

SMART CITIES 10	DIGITAL CITIES 15	AMRUT CITIES 17	HEALTHY CITIES 18	REAL ESTATE & PROPERTY MANAGEMENT 26	HUMANE CITIES 30	GREEN CITIES 36	PROGRESSIVE CITIES 42	CONNECTED CITIES 46	RESILIENT CITIES 50	CAPEX 51
-----------------	-------------------	-----------------	-------------------	--------------------------------------	------------------	-----------------	-----------------------	---------------------	---------------------	----------

## 16th Municipalika opens in Bengaluru

Three-in-one mega event on Future Cities with CAPEX and Architecture in the Age of Millennials

February 12 to 14, 2020



Hardeep Singh Puri, Union Minister of State (I/C) for Housing and Urban Affairs

The 16th Municipalika Exhibition and Conference on Smart and Sustainable city solutions, CAPEX (Construction, Architecture, Planning and Engineering Expo) for Innovative Building Materials and Technologies and Architecture in the Age of Millennials (the first-of-its-kind exhibition cum conference) is being held from February 12-14 at the Palace Grounds, Bengaluru. Together, the three events engage holistically in the integrated development of the built environment, giving a 360-degree vision of Future Cities. The country is seeing a huge boost in infrastructure and building development and solutions for all issues related to sustainable urban development, including buildings are covered through the Exhibition and Conference segments.

16th Municipalika will have the participation of all States and Union Territories. The event also has the participation of over 1,500 delegates in the conference segment from over 300 cities and towns and abroad and professional visitors along with 100 exhibitors already lined up in the exhibition segment. This will also include

ministers, mayors, municipal commissioners, urban local bodies, CEOs of Smart Cities and parastatals, builders, developers along with technology providers, professionals and all urban stakeholders. Faculty and students of architecture, engineering, technology and management institutions are also participating to get exposure to the latest trends.

### 16th Municipalika

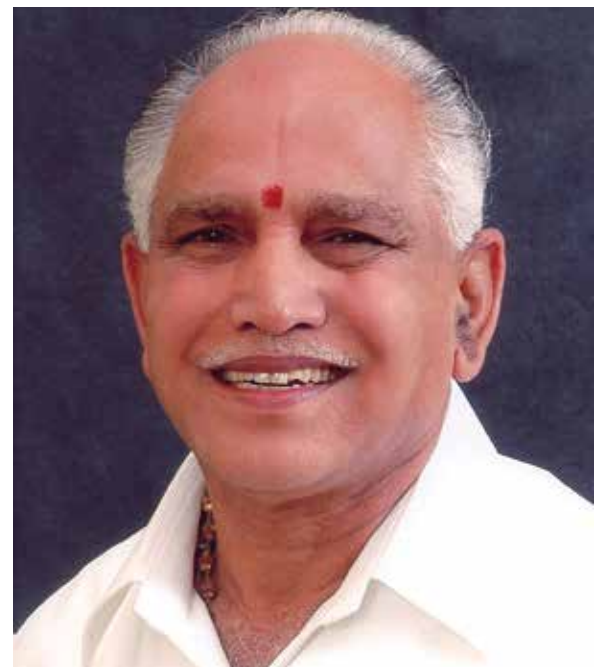
The 16th Municipalika provides a mega-networking forum for governments, experts, entrepreneurs and service providers to collectively find solutions to urban challenges. 16th Municipalika provides a platform to evolve, evaluate and share policies, strategies, cutting-edge technologies and innovations towards smart and sustainable living in cities.

With the ongoing Urban Transformation process for 100 Smart Cities, 500 AMRUT cities, PMAY-Housing for All, Swachh Bharat Mission, HRIDAY and Digital Cities, the event aims at discussing strategies, best practices and display of technologies, equipment and solutions for implementing these agendas across the country. The vision address for the event is being given by Amitabh Kant, CEO, Niti Ayog and Sanjay Dutt, Managing Director, Tata Realty and Infrastructure Limited, where the eminent professionals will be addressing the idea of future cities.

The three-day-long conference includes sessions on Smart Cities, Ease of Doing Business, Urban Reforms and Resource Mobilisation, Water and Wastewater, Sanitation, Solid Waste Management and Recycling, Urban Transportation and Traffic, Electric Mobility, Green Cities, Environment and Pollution Control, Urban Infrastructure Development, Urban Housing, Digital Cities, E-governance, Safe Secure and Resilient cities.

### CAPEX

CAPEX-Construction, Architecture, Planning and Engineering Expo is a platform for showcasing innovative building materials and technologies. Since the year 2019-2020 has been declared as the year of **Construction Technology** which also supports the **Global Housing Technology Challenge Initiative - India**, the event will provide opportunities to project technological options for infrastructure and building construction and providers of mechanical, electrical,



B S Yediyurappa, Chief Minister of Karnataka

plumbing and fire services (MEPF), green building products, building materials and technologies which are environment-friendly and energy-saving.

### Architecture in the Age of Millennials

The conference also includes a special segment called Architecture in the Age of Millennials which covers different sessions such as Millennials@Work, Millennials@Public Spaces, Millennials@Home, Millennials@Campuses and Millennial Architects: Opportunities and Challenges to deal with emerging built environment of cities. It is a specially curated programme for the thought leaders, including architects, interior designers, engineers, urban designers, planners, construction consultants and real estate players to witness this transformation, discuss and debate the emerging trends in millennial preferences. The event encompasses all aspects of the millennial generation through exhibition and conferences.

Contd. on page 2

future cities  
a 360 degree event on city development

MUNICIPALIKA  
SMART & SUSTAINABLE CITIES

HOST STATE

GOVERNMENT OF  
KARNATAKA

**12, 13 & 14 FEBRUARY 2020**

PALACE GROUNDS, TRIPURAVASINI  
(NEAR MEKHRI CIRCLE), BENGALURU

www.municipalika.com

**16TH INTERNATIONAL EXHIBITION & CONFERENCE ON  
SMART & SUSTAINABLE CITY SOLUTIONS**

## Lead initiatives taken under the Government of Karnataka

- Pioneering e-governance in India through Bhoomi project to computerise rural land records and make available land record information for a nominal fee
- ₹293.64 crore commissioned under Smart City Mission in Karnataka to build affordable housing projects
- ICT applications like GPRS/GPS based mobile tracking and communication, RFID based collection system, segregation at source, Com-pactor stations, Processing at the landfill site, public mobility all commissioned under Smart City Mission
- ₹172.80 crore commissioned for Urban Development
- ₹174 crores commissioned under Mobility & Accessibility Improvement - Transit Hub, Integrated Bus Terminal Redevelopment
- ₹125.50 crore commissioned under Non-Motorised Transport, Walkability, Network Connectivity, MLCP, ParaTransit and Carriageway Improvement.
- Projects are done under improvement in the quality of life, water supply, underground drainage system, lively public space underground - ₹2577 crores



## Lead initiatives taken in Bengaluru city

- ₹493.24 crore worth area-based development projects under urban mobility like increased accessibility to heritage destinations, Shivajinagar bus station and Russel market precinct, B-TRIPS (Bengaluru Travel Related Information and Planning System)
- ₹369.83 crore worth area-based development projects for upgradation and redevelopment of historic economic centres, KR Market and Malleshwaram market
- ₹43.42 crore worth area-based development projects for green spaces, protection and redevelopment of centrally located parkland and innovation of downstream clean-up drainage system
- ₹8.7 crores worth pan-city development projects to address municipal finance and improvement in property tax collections for the whole city in a phased manner and participatory budgeting
- ₹78.51 crores worth pan-city development projects to cover Online project information system for public project management, Grievance Management - Central command centre for accepting citizen queries, Open data portal for citizen information and innovation and Improvement of Neighbourhood Safety

## International Partner

Home to North America's second-largest IT cluster, Ontario, Canada is where innovations, platforms and technologies meet the muscle of the industrial economy. Ontario's innovation corridor, connecting Toronto, Waterloo and Ottawa, is at the forefront of developing advanced technologies.

Ontario is emerging as a world-leader in smart cities by applying artificial intelligence, industrial automation and 5G technology platforms to commercialise solutions across almost every industry. With urban populations around the globe projected to double by 2050, new connected technologies promise to make cities more



sustainable, cleaner, safer and more vibrant.

Ontario companies are experts in sustainability, building a greener future around the world. Canada is ranked second internationally for the number of LEED-certified projects, reducing millions of tonnes of GHGs and saving billions of litres of water.

From New York to New Delhi, Ontario engineering and construction firms are collaborating with foreign governments to build smarter and more cost-effective infrastructure solutions.

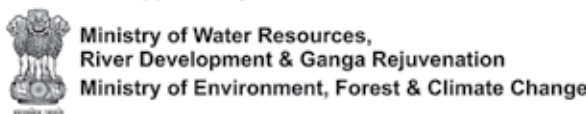
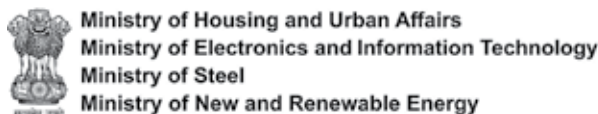
Need more information on how Ontario companies can help you engineer your region's future? Visit us at booth D-410.

If you are an international buyer looking to source goods or services from Ontario, visit [www.sourcefromontario.com](http://www.sourcefromontario.com)

If you are an experienced company wishing to grow your export business, visit [www.Ontario.ca/Export](http://www.Ontario.ca/Export)



Supported by Government of India



Host State



Partner States



International Partner



Feature State



Host City



Partner City



Co-Partner



Associate Partners



Powered by



Supported by

Supported by



Building Technology Partner



Technology Partners



Featured Exhibitor



Featured Exhibitors



Featured Exhibitors



e-Governance Solutions Partner

Industry Partners



Industry Partners



Institution Partners

Media Partners



Media Partners



Media Partners



Exhibition Organised by

Conference Organised by

Powered by





**12, 13, 14 February 2020 | Palace Grounds Bengaluru**

**Conference Schedule**

**DAY 1: 12th February 2020**

09:00 - 09:30	<b>Delegate Registration</b>		
10:00 - 11:00	<b>Conference Inaugural Session</b>		
11:15 - 11:30	<b>Inauguration of the Exhibition</b>		
11:30 - 13:00	<b>Visits by VIPs and Delegates of Exhibition</b>		
13:00 - 14:00	<b>Networking Lunch</b>		
	<b>HALL A : MUNICIPALIKA</b>	<b>HALL B : MUNICIPALIKA</b>	<b>HALL C/D : CAPEX</b>
14:00 - 15:15	<b>EASE OF DOING BUSINESS</b> How Cities Improve Ease of Doing Business? <ul style="list-style-type: none"> <li>• Single Window/Fast track Clearances</li> <li>• Promoting start-ups and SMEs</li> </ul>	<b>FIRE SAFETY</b> Are there best practices to prevent frequent fire breakouts? <ul style="list-style-type: none"> <li>• Fire safety codes and standards</li> <li>• Prevention and protection strategies</li> </ul>	<b>Building materials and Technologies: Emerging trends (HALL C)</b> <ul style="list-style-type: none"> <li>• Innovations in the use of Cement, Concrete and Composites</li> <li>• Steel and allied technologies</li> </ul> <b>Millennials@WORK (HALL D)</b> How are millennial offices blurring the lines between work and play? <ul style="list-style-type: none"> <li>• Channelling Uber: Co-Working in sharing economy</li> <li>• Building for Brands: Millennial preference to Experiential design</li> <li>• Flexible Workspaces and Offices</li> <li>• Natural elements in Millennial workspace designs</li> <li>• Clean Minimalistic look for workstations</li> </ul>
15:30 - 17:00	<b>SMART CITIES</b> Looking back and looking forward on Smart Cities Programme <ul style="list-style-type: none"> <li>• Smart-technology</li> <li>• Policy and planning</li> <li>• Human Computer Interaction for design and management</li> </ul>	<b>CITY RESILIENCE</b> Can cities reduce their risk from natural disasters? <ul style="list-style-type: none"> <li>• Resilient infrastructure (Floods, Landslides, Earthquakes etc.)</li> <li>• Alarm and people security</li> <li>• Preventive measures</li> </ul>	<b>Millennials@Public Places (HALL C)</b> How to re-designing streets and parks the millennial way? <ul style="list-style-type: none"> <li>• Millennials on the move</li> <li>• Fitness studios- New health designs for Millennials</li> <li>• Cooking up a hangout experience: Millennial cafes, restaurants, pubs</li> <li>• New trends in interactive and digital signage design</li> <li>• Outdoor furniture- Millennials influencing future landscapes</li> </ul>
17:00 - 18:00	Connect City Managers with technology and solution providers <b>Location : Exhibition Hall</b>	Connect Fire and Safety Officials with technology and solution providers <b>Location : Exhibition Hall</b>	Connect Architects and Developers with Building Technology and Solution Providers <b>Location : Exhibition Hall</b>
18:30 - 20:00	<b>Vision Address : Future Cities</b>		
20:00 - 21:00	<b>Networking Dinner</b>		

