

# Case Study: Energy Efficient “LoRaWAN” based Street Lights in New Town

Safety and security plays a crucial role in a successful development of a city like New Town. Street lighting is one such element which helps improve the safety and builds on the perception of security among the citizens across the city. Hence an efficient street lighting technology is one of the key aspects in the development of a city and should be a crucial parameter for a smart city. In recent times, the use of light emitting diode (LED) lamp for lighting purpose has grown considerably. In addition to being eco-friendly, due to its low electrical energy consumption, it is also necessary that the LED street lights are maintained in a proper way and be tracked real time so as to optimize its application. Newtown has been using LED based street light for various locations and now intends to further strengthen its use with proper technology.

**NEWTOWN introduces LoRaWAN based street lights as an initiative towards Smart Street Lighting.**

LoRaWAN -based street lights operational in Newtown

**LoRaWAN** is a long range, low power radio frequency communication technology which helps integrating the information from various end nodes through internet-connected applications for a central and coordinated application.

**LoRaWAN- based, 150 street lights, have been installed and operational in Newtown, at locations like Newtown Plaza/ Clock Tower.**

**Second phase of implementation includes installation of almost 1800 smart energy efficient LoRaWAN based lighting application at different areas in Action Area IA, IB and IC in Newtown**

## How a LoRaWAN based smart lighting system work

Sensors embedded in street light control the light functions

LoRaWAN Technology in the sensors connects street lights to LoRaWAN gateway

LoRaWAN gateway aggregates data from street light

Gateway sends information to the cloud where data are analyzed by application server

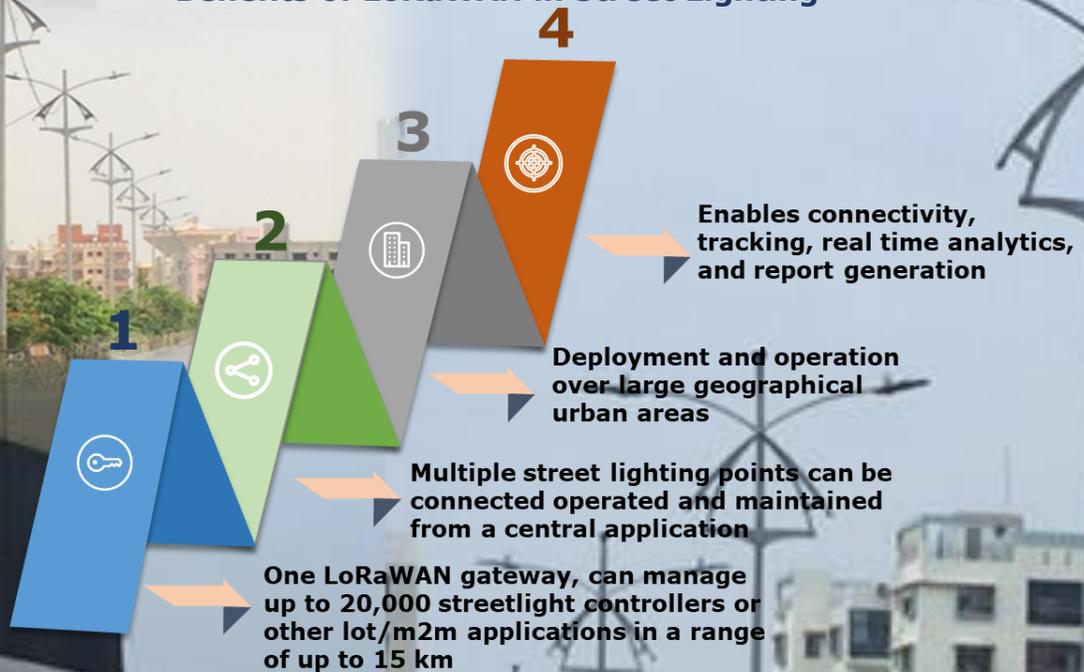
Application server controls street lights

## LoRaWAN based Street Lighting: Its Features

<b>Asset Tracking &amp; Management</b>	Each lamp will be associated with Pole along with lane, ward and city
<b>Executive Dashboard</b>	Reports/ analytics with information on total energy consumption, energy saved, cost saved, etc. shall be available
<b>Operation Dashboard</b>	Information like alerts, dim status, on/off status, map view, last data from the lamps, etc. shall be available
<b>Dimming Profile</b>	Dimming schedule can be applied to lamp groups/ individuals depending on the usage.

<b>Alert Configuration</b>	There can be multiple pre-defined alerts to be sent to given mail- IDs
<b>Map View</b>	Latitude and longitude of each pole shall be available and plotted, to be provided in a map
<b>Report Generation</b>	System will provide reports on energy saving, device alert log, device metering, etc. There is provision for data archiving for 6 months
<b>Communication Frequency</b>	To and forth communication between controller and application shall be pre-defined

## Benefits of LoRaWAN in Street Lighting



The cloud based street light application provides an end-to-end functionality for provisioning, monitoring and controlling the installed street lights across the city of Newtown. It enables NKDA to devise a prompt mechanism for identification and addressal of the maintenance issues of the network, thereby ensuring an effective delivery of their citizen-charter.