SMART CITIES "MISSION TO REALITY"







BUILDINGS

ENVIRONMENT

TECHNOLOGY





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Learning from Nature



By 2020, nearly 17% of total young population in the world will live in India



0-14 15-34 35-64 65 Years and above

Working population will be the driving factor in growing urban population by more than 1.23 times by 2020



India's Urbanization Opportunities by 2020

29 average age, will have the largest youth workforce

70% of country's net GDP will be the contribution

40% to be the increase in urban disposable income



Large scale urbanization is posing several problems which will be accelerated further



INVESTMENTS

Government is trying to address these problems by investing in smart city initiatives



Challenges prompting the need for Smart Cities





CONCEPTS

Smart concepts are being implemented pan India



Population is the key criteria to select 100 smart cities



Selection Criteria for Identifying Smart Cities

At least 2 Smart cities in majority of 29 states

IDENTIFICATION

Cities with Population >1 Mn are the potential smart cities State Capitals, Heritage cities and cities nearby to metros are preferred to be smart cities Parameters like Urban Reforms, Revenue Collection, Sanitation Levels, Capacity of municipal bodies to select cities States with bigger urban population to have more smart cities such as Maharashtra, Uttar Pradesh, Karnataka, Tamil Nadu, West Bengal and Gujarat



KEY ENTITIES

Apart from the Central & State governments , various other entities are also working towards the development of smart cities



GLOBALMany countries have come forward to invest and participate in the
development of Smart Cities in India





BARCELONA

Smart Parking & Mobility



BARCELONA

Smart Parking

500 sensorized parking spaces

Length of the pilot: 9 months

Users will be informed on the location of free spaces through:



The pilot aims to study drivers behaviour patterns and be able to suggest improvements in user experience regarding parking.

Fastprk *



BARCELONA

Smart Mobility





COPENHAGEN

Urban Sustainability through wind & waste management



COPENHAGEN

Wind Power

• A renewable energy infrastructure has been introduced through a unique partnership based on local ownership



COPENHAGEN

Almost 60% recycled and maximum use is made of the residual waste to generate heat for the city's district heating network.

It is illegal in Denmark to send waste to landfill if it can be incinerated!



In 2010 Copenhagen sent only 1.9% of 820,000 tonnes of waste to landfill — 20 times less than in 1988.



Smart Transportation



SAN FRANCISCO

Integrated Transport System



SAN FRANCISCO



Number of people who cycle because it is the fastest or most convenient way to get around in the city.

- Bicycles have been integrated into wider transport network
- Passengers can easily transfer between cycling and public transport
- Enhanced and broader bicycle lanes with improved designs of intersections and behavioral campaigns have made it a safer city for the cyclists



MASDAR CITY

Smart Grid



MASDAR CITY

Energy Efficient Grid





Smart Heating & Cooling



HAMBURG

District Cooling is the centralized production and distribution of chilled water, partly cooled with cold sea water.

It is distributed via underground insulated pipelines to commercial and industrial buildings to cool indoor air.

Technologies such as Combined Heat and Power (CHP) to capture and re-use heat energy that is otherwise lost in the electricity generation process have been adopted.

The district heating network distributes heat energy efficiently throughout the city.

The integration of renewable fuels such as biomass further reduces the carbon intensity of the network.





Up to 70% reduction of CO₂ emissions when using district cooling compared to traditional cooling methods.





LONDON

High on Technology and Open Data



LONDON

Open Data

Access to open data

Every activity in London can be captured as data.

The number of people who commute into London, local air quality, where London's schools are and their performance, the number of new homes and where they're being built, or local crime rates.

Open data is information that is available for anyone to use, for any purpose, at no cost.

That data can then be used to create new applications that can, for example, tell you when your next bus will arrive; allow you to navigate your way around the city; find out where the nearest top performing school is to your home; or even monitor how City Hall or the local council is tackling the issues that matter to the citizens.





SINGAPORE

Smart Traffic Management & Creative Use of Technology

HSBC

Every inch of the country will be wired and collecting data to help build better services.

SINGAPORE

Smart Nation Initiative

The Smart Nation initiative adopts a people-centric approach by rallying citizens, industries, research institutions, and the government to co-create innovative solutions.

Singapore government has launched its plans to develop the **world's first smart nation** built on the latest technologies .

Smart Living

Bringing Smart technologies to housing estates with a trial project at **Punggol Northshore**.

A **Smart Town Framework** has been developed to guide the development of Smart Towns across 4 key dimensions;

- Smart Planning,
- Smart Environment,
- Smart Estate and
- Smart Living.

Smart Estate

To improve estate services, **Smart technologies** will be used to collect and analyze data which helps to optimize maintenance cycles and pre-empt problems.

Smart Lighting

Lighting fitted with **sensors**, installed in the common areas, can help to understand human traffic patterns and optimize the provision of lighting.



SINGAPORE

Worlds first Smart Nation initiative

Smart Car Parks



Each **car park** will have an **intelligent parking demand monitoring system** that will automatically increase the number of available lots during non-peak hours for visitors, as residents with season parking ticket (SPT) are out.

Conversely, it will also reduce the number of available lots for shortterm parking visitors in the evening, to ensure sufficient lots are reserved for residents with SPT returning home.

Smart Environment



Linking of the estates with a network of sensors to create a **"Smart environment".** These sensors will capture **real-time information on environmental factors** such as temperature and humidity.

Innovative solutions can then be found to create a more pleasant environment for residents.

Smart Fans



Smart fans located in common areas can be triggered when certain thresholds of temperature and humidity are reached.

The **fan speed can be regulated** to improve the thermal comfort level for residents, while reducing energy consumption.

BUILDING SMART !!!

This development calls for 'smart' approaches to ensure that cities are optimized for economic activity, energy consumption, environmental impact and 'the good life'.

The road towards a smart and more sustainable city is long termed planning and design.

This requires thinking "smart".

India is a land of diverse topographical regions, climate & cultures.

Proposed Smart Cities in India should aim to harness the **inherent strength** of the **regional location** of each 'City' within a macro framework of "SMART".







Based on a survey conducted at the household level, where each citizen was asked to rank the various infrastructure services according to their priority giving the most urgently required service as first rank and the least prioritized sector as the last rank

INDIA

Regional strengths - Global learning



(for sizeable cities)

CREATING REALITY !!!

Where each one contributes

Smart & Sustainable Built Environment (Global)













Shining Star International School, UAE

Smart & Sustainable Built Environment (Township)





Smart & Sustainable Built Environment (Township)

- Green Homes
- Rainwater Harvesting
- Solar panel Roofing
- Waste Reduction System
- Solar Water Heating
- Treated Grey Water for Landscaping
- Use of local material with recycled content
- Green Roofs
- Vertical gardens
- Solar Lighting
- Effective Heating and Cooling
- Smart Parking







Crescent Parc, Gurgaon

Smart & Sustainable Built Environment (Institutional)



Smart & Sustainable Built Environment (Institutional)





District Headquarters of South Goa Collectorate, Goa



Being SMART

is not a challenge But a NEED Let us make it happen...