*Contd. on next page*



<b>DAY 2: 13th February 2020</b>			
	<b>HALL A : MUNICIPALIKA</b>	<b>HALL B : MUNICIPALIKA</b>	<b>HALL C/D : CAPEX</b>
10:00 - 11:15	<b>WATER</b> How to provide equitable access to safe and clean water? <ul style="list-style-type: none"> <li>• Integrated water resource management</li> <li>• Alternative water sources</li> <li>• Improve quality of water</li> </ul>	<b>DIGITAL CITIES</b> What is the digital vision for city transformation? <ul style="list-style-type: none"> <li>• Geo-spatial planning</li> <li>• Command control centres</li> <li>• Big Data</li> </ul>	<b>Millennials@HOME</b> How to minimise footprint and maximise utility? <ul style="list-style-type: none"> <li>• Back to Basic Finishes</li> <li>• Flexibility vs. Permanence</li> <li>• Material for millennial age - natural, sustainable, low maintenance</li> <li>• Back to Basic Finishes</li> <li>• Outdoor spaces for the millennial age</li> </ul>
11:15 - 11:30	<b>Product presentations over tea</b>		
11:30 - 12:45	<b>WASTE-WATER (AMRUT)</b> What are the trends in waste-water management? <ul style="list-style-type: none"> <li>• Filtration and treatment at city scale</li> <li>• Water recycling in buildings</li> <li>• Cost effective technologies</li> </ul>	<b>E-GOVERNANCE</b> How to best use e-governance platforms for citizen interface? <ul style="list-style-type: none"> <li>• Building permission</li> <li>• Water supply portal</li> <li>• Waste management</li> <li>• Mobility management</li> <li>• Cyber safety</li> </ul>	<b>Millennials@CAMPUSES</b> What is the new built-environment for the millennial learners? <ul style="list-style-type: none"> <li>• Break down Walls, Class outside rooms</li> <li>• Build the change we want to see: Closed-loop ecosystems</li> <li>• New Age Millennial Libraries</li> <li>• Inspiring Cross- disciplinarily and Experimentation</li> <li>• Campus-wide Internet of Things: Optimising resources</li> </ul>
12:45 - 13:15	Connect Water, Waste-Water Experts with solution providers in the exhibition. <b>Location : Exhibition Hall</b>	Connect with digital experts with technology providers in the exhibition <b>Location : Exhibition Hall</b>	Connect with Building Experts with solution providers in the exhibition <b>Location : Exhibition Hall</b>
13:15 - 14:00	<b>Networking Lunch</b>		
14:00 - 15:30	<b>SANITATION and INTEGRATED SOLID WASTE MANAGEMENT (SBM)</b> What have we learnt from Swachh Bharat Mission? <ul style="list-style-type: none"> <li>• Innovative sub/super-structure toilet tech.</li> <li>• Retrofits to existing toilets</li> <li>• Sanitation infrastructure for women and children</li> </ul>	<b>HOUSING FOR ALL(PMAY)</b> Is Housing for All agenda getting the right impact? <ul style="list-style-type: none"> <li>• Success stories</li> <li>• Road Blocks/Solutions</li> </ul>	<b>GREEN BUILDINGS</b> What are the trends in green materials, products and technologies? <ul style="list-style-type: none"> <li>• Green and recycled products</li> <li>• Climatic facades and fenestrations</li> <li>• HVAC and efficient lighting</li> <li>• Coatings, paints and waterproofing</li> </ul>
15:30 - 15:45	<b>Product presentations over tea</b>		
15:45 - 17:00	What are the best practices of zero waste? <ul style="list-style-type: none"> <li>• Circular economy</li> <li>• Waste conversion technologies</li> <li>• Construction and demolition trends</li> </ul>	<b>CITY DEV. INVESTMENT CONCLAVE: Housing Finance</b> <ul style="list-style-type: none"> <li>• PMAY</li> <li>• Other City/Core Infra</li> </ul>	<b>CITY DEV. INVESTMENT CONCLAVE : Infrastructure Finance</b> <ul style="list-style-type: none"> <li>• Smart Cities</li> <li>• AMRUT Cities</li> </ul>
17:00 - 18:00	Connect with Sanitation Experts with solution providers <b>Location : Exhibition Hall</b>	Connect with Housing Experts with solution providers <b>Location : Exhibition Hall</b>	Connect with Building Experts with solution providers <b>Location : Exhibition Hall</b>
18:00 - 19:45	Participative Cities - Open House Citizen Interface: Special Session with Mayors		
20:00 - 21:00	<b>Networking Dinner</b>		

*Contd. on next page*

DAY 3: 14th February 2020			
	HALL A : MUNICIPALIKA	HALL B : MUNICIPALIKA	HALL C/D : CAPEX
10:00 - 11:30	<b>URBAN MOBILITY</b> Can we create public-friendly mobility? <ul style="list-style-type: none"> <li>• Walkability</li> <li>• Electric Vehicles</li> <li>• Parking management</li> <li>• Public transport: MRTS/BRT/LRT</li> </ul>	<b>GREEN CITIES</b> How to integrate ecological-systems in planning and design? <ul style="list-style-type: none"> <li>• Pollution-free cities</li> <li>• Passive Design</li> <li>• Landscape design</li> <li>• Carbon sequestration</li> </ul>	<b>Millennials Architects: Opportunities and challenges</b> <ul style="list-style-type: none"> <li>• Educational Institutes</li> <li>• Employers</li> <li>• Professional Practitioners</li> <li>• Renumeration and fee models</li> <li>• Trust and Viability Issues in commission vs open book model</li> <li>• Cross-disciplinary approach in practice</li> </ul>
	Connect with Mobility Experts with solution providers (11:15 - 11:45)		
11:30 - 12:45	<b>SMART CITIES CONCLAVE (11:45-13:30)</b> <ul style="list-style-type: none"> <li>• Smart-technology</li> <li>• Policy and planning</li> <li>• Human Computer Interaction for design and management</li> </ul>	<b>RENEWABLE ENERGY</b> How can clean energy be used for our built environment? <ul style="list-style-type: none"> <li>• Solar and other renewable energy</li> <li>• Green services</li> <li>• Energy efficient design</li> </ul>	<b>SPEEDY CONSTRUCTION</b> What are the future scenarios for speedy construction and sustainable management practices? <ul style="list-style-type: none"> <li>• Precast, Pre-Fab, Pre-Engineered</li> <li>• Scaffoldings and Formwork</li> <li>• Construction Machinery</li> <li>• Composite Construction</li> <li>• Sustainable construction management</li> </ul>
12:45 - 13:15		Connect with Environmental Experts with solution providers <b>Location : Exhibition Hall</b>	Connect with Building Experts with solution providers <b>Location : Exhibition Hall</b>
13:15 - 14:00	<b>Networking Lunch</b>		
14:00 - 15:30	<b>INTEGRATED CITY DEVELOPMENT</b> <ul style="list-style-type: none"> <li>• Brownfield and Greenfield township development</li> <li>• Vibrant Cities (HRIDAY) Heritage and Urban Conservation</li> </ul>		
16:00 - 17:00	<b>Valedictory session</b>		



**SUBSCRIPTION FORM**

**urban News Digest**

**FAIRFEST MEDIA LTD**  
 216 A/1 Gautam Nagar, Gulmohar Park  
 New Delhi 110049  
 Tel: (91) (11) 2686 6874

To subscribe  
 please call +91 99 5822 1085  
 or email smishra@fairfest.in



PARTICULARS (Please attach Business Card\*)

FULL NAME (MR/MS/MRS/DR): \_\_\_\_\_

OCCUPATION: \_\_\_\_\_

DESIGNATION: \_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

COUNTRY: \_\_\_\_\_

EMAIL: \_\_\_\_\_

MOBILE: \_\_\_\_\_ TEL: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ (\*) mandatory

REGULAR USERS MAY AVAIL PAID SUBSCRIPTION AT A DISCOUNT

**YES! I want to Subscribe** Cost per copy ₹ 50/-

12 ISSUES **REGULAR** ₹ 600/- **OFFER** ₹ 500/- **YOU SAVE** ₹ 100/-

FULL NAME (MR/MS/MRS/DR): \_\_\_\_\_

FULL ADDRESS: \_\_\_\_\_

AMOUNT: \_\_\_\_\_

CHEQUE NO./DD NO. / CASH: \_\_\_\_\_

DATED: \_\_\_\_\_ **All cheques/ DD payable to Fairfest Media Ltd**

**TERMS & CONDITIONS:** This is a limited period offer | Allow 5-6 weeks for processing of your subscription | Orders once placed will not be terminated or transferred | Replacements will be made upon receipt of the damaged copy within one week of delivery.





श्री आशुतोष टण्डन  
(गोपाल जी)  
मंत्री, नगर विकास,  
नगरीय रोजगार एवं गरीबी उन्मूलन

योगी आदित्यनाथ  
मुख्यमंत्री, उत्तर प्रदेश



स्वच्छ भारत मिशन :

- 652 ODF
- 217 ODF+
- 14 शहर स्वच्छ सर्वेक्षण 2019 में सम्मानित



अमृत :

- 60 शहर
- 11421 करोड़
- पेयजल सीवरेज और पार्को का विकास



स्मार्ट सिटी मिशन

- 10 शहर
- 21000 करोड़ से अधिक की परियोजनायें



प्रधानमंत्री आवास योजना

- 15.63 लाख आवास स्वीकृत
- देश में प्रथम स्थान

सतत विकास के लक्ष्य के प्रगति पथ पर अग्रसर :  
उत्तर प्रदेश



# TOWARDS SUSTAINABLE CITIES – URBAN DEVELOPMENT DEPARTMENT(UDD)



The Government of Karnataka has taken numerous urban development initiatives in the past several years. It has taken various steps under various flagship schemes like Swachh Bharat Abhiyan, Smart Cities mission, AMRUT cities mission, best practices award programme and PMAY: Housing for All all of which were launched by the Ministry of Housing and Urban Affairs.

## Initiatives under affordable housing:

On the housing front, it has done so by through the 'Pourakarmika Gruhabhagya Yojane (PKGBY)' which aimed at providing housing to loaders, helpers, cleaners, UGD workers, Sanitary Supervisors and Permanent Pourakarmikas. The estimated cost for the dwelling is ₹7.50 lakhs per unit in which ₹6 lakhs is provided by the State Government and 20% of the amount is funded by the beneficiaries. The beneficiaries can avail the money through bank loan, dovetailing with HFA and other funds of ULBs. The total approved PKS under this scheme are 4706 out of which 1083 are completed.

## Initiatives under Swachh Bharat Abhiyan:

Under the Swachh Bharat Abhiyan the state has done stupendously. It is ODF certified in 262 cities, constructed 13607 public toilets, 17600 community toilets and 3.35 lakhs individual household toilets. 262 ULBs Certified as ODF. The State has achieved over 90% progress on the overall financial outlay of 1018 cr from Govt. of India for the various components under SBM (Urban). The following ULB's have got awarded in Swachh Survekshan-2019

Sr No	Name of the City	Awards
1	Mysore(CC)	National level Cleanest City-3 <sup>rd</sup> Rank
2	Piriyapatna(TMC)	South zone Cleanest City-1 <sup>st</sup> Rank
3	K.R Nagar(TMC)	South zone Cleanest City-3 <sup>rd</sup> Rank
4	Hunsur(CMC)	Best City in SWM
5	T.Narsipura(TMC)	Cleanest city in south zone 25k-50k population
6	Mulki(TP)	Best city in citizen feedback in south zone
7	Hosdurga(TMC)	Cleanest city in south zone 25k-50k population

## Initiatives under 'AMRUT' mission:

The centrally sponsored 'AMRUT' scheme which was launched by Govt. of India has also seen progress in the 27 ULBs in Karnataka that were selected under the mission. For the entire span of 5 years (2015-2016 to 2019-2020), the State Annual Action Plan for Karnataka amounts to Rs 4952.87 crore. The sectors that it covers are water supply, Sewerage and Septage Management, Storm Water Drainage, Urban Transport and Green Space Parks. The funding pattern for AMRUT is:

	Central	State	ULB	Total
26 ULB	50%	20%	30%	100%
Bangalore	33.33%	20%	46.67%	100%
Amount	2318.79	990.58	1643.50	4952.87



## Initiative to improve civic amenities so as to reduce power consumption:

In an attempt to make the improvise basic civic amenities existing conventional street lights have been replaced with energy efficient LED street lights along with Centralized Control and Monitoring System (CCMS) through PPP mode in all Urban local Bodies of Karnataka. The normative savings could be in the range of 45-55%.

## Initiatives under drainage and mobility:

In efforts to develop better roads and drainage, 'Nagarothana' was launched in 2012 under which 80% grant was allocated for road development and 20 % for drain development. The grant is be shared 50% by the government and 50 % loan from KUIDFC.

