, which is 7m 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 short distance 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 for lack of dedicated infrastructure such as sidewalks and parking facilities. Congestion at high-traffic areas, such as intersections and main bus stall, increases the risk of accidents. Road safety is of major concern for Singra Municipality. This case story will focus on low-carbon projects aiming for safer streets in Singra which can potentially become as model for other small municipalities in Bangladesh.

THE CHALLENGE OF IMPROVING ROAD SAFETY

About 20-30 accidents take place each month according to Singra Municipality and the Rickshaw Driver Union, with about 10 persons needing medical attention. 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 converted their vehicles from manual to automatic by installing disposed and mostly substandard engines. This practice is illegal and potentially harmful when the vehicle is not retrofitted adequately: a manual rickshaw is designed to handle much lower speeds than a motorized one, causing loss of control of the vehicle in high-speed.

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

To offer an affordable, reliable, and accessible door-to-door emergency transportation, 2 e-ambulances will be introduced to provide emergency responses and provide health supporting services.

Singra's hospital is located about 1.5 km 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 and the trend is increasing with peaks during festivals. Particularly challenging for the hospital are large accidents involving more than 10 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 services. Emergency patients in Singra use rickshaw vans and other similar vehicles as improvised emergency vehicles.

Singra Municipality is planning to purchase 2 e-ambulances, which are smaller in size than the traditional ones, thus able to offer door-to-door emergency service which will be reliable, affordable, and accessible. 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 the response time and the severity of the cases arriving at the hospital.

This project is highly transformative because e-rickshaws are the most wide spread means of transport often operating with outdated two-stroke engines.

To ensure the sustainability of the project, e-rickshaws drivers will receive safety training.

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.

RELATED PROJECT UNDER THE SPOTLIGHT: 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% 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 achieve 100% solar-powered street lights in the municipal area 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

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ADDITIONAL RESOURCES

Singra Municipality, 2018. Singra Municipality Installed 363 Solar Street Lights

ICLEI, 2014. City Resilience Strategy: Singra

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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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