The city of Bangalore with the launch of Namma Metro is a major mobility and environment friendly addition to the Bangalore City as it also significantly contributes to the reduction of carbon emissions. The project has an East-West corridor - 18.10 km long, starting from Baiyappanahalli in the East and terminating at Mysore Road terminal in the West and a 24.20 km North-South corridor commencing at Nagasandra in the North and terminating at Yelachenahalli in the South. This is the First Metro rail project in India commissioned with 750V DC Third Rail on Standard Gauge

## Initiatives under Bruhat Bengaluru Mahanagara Palike (BBMP):

BBMP as an urban local body has taken several measures to improve the basic amenities and to provide a good quality of life to the citizens of Bangalore. The primary focus of the BBMP would be to provide a responsive, transparent and accountable administration to meet the myriad challenges being faced by the growing city. The major works of BBMP are property tax collection, roads and infrastructure, Tender SURE, stormwater drains, Garbage Disposal, Public open Space and Tree planting.

As a part of the BBMP Campaign that was launched on Feb 1, 2017 for a Swachha Bengaluru, BBMP announced the CITIZEN PARTICIPATION PROGRAMME - Naagrika Sahabghatva Karyakrama, whose aim was to create Citizen participation at every Level - City, Zone, Division, Ward and Block; through Co-ordinators, Master Trainers and Shuchi Mitras

## Initiatives under Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC):

The ADB funded Karnataka Urban Development and Coastal Environmental Management Project (KUD-CEMP), SWM initiatives were taken up in 8 coastal towns and 2 other towns of Uttara Kannada. These were namely Ankola, Bhatkal, Dandeli, Karwar, Kundapur, Mangalore, Puttur, Sirsi, Udupi & Ullal.

KUIDFC, first to set up & operationalise first landfill site as per MSW Rules at Puttur.

The World Bank assisted Karnataka Municipal Reforms Project (KMRP), development of Landfill site was taken up in Chitradurga. It also saw setting up of 6 Waste Processing Plants & Upgradation of 1 Waste Processing Plant for BBMP at a cost of ₹440 cr.

KUIDFC is the Nodal Agency for setting of 5 regional power generating plants out of solid waste at Mysuru, Hubballi - Dharwad, Mangaluru, Belagavi and Kalaburgi on PPP basis.

It has completed 78 projects worth ₹110 cr. under Smart Cities Mission. It has also completed Jalasiri Sewerage system in 4 towns under 9 towns project under KIU-WMP. It has made 24/7 water availability under KUIMIP project. Also, there is 24/7 water supply in Belagavi, Kalburgi and Hubballi Dharwad under KUWSMP project. There had also been an introduction of Karnataka Urban Water Sector improvement project which aimed as 24/7 pressurised and continuous supply, a remarkable reduction in non-revenue water, volumetric pricing, computerised billing and collection, time-bound grievance redressal all were achieved.

## Study Tour To Singapore for Pourakarmikas:

CMAK is being organising study tour to Singapore to BBMP and ULB Pourakarmikas. As of now 582 (Pourakarmikas - 541 and Officers - 41) have completed the Study Tour in 14 batches.

## The 'BEST PRACTICES PROGRAMME' by CMAK:

Flagship programme of CMAK supported by Urban Development Department (UDD)

The initiatives form line Department and Urban Local Bodies are collected and awarded every year.

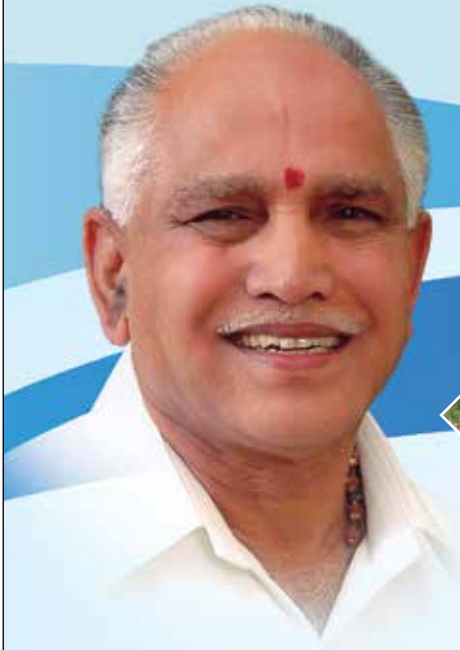






# Karnataka

## Towards Sustainable Development



**Sri B.S. Yediyurappa**  
Hon'ble Chief Minister



### POURAKAMIKA GRUHABHAGYA YOJANE (PKGBY)

- Providing housing to the eligible permanent Pourakarmikas (PKs)
- Permanent PKs 7696
- Approved PKs 4706
- 1083 Constructed

### SWACCHHA BHARATHA MISSION (SBM)

- 3.35lakhs IHHL Constructed.
- 17600 Seats CT Constructed.
- 13607 Seats PT Constructed.
- 262 Cities Certified as ODF.
- 7 ULBs got Awards in Swachh Survekshan 2019

### AMRUT :

- 27 ULBs have been selected under AMRUT.
- 5 years mission period the State Annual Action Plan (SAAP) amounting to Rs.4952.87 Crore had been allocated to Karnataka state by Gol.
- Sectors Covered are: Water Supply, Sewerage & Septage Management, Storm Water Drainage, Urban Transport and Green Space & Parks

### STUDY TOUR TO SINGAPORE FOR POURAKARMIKAS

- Study Tour to Singapore for ULB and BBMP Pourakarmikas
- 582 Pourakarmikas completed Study tour in 14 batch

### BBMP :

- Provide a good quality of life to the Citizens of Bangalore.
- Swachha Bengaluru, BBMP announced the Citizen Participation Programme

### BEST PRACTICES PROGRAM :

- Flagship programme of CMAK supported by Urban Development Department
- Initiatives from Line Departments & Urban Local Bodies are collected and awarded every year.



### KARNATAKA URBAN INFRASTRUCTURE DEVELOPMENT AND FINANCE CORPORATION (KUIDFC)

- Remarkable Achievements in urban infrastructure development
- 10 Coastal Towns developed in core sectors under **KUDCEMP** project funded by **ADB**
- **KUWASIP**- Karnataka urban water sector improvement project- 24/7 water supply projects with World bank assistance in select demozones of Belagavi, Kalburgi and Hubballi Dharward running successfully for last 12 years is first of its kind in the country. New type of contract, 24/7 pressurised and continues supply, remarkable reduction in non-revenue water, volumetric pricing, computerised billing & collection, time -bound Grievence redressal etc achieved.
- Development of Landfill site under **KMRP** assisted by World Bank
- **Smart City Mission** : as on date 78 Projects worth Rs.110 crore completed
- **KIUWMIP (Jalasiri)** : Sewerage system in 4 towns & 24/7 water supply system in 8 towns
- Implementation of water supply in 9 towns under 9 Towns Project
- 5 regional power plants out of Solid Waste under PPP model
- 24/7 water supply in Belagavi, Kalburgi and Hubballi Dharward under **KUWSMP** project

### BMRCL :

- Bangalore Metro, christened as "Namma Metro", - Environment friendly and significantly contribute to the reduction of carbon emissions
- The project has an East-West corridor - 18.10 km long, starting from Baiyappanahalli in the East and terminating at Mysore Road terminal in the West and a 24.20 km North-South corridor commencing at Nagasandra in the North and terminating at Yalachenahalli in the South.



To safeguard public property and to abjure violence;  
- is the fundamental duty of every citizen of the country,  
enshrined in our constitution

**Urban Development Department**  
Vikasa Soudha, Bengaluru - 560 001



# Smart City Mission: The progress report post 4 years the launch of the urban development mission

India is urbanising at a rapid pace. The urban areas in the country become home to 40% of the country's population. According to the Union Minister of State for Housing and Urban Affairs Hardeep Singh Puri, India requires 700-900 million square meters of residential and commercial space to be constructed every year for the coming 10 years to accommodate the ever-increasing urban population.

The urban agglomerations give rise to humans living in slum households when there is an insufficient amount of infrastructure to cater to the inhabitant's needs. This rising density of people living in slums and poor infrastructure leads to traffic congestion. Also, the rise in carbon emissions, lack of proper housing, poor connectivity and lack of service availability creates a need for smarter cities. The betterment of the situation is only possible due to the government's intervention. As poor infrastructure leads to lesser investments, the need is more urgent to boost the economic growth of the country.

## Launch of Smart City Mission:

The Smart Cities Mission India, started as the flagship programme of Prime Minister Narendra Modi, in the year 2015. The mission was initiated with an aim to develop existing 100 Indian Cities into Smart Cities. These Smart Cities are the next generation of Indian cities that would establish a citizen-government engagement and needful urban infrastructure with 'Smart Solutions' for the city. A competition-based approach adopted to determine the selection of the 100 Smart Cities, which was then allotted an amount of INR 48,000 crores. Under this competition, the states nominated its cities that were viable

- through better cycling infrastructure
- Bhopal Public Transport integrated with Public Bike Sharing system and dedicated cycle tracks connecting BRTS station
- Pune - Street Redesign
- Surat - 11 km road developed out of 23 km road. Upgradation of roads redesign of footpath for pedestrian safety, cycle track, signages, street furniture, bus shelter with solar rooftop, ease of maintenance, etc.
- Bangalore - upgraded 12 road stretches in the central business district with side-walk infrastructure
- Namchi - city promoting non-motorised transport and augmenting the pedestrian infrastructure and walkways integrated with foot over bridge with elements of universal access design
- Bhubaneswar - Smart Janpath project aimed for vibrant and safe public spaces by creating squares, plazas, parks and pedestrian-only streets for social interaction and physical activity
- Pune - Pimpri-Chinchwad Public Bike Sharing (more than 3000 cycles in 150 locations)
- Coimbatore - Public Sharing 2000 cycles available at 100 locations
- Bhubaneswar - Mo-Bus Services (revamped 125 buses)
- Vadodara - Multi-Modal Transit Hub-Jah Mahal (Multi-Modal Transit Hub) Vadodara has intra-city bus terminal with multi-level parking facility. Designed in 11,500 sq mt plot area, the hub adopts the heritage character of the city

- Smart City Centres such as Nagpur, Rajkot, Ahmedabad, Vishakhapatnam, Kakinada, Prayagraj, Naya Raipur, Pune, Surat and Vadodara

## Vibrant Public Spaces:

- Ajmer, Ahmedabad, Vishakhapatnam, Warangal, Jaipur, Udaipur, Varanasi and Tumakuru have made investments on waterfront developments along lakes, rivers/beaches
- Placemaking - Pune, Bhubaneswar, Bhopal, Vishakhapatnam, Surat
- Indore - Kahn riverfront development

## Smart Governance: Integrated Command and Control Centre, Smart Card, Online services

### Smart Card

- Odyssey City Card (Bhubaneswar)
- Jan Mitra Card (Ahmedabad)
- Surat Money Card (Surat)
- Kochi - One Smart Card (Kochi)

### Online Services

- Pune Connect, NDMC 311, One City one App, Gwalior, etc
- PMC Care
- Intelligent Traffic Management System

### Smart Poles

- Bhopal has implemented smart poles and intelligent street lights project under PPP mode
- Vizag, NDMC has also implemented smart poles



and had the potential to upgrade itself to become the next generation city. In this process, the nominated cities put forth their own plans for city development by providing modern solutions, in accordance with the idea of Smart Cities. Today, the mission is in its fifth year of implementation. Providing an update on the Smart Cities Mission, Kunal Kumar, Joint Secretary, Smart Cities Mission Director, Ministry of Housing & Urban Affairs, Government of India launched the recent Smart City Progress Report. According to the report, out of the 5,000 projects that were commenced, 1,100 projects have been completed worth INR 201 billion, 3,880 have been tendered worth 1,004 billion while 3,100 projects worth INR 1,418 billion have received the permission to be started. Remnant projects are aimed to be tendered out by March 2020.

## Lead Initiatives taken under the mission so far:

### Urban Mobility:

- Ahmedabad - non-motorised transport

### Affordable housing:

- Affordable housing project - Surat
- Social Equity centre - Bhubaneswar
- Affordable housing project - Raipur
- Affordable housing project - Vadodara

### Water and Sanitation:

- Electronic toilets deployed in Solapur, Faridabad, Jaipur
- Sensor-based underground bins implemented by Smart Cities such as Surat, Indore, etc.
- Water ATMs in Guwahati deployed at 20 locations
- Water Supply SCADA, Ahmedabad-centralised real-time data on water flow and energy consumption across 41 distribution systems, 3WTPs and 4 French Wells.
- Electronic Toilets - Faridabad
- Project Samman Community Toilets - Bhubaneswar

### Safety and Security:

### Smart Education

- Smart classroom projects - NDMC, Vishakhapatnam

### Skill development

- B-nest incubation centre in Bhopal fostering the environment of entrepreneurship in the city
- Pune Smart city Skill development through Pune Lighthouse Project

The Smart Cities is a holistic approach in accordance with the other flagship programmes. It is the component in the urban areas that binds the flagship programmes like the Swachh Bharat Mission, Digital India, PMAY and other city development programmes. The rate of urbanisation in India is expected to grow by 60% in the coming years. To cater to this growth and work on reverse migration from Mega Cities to Tier-II cities, Smart Cities Programme's approach will be influential in shaping up the country's urban scenario for the next 30 decades.



# Bhubaneswar spreads its wings to become socially smart

The city of Bhubaneswar has taken a step forward to improve and enrich the lives of many young girls, boys and community leaders successfully. The Socially Smart Bhubaneswar Project of Bhubaneswar Smart City Limited (BSCL) launched in collaboration with Bhubaneswar Municipal Corporation (BMC) and United Nations Population Fund (UNFPA) and implemented by *Humara Bachpan* Trust (HBT) which has been a successful effort up till now.

Under Socially Smart Bhubaneswar Project, young people from slums are being trained in life skills and they are showing exemplary leadership quality through their dedication and work. The young boys and girls from the slums of Bhubaneswar who are being trained are referred to as Peer leaders or as *Pragati Sathis*. Their training readies them to address issues and challenges of their community and neighbourhoods and assume the role of leader as required. The life skills are not limited to the conventional skill and development training which usually includes gender-specific roles.

For instance, Jasmin Nissa, a Plus Three first-year student of Biju Patnaik College from Science Park Basti has become an SPO (Special Police Officer) by the Commissionerate of Police recently. Lipsa Nayak, a community leader and a field coordinator of the Socially Smart Bhubaneswar Project has been nominated as a member of the six-member Biodiversity Management Committee of BMC. Lipsa hails from Niladrivihar Rickshaw Colony Basti (B) and will work with other members for the biodiversity protection and conservation within the civic body area.

Likewise, Deepanjali Swain, currently a student of Lab Technician Course at Centurion University from Jagannath Basti, Press Colony of Kharvel Nagar attended the ICPD-25 Meet at Nairobi recently and represented India. Many peer leaders from the Socially



Smart Bhubaneswar Project have played crucial roles while developing child-friendly spaces, an initiative of Bhubaneswar Urban Knowledge Centre (BUKC) in Bapuji Nagar Government UGME School and open space of Shanti Nagar FCI Colony.

It would be pertinent to mention here that while the coordination of the Peer Leaders from Laxminarayan Basti near Bayababa Math area with BMC had resulted in fixing of 20 street lights for better safety and security in their area. On the other hand, in Kargil Basti their counterparts have got four street lights implemented through their persuasion with the civic body.

The programme commenced with Peer Leaders receiving nine days of intensive training on life skill education after which they started forming groups of young boys and girls at the community level to take up issues and challenges faced by the community by working with and contacting relevant stakeholders. One of the initiatives that the Peer Leaders have achieved was

to bring different stakeholders and officials on one platform wherein community can directly interact with the official and represent their issues. The process of this working has resulted in creating open defecation free (ODF) slums, cleaning of drains, regular removal of garbage, installation of dustbins, bringing children back to schools, stopping the open sale of liquors, etc.

As the NGO, *Humara Bachpan* Trust is playing an active and an important role by providing guidance to these young children. This guidance is playing a pivotal role to train them in the creation of a safe and better living environment at community-level across the city.

The project was initiated with the participation of only eight slums within the Smart District area, this now has now increased and consists of 100 slums within its fold. This is bringing in more girls, women and youth in particular to the inclusive perimeter of the Smart City Proposal of the Temple City, which came on the top among 100 participating cities in India.

## Nashik Smart City civic authorities to complete building basic infrastructure under SCM this year

The year 2020 will draw attention to the projects to be executed by civic authorities under the Smart City Mission. Nashik Smart City Ltd will be experiencing an execution of various smart city projects under urban mobility, safety and security, wastewater treatment and beautification of historic areas in Nashik City.

It will include the creation of smart roads, setting up of 800 CCTVs, installation of LED Streetlights, construction of two wastewater treatment plants, upgradation of Storm Water Treatment plants and making smart parking operational. This will all be the top priority for the following year.

Radhakrishna Game, the Municipal Commissioner of Nashik, said that the Municipal Corporation will focus on the creation of basic infrastructure as they are also in the process of giving work order worth ₹150 crore in various parts of the city. As the Smart City Mission has Area Based Development as its main component for development strategy, the old parts of the city are being developed as ADB components. The old city will have a revamp of ₹193 crore that will include water supply lines, road infrastructure, stormwater system and sewage lines in the old area.



The civic body is also aiming at the creation of ₹160 crore Integrated Command Control Centre and to support that it is already in the process of installing 800 CCTV cameras. Some special cameras are being installed at various locations to reduce traffic rules violations.

In order to address the installation of Smart LED streetlights 97,000 LED lights are being installed on 92,000 existing street poles and 5,000 new ones are being created. So far the move has seen the installation of 10,000 lights by Tata Project Ltd and the entire project is set to be completed by this year.

The beautification project involves beautification of River Godavari and once done will turn into a beautiful public space for the residents of the city. The construction of a smart road that 1.1 km long is being developed between Trimbak Naka and Ashok Stambh. The work is nearing completion and will be open for use early this year. The wastewater treatment plant of Bara Bungalow and Panchavati are being newly constructed and will be completed by the end of this year. There is also a cluster redevelopment project that is under scrutiny and the execution of it under ADB could address livability problems in the old city.

## Shillong to get new public infrastructure under Smart City Mission

Shillong, one of the 99 chosen cities in the Smart Cities Mission has received the green light for the implementation of smart city projects worth ₹160 crore. The project was flagged off by Hamlet Dohling, Urban Affairs Minister of Meghalaya.

The state government will construct a market complex worth ₹30 crore at Laitumkhrah. The project after being given to the contractors will first see the dismantling of the existing market which is in a dilapidated state. Another project under the state's smart city mission is a market complex at Polo,



worth ₹80 crore. A tender document for this project is under preparation. Dohling further confirmed that the stretch of road between the Governor's House to Polo would be built into a 'smart road'.

The Minister stated that a world-class structure would be built at the Barik junction in an area of 3.5 acres, which will have facilities like parking, park, museum, stalls, etc. Last year, the government invited firms to take part in a competition to display architectural designs for construction of the proposed structure under the Smart City project.

# Solving water as a 'Smarter Water Manager'

Transform the efficiency and reliability of your operations with smart water solutions

**UNLOCK DATA-DRIVEN SOLUTIONS, MEET YOUR GROWING CUSTOMER NEEDS**



Pumps | Controls | Mixers | Advanced Sewage & Sludge Treatment | UV Disinfection  
Ozone Oxidation | Analytics | Smart Water Meters | Remote Monitoring | Leak Detection

[indiasales@xylem.com](mailto:indiasales@xylem.com)  
[xylem.com/india](http://xylem.com/india)

**xylem**  
Let's Solve Water



# Where does NDMC stand four years after the launch of Smart City Mission?

North Delhi Municipal Corporation (NDMC) has governed the development that has happened in New Delhi City Centre (NDCC) under the Smart City Mission. The 'area-based development' component of the Smart City Mission has made it possible as the NDCC is a small geographical area compared to the area of the entire city. Various initiatives have been taken as a part of the mission which includes smart parking systems, public amenity centres, water ATMs, public bike-sharing system, e-learning solutions, cloud-based e-healthcare system, smart waste management systems, Jan Dhan Yojana and e-governance.

Post five years of the launch of the mission, it becomes a good point to introspect where NDMC has made a commendable effort and where it could have improvised. Out of the 36 projects that are under NDMC, 11 have been completed. These include water ATMs, outdoor gyms, the Charkha Museum, a biomethanation plant, solar rooftops, a modern nursery, smart parking facilities, happiness areas and facade lighting at Palika Kendra. Other projects that have been launched are high-speed optical fibre connections, Wi-Fi services in public places, smart poles (street lights) with cameras and environmental sensors, solar trees with LED lights and mobile charging points, an ideation centre for promoting smart entrepreneurs, 50 LED interactive screens, smart classrooms

in government schools, the Ambedkar Vatika and two high-tech nurseries as happiness areas, four mechanical road sweepers, two litter picking machines and ten auto-tippers.

The public amenities centre provides are four facilities under one roof - toilet, a water ATM, cash machine and digital clinic. The digital provides a range of health care services, including medical tests (blood sugar, blood pressure, ECG, haemoglobin, cholesterol), health packages and free doctor consultation on Tuesdays and Thursdays. The amount charged by the clinic for offering various services varies from ₹10 to ₹1,000. For citizens, visiting such clinics to obtain medical services is easier than going to city hospitals or government dispensaries, which are overburdened. This is proving to be a good initiative as apart from providing subsidised health care, it also provides easy accessibility and hence helps in improving the health of the citizens. The clinics are not just functional on paper but actually are open six days a week with 15-20 patients visiting daily. The water ATMs are set up by *Janajal*, a private enterprise in collaboration with NDMC. The ATMs provide potable water at 1/6th market cost and are proved to be functional upon inspection. As a part of smart parking facilities, boom barriers and CCTV cameras and automatic ticket vending machines have been installed. In order for citizens to get to know where there will be vacant

parking spots, an app called *Poochho* has been developed by Delhi Integrated Multi-Modal Transit System.

The NDCC also has a system of public bike-sharing in place which has been developed in collaboration with a Germany based company Nextbike. Under this scheme, people can pay a nominal fee (₹10 for up to one hour of use) and hire a bike through their smartphones. About 50 smart bike stands, holding a total of 500 bicycles, have been constructed. The bicycles are equipped with GPS, front and rear LED lights powered by a dynamo and a QR code-based system for locking/unlocking. A technology-driven mobility platform Yulu has also been launched by a Bengaluru-based company to promote eco-mobility in the NDCC and NDMC areas. The drawback to the situation is that even though the cycle supply is in place, there has been no creation of cycling lanes hence the usability of the public bike-sharing system has gone down. As a part of e-learning, classrooms have projectors and digital boards that are used in video tutorials to make it easy for students to grasp various concepts. The smart electricity meters help the users in tracking energy usage from the mobiles and to make users more aware of their energy consumption habits.

The launch of the mission has made certain areas of NDCC smarter, but the entire area is yet to have an overhaul of livability.



Museum (outside view)



Museum (inside view)



Training Centre

## Namchi to build one of its kind crematorium for its Buddhist residents: GT Bhutia

Namchi Smart City Limited has taken up redevelopment of crematorium facilities and infrastructure at Ahley Grumpa ground Namchi. The project aims to address infrastructure upgradation requests of the Monks from the two adjacent monasteries, who collectively hold the ownership of the land.

According to the Project Management Consultant, Manash Sharma, this Buddhist crematorium was prioritised based on the feedback received from community engagement held for the preparation of the Smart City Proposal for Namchi.

The current problems on the cremation grounds were that the existing infrastructure has structural inadequacies, scarce water supply and lack of parking space. With only one cremation pyre on-site and the increasing number of deaths, sometimes there is a bunching of funerals. The funeral ritual is attended by the family and friends of the deceased and can run up to a total of 1,000 people. There is no working infrastructure catering to the needs of these people in terms of toilets, kitchen, dining area. Also, maintenance of the space is poor and revenue generation is negligible.

The design solution that is shared by the Namchi Smart City Team will satisfy the residents through the provision of a peaceful place of commemoration, respite and remembrance for mourners simultaneously allowing the lamas to perform the rituals as well as serve a space for Buddhism faith will offer an experience of tranquillity free from the outside world. The wheel of Dharma or

Dharma chakra is one of the oldest symbols of Buddhism, is the design inspiration for the infrastructure to be built.

The design of new infrastructure is aiming at redeveloping/re-orienting the arrival and departure points, open space for gathering, toilets and pantry, prayer hall, meditation hall and cremation furnace.

The project is expected to be one of the most unique

projects of the smart city mission as it is one where priority is given to the deceased, to create a space that gives the ceremony a sense of tranquillity and inner peace, a perfect emotional response to the funerary rite for the followers of Buddhist belief. The project is aimed to be completed in 18 months with site levelling beginning from January.







ಬೃಹತ್ ಬೆಂಗಳೂರು  
ಮಹಾನಗರ ಪಾಲಿಕೆ

# Bruhat Bengaluru Mahanagara Palike



Bruhat Bengaluru  
Mahanagara Palike





# NIT Goa setting up Virtual Labs for effective learning within the institute's space constraints

The National Institute of Technology (NIT) Goa, currently working from its temporary campus at Farmagudi will soon shift to its new campus Cuncolim, which is under progress of getting their virtual labs set. Virtual Labs at NIT Goa are a result of the effort to enable students with real-life experience within the space constraint at the institute.

Gopal Mugeraya, Director, NIT, said that the labs are being set up under the programme of Union Ministry of Human Resource Development (MHRD). Under the 'national mission on education through information and communication technology, the programme aims to facilitate the learning of engineering and sciences through experimentation in a virtual environment at the preferred pace place and period of the learner.

Gopal Mugeraya said, "Virtual labs, an MHRD initiative, is an e-learning platform that provides students exposure to practical laboratory experiments. NIT Goa is a nodal centre of NITK Surathkal for the 'virtual labs' programme and through this, NIT Goa will open new avenues



of experiential learning to the students and faculty members of the institution and the region as a whole. NIT Goa has decided to train faculty and students of all the five engineering institutes in the state at the virtual labs."

He also informed, "We are hosting a workshop on virtual labs for representatives of all engineering institutes in Goa, to expose them to this idea." Along with this, Mungreya said that NIT Goa is also hoping to take up workshops and other innovative initiatives and activities to spread the awareness about virtual labs to a larger

audience internally and in rest of Goa.

The virtual labs at NIT Goa are expected to come to the aid of students of all educational stages, i.e. undergraduate, postgraduate and PhD students. It will enable the student fraternity of NIT Goa to learn the remote experiments of the state-of-the-art concepts with the help of the virtual laboratory set-up. Additionally, the faculty and students of NIT Goa will acquire virtual access to the latest software and sophisticated hardware.

In this mission of ICT-aided experimental learning, NITK Surathkal is among the 12 chosen institutes in the country and is engaged in the development, maintenance and outreach of the online resources under the virtual labs project. Following the collaboration with NITK Surathkal, students and faculty of NIT Goa in due course of time may also be trained at NITK Surathkal campus, he said.

This opportunity will give NIT Goa to contribute to the virtual labs project through pedagogy design, lab development and student internships, jointly with NITK Surathkal.

## Maharashtra's Districts Plan digitally under iPAS

36 District Planning Committees (DPCs) of Maharashtra have implemented ESDS Software Solution's Integrated Planning Office Automation System (iPAS) for better management of letters, proposals, works, funds and efficient execution of DPC plans and schemes. The system implemented has garnered recognition for smart city automation and project planning and reducing the response turnaround time of each letter by 50%.

Piyush Somani, Founder, CMD and CEO of ESDS Software Solution said that he expects the 100 crore Indians to benefit from iPAS which drives the digital transformation journey of district planning committees across the country as "iPAS ensures transparency of work between the District Planning Committees with its easy work tracking and scheme monitoring module. iPAS has successfully digitised 530 schemes under the DPCs in Maharashtra.

We expect the hundred crore Indians to benefit from iPAS which drives the digital transformation journey of District Planning Committees across the country."

In order to implement the iPAS and ensure its smooth functioning and handling in the department, the 36 DPCs and implementing agencies across Maharashtra have undergone hands-on training and started live work for FY 19-20. They are on track for a 10% paperless journey to be initiated from April 2020.

iPAS has been developed keeping in mind all the government guidelines to be accessible at one location. Embracing Digital Transformation, iPAS has automated the document journey enabling easy and convenient archival, storage and retrieval of documents.

The Work Monitoring System (WMS) ensures work mapping and quality control with time-bound progress tracking. The committees can check the allocation and availability of Government, MLA or MP funds with easy tracking Fund Management and Monitoring System (FMS). In addition, the analytical dashboard ensures a check on the progress of the works undertaken.



iPAS is all set to speed up work by eliminating delays due to files travelling to different locations and offices. iPAS is not only reducing the costs but also assisting the committees to maintain the accuracy of work and delivering it on time. iPAS will take the planning department on a paperless journey, digitally transforming the DPCs.

Piyush Somani added, "It is flexible software to transform project management digitally, aims to serve proactive governance to DPCs. It ensures transparency to DPCs offering a 360-degree view of work, schemes and projects."

## NIC sets up Centre of Excellence for Blockchain Technology in Bengaluru

The Union Minister for Law and Electronics and Information Technology, Ravi Shankar Prasad, inaugurated a new Centre of Excellence (CoE) for Blockchain Technology in Bengaluru. The CoE will strive to adapt emerging technology to create e-governance solutions.

The inauguration was carried out digitally by him from New Delhi, after a change in schedule due to last-minute issues. The CoE by National Informatics Centre (NIC) is the third such centre, following CoE for Data Analytics and Artificial Intelligence. The method in which the inauguration ceremony was carried out, in itself shows the credibility of India moving towards

digital technology.

The Minister commended NIC as the 'backbone of digital governance of India' and said he was particularly optimistic about applications of blockchain technology in primary education. The minister appealed to NIC to explore the potential of the new technology in improving the quality of government schools across the country.

The websites will be available in multiple languages and the department is working on text to speech function to be made available in multiple languages, said Gopalkrishnan S, Additional Secretary, Department of Electronics and Information Technology.



## Telangana Genco's TS Shakti wins e-governance excellence award

Telangana State Genco's TS Shakti project won the Computer Society of India Special Interest Group (CSI SIG) e-governance award. The award was presented at the 53rd Annual Convention CSI recently at Kalinga Institute of Industrial Technology (KIIT), in Bhubaneswar, Odisha.

TS Genco has replaced its old software with centralised ERP solutions across all its plants integrating with a central command control at the headquarters. The ERP initiative, christened as TS Genco System to Harness Ample Knowledge Transformation for Harmony and Integration (TS Shakti), is the first ever innovative information management system in the power generation sector in the country.

The corporation has partnered with SAP for implementation of e-Office using SAP FLM (File Lifecycle Management) and Dashboards using Mobile Technologies. In partnership with SAP, TS Genco has developed mobile app dashboards for monitoring power generation levels, demand and reservoir levels on a single unified platform which qualified the app for the award. The app updates the status in real time basis using the transactional data generated in ERP system.

The e-office ensures transparency and accountability, online movement of files with pre-configured workflow, quick and easy retrieval of digital files and it also reduces paper consumption to a large extent.

BP Acharya, Special Chief Secretary, and Director General of Dr MCeER HRD who was special guest on the occasion congratulated TS Genco for the splendid work in the field of Information Technology. TS Genco Chairman and Managing Director D Prabhakar Rao congratulated the TS Shakti team for their dedicated efforts and innovation.



# The Leading Game Changers In E-Governance Transformation OF INDIA



## Experience of more than 20 years in E-Governance

Unique distinction of most number of state-wide projects in India (Diversified, Specialized & Customized)

Unwavering Leadership in E-Municipality (1000+ Municipalities in India)

Delivered 40+ Million Citizen Services last year (10 times growth in 9 years)

Facilitators of Smart City Initiatives (Presence in 27+ Smart Cities in India)

✉ mail us at [egovernance@abmindia.com](mailto:egovernance@abmindia.com)



### ABM Knowledgeware Limited:

ABM House: Plot No. 268, Linking Road, Bandra (West), Mumbai - 400 050.  
Website: [www.abmindia.com](http://www.abmindia.com) | Call +91 22 4290 9700

FOLLOW US ON





# Atal Mission For Urban Rejuvenation and Transformation

## Mission: The progress so far

The Atal Mission for Urban Rejuvenation and Transformation (AMRUT) was launched to cover 500 cities. It seeks to provide basic services (e.g. water supply, sewerage, urban transport) to improve the quality of life for all, especially the poor and the disadvantaged. 1,035 Projects Worth ₹2,388 Crore Completed. 151 Projects Worth Rs. 5,596 Crore Tended & DPRs For 85 Projects Worth Rs. 4,507 Crore Approved

### Water Supply:

In the water supply sector, contracts for 965 projects worth ₹29,205 crore have been awarded including 154 projects worth ₹1,325 crore which have been completed. 151 projects worth ₹8,047 crore have been tendered and DPRs for 97 projects worth ₹4,318 crore approved.

### Sewerage and Septage Management:

Contracts for 491 projects worth ₹21,508 crore have been awarded including 40 projects worth ₹520 crore which have been completed. 151 projects worth ₹5,596 crore have been tendered and DPRs for 85 projects worth ₹4,507 crore approved.

### Drainage sector:

Contracts for 516 projects worth ₹2,101 crore have been awarded including 51 projects worth ₹81 crore which have been completed. 144 projects worth ₹645 crore have been tendered and DPRs for 25 projects worth ₹111 crore approved.

### Urban transport Sector:

Contracts for 244 projects worth Rs.709 crore have been awarded including 18 projects worth ₹41 crore which have been completed. 76 projects worth ₹251 crore have been tendered and DPRs for 40 projects worth ₹123 crore approved.

### Green Spaces/Parks:

Contracts for 1,881 projects worth ₹1,293 crore have been awarded including 772 projects worth ₹421 crore which have been completed. 233 projects worth ₹231 crore have been tendered and DPRs for 211 projects worth ₹124 crore approved. To optimize the energy consumption in streetlights, over 54 lakh street lights have been replaced with LED lights.

### Credit Rating & Municipal Bond:

Credit rating work for 485 cities has been awarded and completed in 468 cities. Out of 468 cities, 163 cities have received Investable Grade Rating (IGR), including 36 cities with a rating of A- and above. More Than ₹2,700 Crore Raised Through Municipal Bonds During 2018 for Upgrading Urban Infrastructure

### Capacity building:

Surpassing the target of 45,000 functionaries, 52,327 functionaries and elected representatives across the country have been trained so far.

₹3,390 crore had been raised through Municipal Bonds during 2018-19 for upgrading urban infrastructure by 8 Mission cities (Ahmedabad, Amravati, Bhopal, Hyderabad, Indore, Pune, Surat



### Energy field Audit:

Field survey for energy audit has been completed in 413 cities and energy audit has been completed in 358 cities. 11,100 water pumps have been identified for replacement with energy efficiency pumps.

### Replacement of streetlights with LED lights:

62.8 lakh streetlights have been replaced with LED lights out of targeted 97.9 lakh light. This is estimated to save 137.5 crore units of energy per year and reduce 11 lakh tonnes of CO2 emission per year.

### Online Building Permission System (OBPS):

OBPS has been made operational in 1,705 cities across the country including 439 AMRUT cities.

and Vishakhapatnam). Cities had been awarded an incentive up to ₹26 crore (at ₹13 crore per ₹100 crore) for issuing municipal bonds.

AMRUT Mission also has a reform agenda spread over 11 reforms comprising 54 milestones to be achieved by the States and Union Territories over a period of four years. During 2018-19, an amount of ₹600 crore has been earmarked to incentivize the states/ UTs for implementing reforms out of which, ₹260 crore has been earmarked to incentivise the AMRUT cities for issuing municipal bonds. An amount of ₹340 crore has been disbursed to 21 States/ UTs during the year 2018-19 for implementation of reforms.

## Kochi to have a GIS-based master plan under Amrut Mission

Kochi is set to have its own user-friendly Geographic Information System-based master plan for the Kochi Corporation area. This master plan will be developed using GIS software and will map existing buildings, land use and utilities, thereby providing correct information and effective assistance through its data in the preparation of the development proposals.

The master plan is being called user-friendly as the map being designed will be made accessible on mobile phones to those seeking properties. J Jayakumar, Senior Town Planner, Department of Town and Country Planning said, "Using the map, property buyers within the corporation limits should be able to enter the survey number into their phones and find out whether the land they are buying falls in the residential, commercial or industrial zone, cutting down visits to offices to look for such information."

The project is worth ₹70 lakh and is being implemented by the department under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT). Under the project, master plans are to be prepared for all the nine AMRUT cities in the State in accordance with the mission's objectives.

The last sanctioned structural map of the city dates back to 1991, apart from this, there was an effort in the past where another master plan was completed in 2015 for the Kochi region. But it never got sanctioned by the government and now it is not suited for the city's changed requirements since it does not

include now relevant details like the metro and associated development. Other than that, maps available in most of the cities were earlier prepared on a 1:50,000 scale, meaning that a small error of a millimetre while reading or preparing the map could result in drastic changes on the ground. Considering the benefits of having a GIS-based master plan, Jayakumar said that with a GIS-based map, the possibility of such errors with respect to scale is nearly impossible to manipulate. Since master plans must be updated every five years, but due to the hard copy system, it was difficult to update them. This issue of seldom being updated would now be eliminated due to a software-based system.

As part of the mapping process, satellite imagery from 2016 for 98 sq km of the city area was obtained from the National Remote Sensing Centre (NRSC). The aerial photographs cover roads, water bodies, buildings, bridges, railway networks, drains, trees, electric poles and even streetlights. Ground-truthing to vet satellite data and correlate it with ground reality was recently completed and the data is being updated based on ground-level studies. This will be followed by spatial analysis of the data and preparation of development proposals, including suggestions like road widening.

Underground utilities were also to be mapped, but departments like the Kerala Water Authority and Kerala State Electricity Board have incomplete



maps of such utilities, making it nearly impossible to map them entirely, said another official at the Town Planning Department. The corporation will be able to use the map later to add layers and plan development projects. The project, around 50% complete, is hurtling towards its deadline.

The final plan is to be completed by March, after which funds will not be allotted for AMRUT projects, the official said. Along with GIS experts, around 70 surveyors had to be hired to complete ground-truthing since the department did not have the necessary manpower to deal with the project.

While the project requires a team larger than the seven-member one currently handling it, a shortage of funds made it difficult to hire staff, the official said.



# Swachh Bharat Mission completes 5 years: How has it progressed?

Prime Minister Narendra Modi had launched Swachh Bharat Abhiyan on October 2, 2014, to make India open defecation free along with to do away with manual scavenging. This flagship mission will be completed 5 years last October. This marks an important point in the timeline to reflect upon the changes that have happened related to sanitation in urban and rural areas. The primary goal of the mission was to construct 12 crore toilets in urban and rural households as 2011 census showed over half the country had no toilets. According to the Research Institute for Compassionate Economics (RICE) open defecation has shown that open defecation has reduced by 26 percentage points along with an increase in access to household toilets from 37% to 71% in past four years.

The government has tried the approach of behavioural strategy by using campaigning, education and communication. It has also provided subsidies to vulnerable groups to help them construct latrines at home. The government is also required to conduct surveys post

the construction of the toilets so as to check whether the toilets constructed are functional or not.



According to the government except for Goa, Bihar and Odisha's rural areas all other States and UTs have achieved open defecation. The funding for the construction had gone down in the past two years as opposed to the first three years post the launch of the scheme. Swachh Bharat mission has focussed entirely on toilet

construction and ownership. 3 crore toilets have been built as per the first quarter of the financial year 2020. As many as 94 urban local bodies out of 4378 were not open defecation free.

The National Annual Rural Sanitation Survey 2017-2018, the government claimed 77% of rural households had access to toilets, of which 93.4% use them regularly. The survey also indicated that 93.4% of the villages were ODF free. In the urban areas, the survey claims to show that 60 lakh toilets have been built and 4 lakh community toilets have been built by October 2018.

Though, there has been a gap between the survey conducted by NARSS and research conducted by RICE in 2018 which found defecation rates to be 53% in Rajasthan and 25% in Madhya Pradesh. Centre for Science and Environment did a survey in 2017 in Bihar and Uttar Pradesh and found that regular use was low because many toilets did not have water connections, or the twin-pit toilets were designed poorly. The latrines are not maintained and often remain dysfunctional.

## Swachhta Survekshan Evaluation 2019: The progress so far

The evaluation covers 4237 urban local bodies and was done from January 4-31, 2019.

The results of the Swachhta Survekshan Evaluation indicated Indore to be the cleanest city in India for the third consecutive year, with Ambikapur and Mysuru on the second place. The top highlights of the results are:

Cleanest Capital	Bhopal, Madhya Pradesh
Cleanest City	Indore, Madhya Pradesh
Cleanest big city with population >10 Lakhs	Ahmedabad, Gujarat
Cleanest medium city with population 3-10 lakhs	Ujjain
Cleanest Ganga City	Gauchar, Uttarakhand
Cleanest small City with population 1-3 lakhs	North Delhi Municipal Corporation
Cleanest Cantonment	Delhi Cantonment
Best state in Solid Waste Management	Madhya Pradesh
Fastest movers-Big City	Raipur
Fastest movers-Medium city	Chhattisgarh
Fastest movers-small city	Orail
Fastest capital city	Chennai, Tamil Nadu

The Swachh Survekshan Grameen 2019 survey was carried out by a third party agency from August 14 to September 30. The survey covered public spaces that involved 14,236 religious spaces, 5182 haats, 16,569 Anganwadi centres and 16,680 government schools. The researchers also received feedback from over 3 crore citizens. An important weightage is placed on the usability of toilets,

water availability and waste decomposition.

The Achievers for Swachh Survekshan Grameen 2019 are:

North Zone	Haryana
South Zone	Tamil Nadu
East Zone	Jharkhand
West Zone	Gujarat
North-East zone	Mizoram
Union Territory	Daman and Diu

There has been a major change in rankings as compared to the previous years. Only Gujarat and Haryana have been able to retain their positions and the remaining 4 have all changed. Andhra Pradesh has shifted below in 2019 results which were earlier the top state in the South Zone in 2018. Chattisgarh and Sikkim have also shifted to the second position in East Zone and North-East Zone respectively.

Swachh Districts of India:

North Zone	Faridabad, Haryana
South Zone	Pedappali, Telangana
East Zone	Khunti, Jharkhand
West Zone	Patan, Gujarat
North East Zone	Kolasib, Mizoram
Union Territory	Daman, Daman and Diu

## How is 'Swachhta Survekshan Evaluation' contributing to sustainable sanitation and smarter cities?

India with its growing urbanisation has led to an increasing focus on issues of water, sanitation, waste disposal, sewage and other components that lead to sustainable living. These elements become important to address as they have also come under what would make our living 'smarter' or what would it be like to live in 'smarter cities'.

Our country for a very long time has neglected the component of sanitation and it's only in the recent decade that sanitation received importance under the National Urban Sanitation Policy (NUSP) 2008 where sanitation received importance in a policy space. Moreover, urban areas have gone unacknowledged when it came to sanitation and rural areas more often than not have become the focus to provide better sanitation facilities. NUSP brought in a refreshing change where the policy was also accountable for the urban areas.

The recent launch of Smart City mission catalysed an environment of urban renewal on the policy front. Since the mission also focussed on better sanitation practices, waste disposal and moreover a sustainable way of living, Swachh Bharat Mission (2014-2019) was executed in conjunction with Smart City Mission so as to achieve the set targets.

Swachh Bharat mission had the component of

Swachhta Survekshan Evaluation (SSE) to monitor and regulate the implementation of this policy to understand how effective it would be. The regulatory body made it easy to comprehend the scale of sanitation.

SSE was started in order to generate a competitive spirit between different cities by gauging city performance through service level progress reported by ULB authorities, direct observation through extensive field visits by independent assessors and citizen feedback through phone calls or the Swachhta App. SSE has varied indicators that get revised every year by incorporating citizen's feedback and also aligning it with the goals to be achieved under Smart City Mission. It started in 2016 by surveying 73 cities, in which Mysore stood at the first place under SBM and further on in 2017 and 2018 it surveyed 473 cities in the former whereas 4023 ULBs in the latter. For the year of 2017 and 2018, Indore bagged the first place. 2019 aimed at surveying all the ULBs and it declared Indore as the winner for the third consecutive year. Every year the SSE has evolved its indicators which helps it decide the ranking for national (cities more than 1 lakh population) and zonal (cities less than 1 lakh population).

In the year of 2016, SSE focussed on solid waste disposal and toilet construction which then further gave

more weight to the citizen feedback in the year of 2017 through the Swachhta app. The year of 2018 stressed on surveying ULBs so as to increase accountability at the grassroots level by also further stressing on solid waste disposal, innovation and behavioural change. 2019 saw an increased focus on sustainable sanitation as well as different ODF categories. It also saw the introduction of the new star rating system for the garbage-free city.

This monitoring agency actually highlights the loopholes in implementation at the grassroots level as it becomes necessary to identify why these policies fail. Even though they create a lot of pressure on the ULBs during the assessment period but it also helps in highlighting the inadequacies with respect to the urban local bodies. It has indicated a lack of funds at the grassroots level and how that creates a hindrance in construction of toilets. Hence, it implies the necessity to generate funds via 'Muni-bonds'. It highlights the lack of data with ULBs and how much they have to rely on non-profit organisations and think tanks to have data to feed into the online SBM portal. It also shows a drawback of the policy itself where sanitation is not approached as a holistic process but whereas it tends to focus more on toilet construction and not on the entire process of waste treatment and disposal, because when it comes to assessment under SSE the entire process of wastewater treatment and disposal is not taken into consideration. In all the evaluation has helped in identifying the roadblocks in the 'Clean India dream'





**SMART WASTE  
COLLECTION SYSTEMS**

**YOUR EXCLUSIVE PARTNER  
IN ENVIRONMENTAL SECTOR**

Zonta is a perfect solution for environmental services and contributes towards building a sustainable world. The company is associated with the Urban Local Bodies across India and offers expert technology solutions for Waste Management and Water & Waste Water Management.

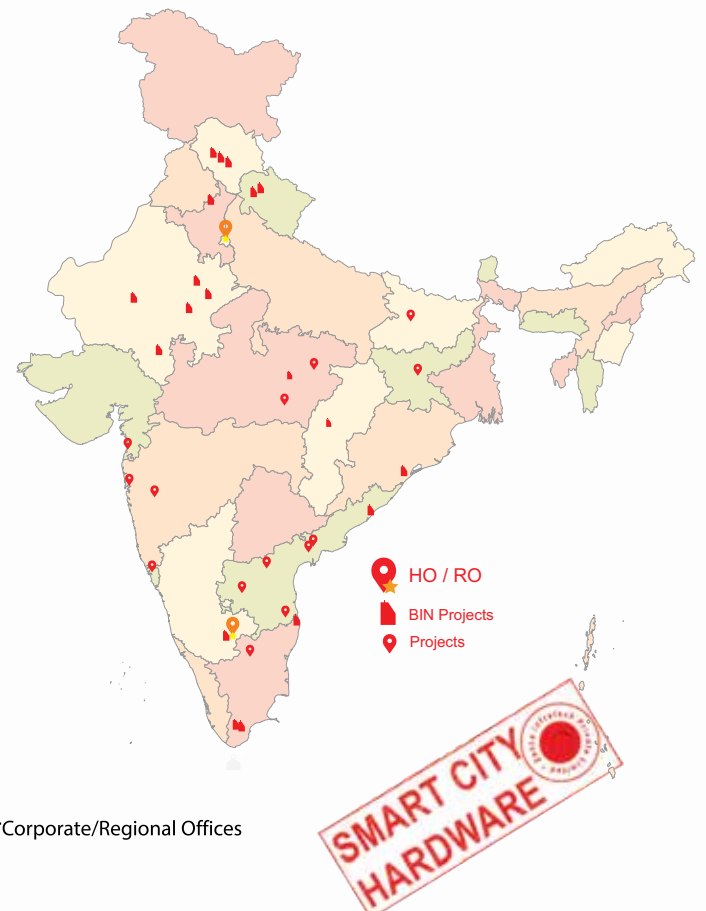
Zonta is the largest player who have successfully installed Modern Underground Bins in India. Zonta is an Integrated Waste Management Solution provider covering all components of Waste Management including Waste Collection, Transportation, Processing and Scientific disposal.

**WASTE TO ENERGY  
SYSTEMS**

**WASTE PROCESSING  
SYSTEMS**

**WASTE DISPOSAL  
SOLUTIONS**

**WATER & WASTE WATER  
MANAGEMENT**



\*Corporate/Regional Offices

**CORPORATE OFFICE:**  
Zonta Infratech Private Limited,  
1st Floor, Reliable Phoenix Towers,  
#16 & 16/1, Museum Road,  
Bangalore - 560 001

**NORTH REGIONAL OFFICE:**  
Zonta Infratech Private Limited,  
7th floor, I-Thum, 712A, Plot no. A-40,  
Sector 62 Noida - 201 301  
National Capital Region

P: +91 80 6729 2144  
F: +91-80-6729-2125

[www.zontaglobal.com](http://www.zontaglobal.com)



# How has behavioural science helped in fulfilling the 'Clean India' dream?

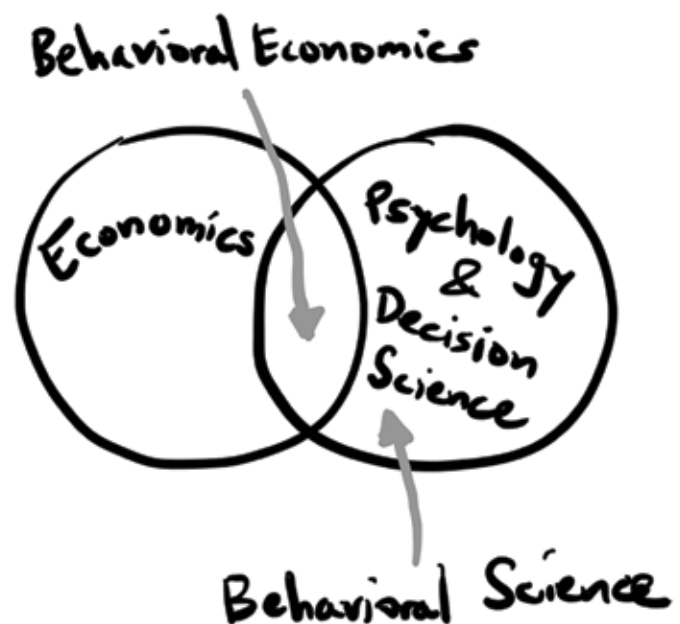
India was declared open defecation free by the year-end of 2019. The findings published by the National Statistical Survey Office shows that around 71.3% of the rural households and 96.2% of the urban households had access to urban sanitation than the claimed 100%. This is still a huge leap from when the mission was introduced in 2015 when it was 43% in rural areas. The country witnessed the construction of 101.6 million new household toilets were built in rural areas along with over six million household toilets and over five lakh community toilets built in urban areas. However, the construction of toilets doesn't mean that it was used extensively. Hence, the mission saw the introduction of 'Behavioural Science' principles in order to maximise the success of the mission.

The mission has started with the use of 'Prospect Theory' that is people are risk-averse and would greater lengths to minimise the risk even if the opposite situation meant them reaping more benefits. But, when the outcome is negative they become risk-seeking. The government through its various campaigns highlighted the ills of open defecation and made people aware that if they didn't defecate in the closed built toilets they posed a greater threat to various diseases. Hence when posed with a negative outcome the rural households were ready to let go of their biases of not building a toilet inside their home. The government began by organising 'Swachhata Divas' and 'Swachhata Pakhwadas', by which SBM leveraged the 'Fresh Start Effect' to persuade people to overcome present biases in favour of decisions which are good for them in the long run. This was done in order to ensure that people stick to safe sanitation even when that meant letting go of the existing framework.

In order to increase accountability within the urban local bodies and Panchayati Raj Institutions, the department of drinking water and sanitation carries out a Swachhta Survekshan Evaluation on a yearly basis in order to rank the cities and villages on how they are faring. It gave a strong impetus to citizen feedback and independent observation but not much waste management and disposal as manual scavenging is still labour oriented. Recently, Harpic launched a toilet college in Aurangabad to educate the labourers about the use of different machines to manage waste collection and disposal.

The mission also had an interesting component where the 'call of action' was made easier so as to ensure that ULBs function more efficiently. It has Swachhagrahis who are the sanitation soldiers and the Swachhta app that was rolled out by the ministry that aims to point out delay in garbage collection, lack of water supply

in public toilets, dead animals, public toilet blockage, cleaning of public toilets and uncleared dustbins.

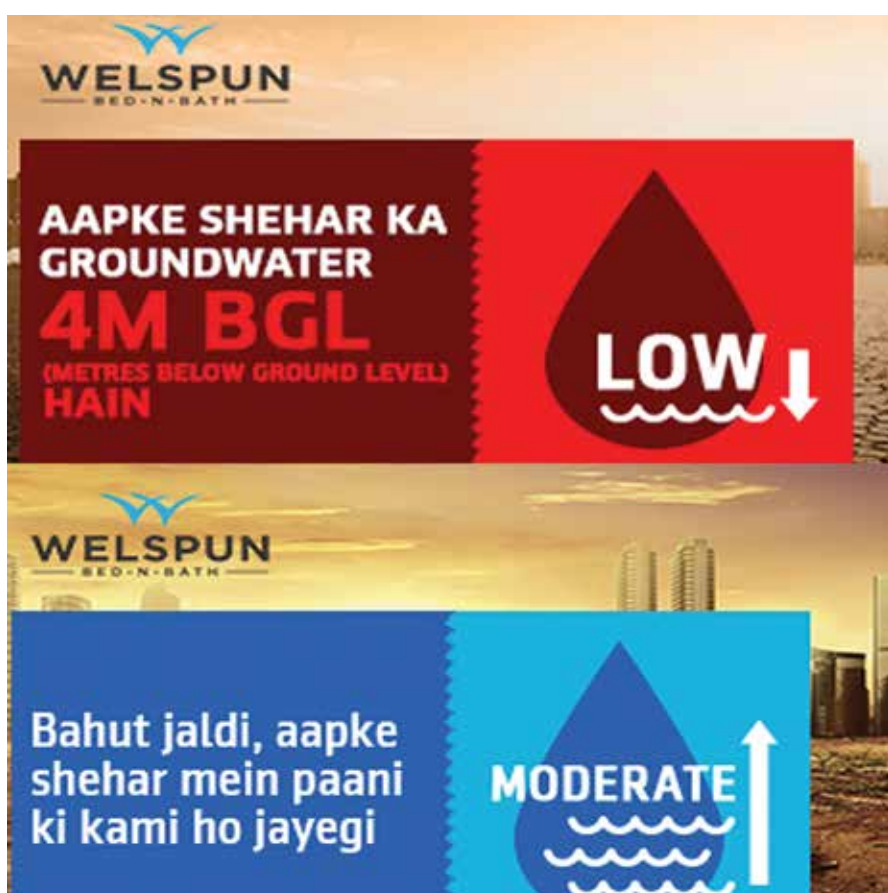


Using techniques such as piggyback on other existing behaviours and cues such as building community toilets on the existing pathway used for open defecation or where women gather daily chores, ritualised messages in the change process through various media (e.g. Bollywood movie - Toilet Ek Prem Katha) that highlights the importance of toilet in a societal structure and how to break away from the biases.

The use of behavioural science helps in forming better policies and engages the citizens in order to maximise the benefits that could be reaped from its implementation.

## Welspun launches a digital campaign to highlight decreasing groundwater levels

Welspun India Limited has recently launched an innovative digital campaign to raise awareness around the decreasing groundwater levels across the country. The campaign is rolled out using digital ad banners backed by unique API integration, which shows the residents the groundwater levels in their city on a real-time basis alongside highlighting Welspun's range of reversible bedsheets that save up to 40% of water during washing.



As suggested by the recent report of NITI Aayog, the groundwater levels in some of India's biggest cities have decreased significantly, the reasons for it being - urbanisation, climate change and weak infrastructure. Due to the lack of proactive measures for water conservation 21 cities of India are estimated to be on the brink of running out of groundwater in 2020. To bring this issue to light and spread awareness for it Welspun has launched an impactful campaign in an innovative way. As a part of the campaign, the ad banners are served to users showing them the real-time groundwater level of their respective cities. They are curated using a specially designed API that allows the groundwater level data to be pulled from the official source and incorporated in the banner concurrently. The banners will also display Welspun's 2-in-1 bed sheets as one of the immediate solutions to conserve water thereby urging consumers to do their bit.

Speaking about the innovative campaign, Manjari Upadhye, CEO, Domestic Retail Business, Welspun India Limited said, "Sustainability at Welspun India is not just a component of our business philosophy; it is an ethos embedded in every aspect of our value chain. Taking cognizance of the depleting groundwater levels across the country, we have launched a digital campaign that adopts an innovative approach to sensitize the citizens about the prevailing water crisis. The API integrated ad banners not only give a real-time update on the city's groundwater levels but also urges people to take a small step towards water conservation by using Welspun's 2-in-1 bed sheets that save 40% water while being washed."

Umesh Shashidharan, Media Director, FoxyMoron commented on the association, "Using the API, we are making customers understand the criticality of the situation and enabling them to take action by providing a product which does make a difference. It works best for the brand as the education about the water crisis and integration of product is happening seamlessly. All this was also backed with customised and automated programmatic targeting." He added, "We hope Welspun's efforts to bring awareness are enabling much necessary change towards water conservation."

Through this campaign, Welspun has reached over two million users so far and is witnessing a click-through rate of 2.4%, which is four times higher than the 0.50% industry average for mobile banners on programmatic. Users who are in the critical groundwater level zone have engaged 28% more than those users in moderate and good groundwater level zone.

The campaign is currently live in Maharashtra, West Bengal, Kolkata, Kerala, Jharkhand and many more regions where the groundwater levels are severe.



# National Mission for Clean Ganga makes significant strides and achieves key milestones during 2018-19

*Namami Gange* is an umbrella initiative being implemented by National Mission for Clean Ganga (NMCG), integrating previous and ongoing efforts with the aim of pollution abatement, conservation and rejuvenation of the River Ganga and its tributaries. The Mission was launched as a priority programme with a budget outlay of ₹20,000 crore for the period 2015-2020, a four-fold increase from the total Government of India financial support since 1985-2014 of ₹4000 crore.

Being launched as a central sector scheme, the programme did away with procedural and administrative impediments in the release of the state share of funds and financially accelerated implementation of critical projects to tackle polluted stretches of River Ganga at the earliest. Since 2014-15, the programme has gathered such momentum that an expenditure of ₹8,000 crore has been incurred. 310 projects have so far been sanctioned at a cost of ₹28,910 crore out of which 114 projects have been completed.

For sewerage projects, the policy decision to use PPP approach of Hybrid Annuity Model (HAM) with Performance Linked Payments and 15 years long term Operation & Maintenance (O&M) included in the project cost and improved governance through 'One City One Operator' approach ensured competitive and positive market participation along with synergy in implementation. In the prior approach, projects ran into post-implementation issues with no effective mechanism to ensure the desired level of performance and sustainability of investments. The *Namami Gange* Mission subsumed the rehabilitation work of the old and dilapidated STPs along with constructing new ones and is ensuring O&M of all assets hence created to ensure the sustainability of efforts.

These initiatives will ensure continued performance of the sewage infrastructure assets created due to better accountability, ownership and optimal performance and have enabled the Mission to take up comprehensive and sustainable solutions for major pollution hot spots along the stretch of 97 towns and 4465 villages on the Ganga stem.

Aviralta of River Ganga is equally important for its rejuvenation and a notification to this effect has been issued on October 9, 2018, to maintain minimum environmental flows for River Ganga at various locations on the river. Research studies are underway for benchmarking e-flow in the river Yamuna and Ramganga.

Water-use efficiency is being propagated in agriculture, industry and urban-use alike to prevent over-extraction of water. A market for re-use of treated wastewater is being developed and the re-use of 20 MLD of treated wastewater in Mathura Refinery is a milestone in propagating this waste-to-wealth approach as well as saving the water-stressed Yamuna River. Restoration of water resource structures and natural bodies with emphasis on conservation of wetlands and springs as well as rainwater harvesting have been taken up in various outreach activities under the *Namami Gange* Programme.

Marking a major shift in implementation, the Government is focusing on involving people living on the banks of the river to attain sustainable results. Significantly the approach is underpinned by socio-economic benefits that the programme is delivering in terms of job creation, improved livelihoods and health benefits to the vast population that is dependent on the river.

## Key Projects and Programmes:

**Sewerage Infrastructure Projects:** 152 sewerage projects (113 on Ganga stem and 39 in tributaries) at a sanctioned cost of ₹3,423 crore have been approved for creation of 3743 Million Litres per Day (MLD) new STP capacity, 1114 MLD rehabilitated STP capacity and laying of approximately 5061 km sewerage networks. Till date, 46 projects of pollution abatement have been completed, which has resulted in laying of 3010 km sewer networks and of total 613 MLD of STP capacity in Ganga basin. 73 projects are under execution and 33 are under various stages of tendering.

**Sewerage projects on tributaries:** Effective interventions, under the basin-approach, have been made for pollution abatement efforts for various polluted stretches of the key tributaries of River Ganga such as Yamuna, Ramganga, Kali, Gomti, Saryu, Gandak, Ghaghara, etc. 39

sewerage projects have been taken up on tributaries for creating treatment capacity of 2685.85 MLD at a cost of ₹7944.92 crore.



**Urban Sanitation:** Urban pollution, in terms of both solid and liquid pollution, has been a major challenge in the Ganga basin which has 97 towns. A report prepared by the Consortium of 7 IITs identified 10 cities (Haridwar, Kanpur, Varanasi, Prayagraj, Kolkata) that contributed more than 60% pollution load in Ganga. The Mission extended a comprehensive coverage of these cities with construction and rehabilitation of STPs for the prospective year of 2035, inception and diversion of drains, solid waste management through cleanliness drives on *ghats* and deployment of skimmers for river surface cleaning. In Uttar Pradesh - Prayagraj and Varanasi will be sewage free by 2019, the State of Jharkhand and Uttarakhand have been networked, treatment capacity in Bihar has been expanded 10 times and projects in West Bengal are at an advanced stage of completion.

**Industrial Pollution:** To ensure proper inventorisation and inspection of point source pollution from industrial units, 1109 Grossly Polluting Industries (GPIs) were identified and surveyed independently by 12 Technical Institutions of repute. The percentage compliance of the operational GPIs in 2017 as against 2018 improved from 39% to 76%. Online Continuous Effluent Monitoring Systems (OCEMS) of all operating GPIs have been connected with CPCB and SPCB servers and a system of SMS alerts have been initiated to non-complying GPIs, district officials and SPMGs to ensure effective monitoring. Besides, zero black liquor discharge has been achieved in the Paper and Pulp industry and in the distillery. In the city of Kanpur, notorious for its polluting industries especially tanneries, pollution entering the Ganga has been tackled through the sanction of a 20 MLD Common Effluent Treatment Plant at Jajmau to arrest industrial pollution and the interception and diversion of 140 MLD of wastewater from the 128-year-old Sisamau Drain, which has been completed.

**Hybrid Annuity projects:** STPs at Haridwar (82 MLD) in Uttarakhand; Varanasi (50 MLD), Mathura (67 MLD), Kanpur (30 MLD), Unnao (15 MLD) Shuklaganj (5 MLD), Farrukhabad (35 MLD), Mirzapur Ghazipur (38), Moradabad and Bareilly (88), Agra (175.38), Muzaffarnagar and Budhana (97.5), and Prayagraj (72 MLD) in Uttar Pradesh; Bhagalpur (45 MLD), Digha and Kankarbagh (150 MLD) in Bihar; and six other projects in West Bengal at Kolkata, Howrah, Bally, Baranagar-Kamarhati, Hugli-Chinsurah and Maheshtala, Burdwan, Asansol and Durgapur are at various levels of implementation.

**One-City-One-Operator concept:** Where a single operator is made responsible for the entire sewage infrastructure of a city including the O&M to ensure single-point accountability, desired performance, and long term sustenance, has been rolled out in major cities such as Farukhabad, Kanpur, Prayagraj, Mathura, Agra, Bhagalpur, Kolkata, Howrah, etc.

**River as Public Space:** The riverside has traditionally been a socially vibrant place that has encouraged cultural and economic interactions. *Ghats* are uniquely an Indian concept and that has been extensively promoted under the *Namami Gange* Mission. 154 *ghats* have been taken up under the Mission out of which 123 have been completed. 42 crematories have also been taken up for modernising and ensuring safe crematory rituals. Riverfronts in Patna, Bihar and Chandighat, (Haridwar) Uttarakhand have been developed as safe, accessible and enjoyable spaces in cities that act as breathing lungs for the urban strained environment. Many fairs or melas are organised at the riverfronts, most significant of which is the *Kumbh Melas* for its colossal scale and footfall. Supporting the sanitation initiative during *Kumbh* 2019, NMCG sanctioned financial assistance of ₹116.6 crore for the construction of 27,500

toilets, 20,000 urinals and 16,000 dustbins and lining bags. Innovative campaigns of 'Paint My City' and other exhibitions to connect people with the city and the river were also organised.

**Urban River Management:** Urbanisation is the millennial phenomena that cannot be ignored and requires prudent planning for sustainable use of natural resources, particularly significant of which are rivers especially in river-cities. Extending a comprehensive strategy for conservation of rivers, NMCG in partnership with National Institute of Urban Affairs is preparing an Urban River Management Plan to protect and enhance the status of river health within the city, to prevent their deterioration and to ensure sustainable use of water resources. Besides, a capacity-building module for handholding of urban managers is also being simultaneously undertaken to ensure intelligent and continued implementation of the targeted agenda. A comprehensive survey for generating high-resolution LIDAR maps of the entire Ganga stretch to baseline its spatial status has also been initiated in partnership with Survey of India.

**Rural Sanitation:** Rural hygiene has been amply stressed and all the 4465 villages on the Ganga stem have been declared open defecation free with completion of construction of about 11 lakh independent toilets. Support is also being extended to 1662 *Gram Panchayats* along Ganga for solid and liquid waste management. Organic farming is being propagated to prevent polluted run-offs from fields reaching the river flow.

**Ecosystem Conservation:** Afforestation along banks of Ganga has been taken up scientifically with the help of Forest Research Institute, Dehradun. Local communities have been involved in massive afforestation drive undertaken in the five Ganga States with total plantation of 96,46,607 leading to an increase in the green cover of 8631 hectares. Impetus has been given to plantation of medicinal plants in the States of Uttarakhand and Uttar Pradesh. Projects have also been taken up through Wildlife Institute of India (WII) for the conservation of aquatic biodiversity, setting up of Rescue and Rehabilitation Centres, capacity development of concerned stakeholders and mass awareness programmes for Ganga conservation.

**Communication and Outreach:** People are being mainstreamed through public outreach activities, capacity building exercises and expansion of organised people's movements to ensure a participatory and sustainable approach in keeping the river clean. A cadre of 600 *Ganga Prahari* as a volunteer group has been raised in collaboration with WII for actively engaging with communities to implement Ganga Rejuvenation, Biodiversity Conservation and also improving livelihood-related skills. To enlist the services of ex-servicemen for Ganga rejuvenation, a Composite Ecological Task Force by the name of Ganga Task Force has been sanctioned at a cost of ₹167 crore for four years for deploying one company each at Kanpur, Allahabad and Varanasi, with battalion headquarters at Allahabad. NMCG also supports a platform called Ganga Vichar Manch that brings together volunteers who regularly engage in voluntary cleaning of the river banks, besides educating common people regarding virtues of a clean river. To elicit participation from target groups special events like *Ganga Bal Mela*, *Meri Ganga Quiz* and *Ganga Quest* have been organised for children; a travelogue series on Doordarshan National called '*Rag Rag Mein Ganga*' has been telecast for travel enthusiasts; NMCG supported 'Mission Gange' a month-long rafting expedition of a team of 40 members which was led by the first Indian woman to scale Mount Everest *Bachendri Pala* dialogue series of *Swachh Ganga Gramin Sahbhagita* and *Jan Samvad* have been organised as outdoor campaigns.

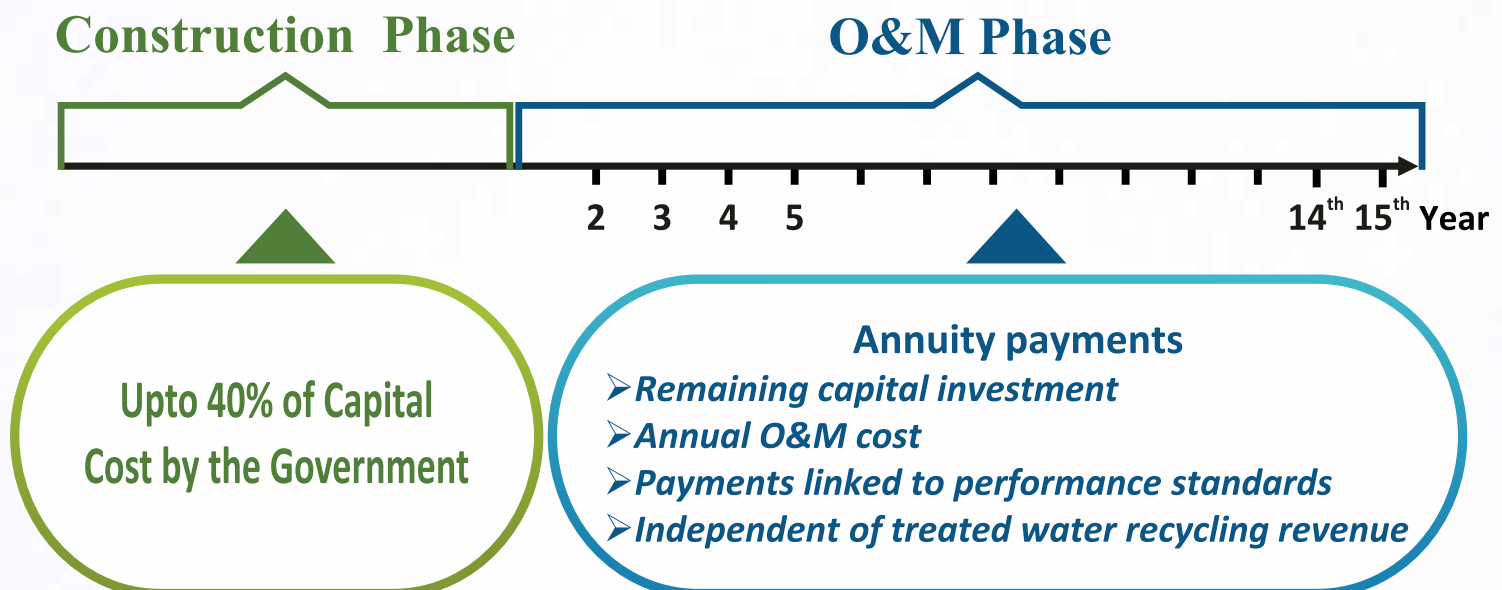
**Clean Ganga Fund:** Clean Ganga Fund has been set up for encouraging and facilitating corporates and individuals to join the efforts of rejuvenation of Ganga by contributing to this fund and sponsoring certain projects. A total of ₹391 crore has been received in the Clean Ganga Fund as of January 2020 of which ₹101.59 crore has been received in FY 2018-19. Of this, ₹61.42 crore has been spent on activities related to afforestation, in-situ bioremediation and development of *ghats* and crematories.

For Ganga to remain '*Nirmal*' and '*Aviral*', collaborative efforts are required from the government, environmentalists, academicians and citizens alike. The support of all stakeholders is vital to help the Ganga regain its lost glory.



PERFORMANCE BASED CONTRACTS  
IMPROVED GOVERNANCE  
REUSE AND RECYCLE

## Hybrid-Annuity based Public Private Partnership (PPP) Model for creation of Sewage Treatment Infrastructure

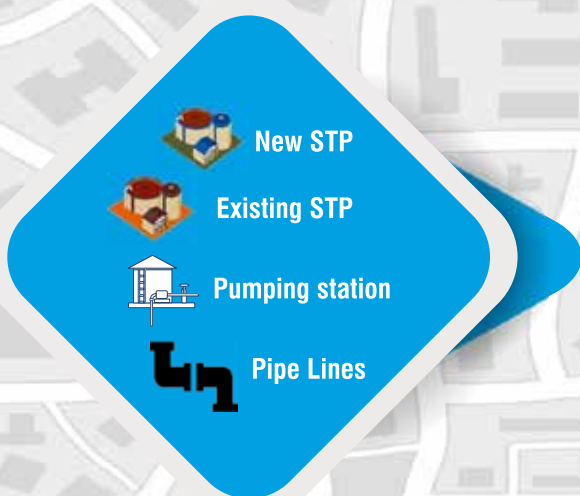


Haridwar STP



Ramana STP, Varanasi

## One City One Operator



- Paradigm shift in the sector- One stop solution for sewerage treatment in the entire city
- Integration of new and existing sewage treatment infrastructure under HAM

## National Mission for Clean Ganga

Department of Water Resources, River Development & Ganga Rejuvenation  
Ministry of Jal Shakti, Government of India

1st Floor, Major Dhyan Chand National Stadium, India Gate, New Delhi - 110002, India.  
Telephone: +91 11 23072900-901 (email: [missionganga@gmail.com](mailto:missionganga@gmail.com))



# Indore: A role model for other cities

The measures taken for cleanliness by Indore are unmatched and an inspiration to other cities said members of the Parliamentary Standing Committee on Urban Development. The committee led by Jagdambika Pal, Digvijaya Singh, Shankar Lalwani, Kalyan Benerjee, Syed Imtiaz Jaleel, Ramcharan Bohra, Sunil Kumar Soni, Ahamed Hassan and Hibi Eden visited different areas and observed the works done by civic authorities. Along with these authorities, the Joint Secretary to the Government of India, BK Jindal; Principal Secretary (Urban Administration) Sanjay Dubey; District Collector Lokesh Jatav; Municipal Commissioner Asheesh Singh and senior officials of other related departments were also present.

The committee members toured the city and spent time to understand the steps taken by civic authorities to ensure that the city makes a hat-trick of being the cleanest city in the country. The committee also viewed the development works carried out under the central government-funded projects in the city.

The committee members started a tour from model road located between Guitar Square and Saket Nagar Square developed under Smart city project. They observed the facilities, including smart bus stops and smart dustbins on the road and analysed their functioning. The following was a visit to the waste treatment plant at trenching ground and observing state-of-the-art facilities. The trenching ground initially

was a 'mountain of garbage', which was treated and developed into a garden. Initiatives have been taken for rejuvenation of Saraswati and Kahn rivers.

The committee members held a meeting with senior officials and collected information about the ongoing Smart City project, AMRUT, Pradhan Mantri Awas Yojana (PMAY), etc. The city of Indore is considered as a model for cleanliness initiatives in other cities of the state. More than 20 cities from the state are amongst the top 100 smart cities for cleanliness. A report will be submitted by the committee to the central government.

Indore is a role model not only for the state of Madhya Pradesh but also for other Indian cities.



## Indore sets a benchmark in waste management by winning the cleanest as well as winning the plastic management award

Indore has outdone itself time and again when it comes to waste management. After being awarded the cleanest city award fourth time in a row, now has another big achievement to itself. The city has just been honoured with the award for plastic management in India.

Indore received the former award on December 31, 2019. This one, however, was conferred to the city on January 12, 2020.

Along with this, it was also announced that the Sindoda Panchayat was the first plastic-free area in Madhya Pradesh. There are two more districts along with Indore which has been given the award. The award comes as part of a nationwide plastic waste management awareness drive which first began late in 2019.

Following the award for being the cleanest city in

India, Indore city has been given the plastic waste management award. This award points towards a more progressive and environment-friendly Indore city. The developmental rate of the city is phenomenal as it is and the aforementioned award is another laurel to Indore's list.

Essentially, this award is another milestone in Indore's developmental journey. The city is coming up in many ways but we can safely and surely say, that the eco-friendly aspect of this development is certainly the best one.

Indore is an example for other cities to take a note of and to take their cleanliness initiative forward. Indore has been on a roll of late and this is one of the latest developments that we are proud of. Not only is this an achievement for the city but it is also the citizens who have helped to make it possible.



## Budget for this financial year will aim to incentivise waste management activities

The Swachh Bharat Mission, one of the most important flagship missions taken by the NDA government and boasts about the changes that have led to a cleaner India. The Budget which is soon to be released will have some focus on solid waste management practices also. The government may consider incentives for companies engaged in solid and liquid waste management activities in the upcoming Budget with a view to promote the growth of the sector and push Swachh Bharat initiatives, sources said.



They said there is a demand for extension of income tax benefits and up to 100% depreciation on machines used for solid and liquid waste management activities is under consideration. The flagship programme, which is one of the largest cleanliness drives, as well as an attempt to effect behavioural change in the world, will continue to engage in healthy waste decomposition practices.

According to last year's Economic Survey, solid and liquid waste management is one of the major components of this mission.

Many states have undertaken activities such as the construction of waste collection centres, installation of bi-gas plants, construction of compost pits, installation of dustbins, the system for collection, segregation and disposal of garbage, and construction of drainage facilities.





**One wrong move can make you suffer.**

The winning combination of Precision, Quality and Ease of Execution makes Knest India's leading aluminium formwork manufacturer with modern and state of the art facility in Talegaon, Maharashtra. Today, Knest is synonymous with monolithic aluform structures in India. Our service, quality, R&D and advanced technology have made us the most efficient and trusted brand for infrastructure and real estate developers across the country.

So, the next time you think of Aluform,  
think **knest**

Precision  
Quality  
Ease of Execution

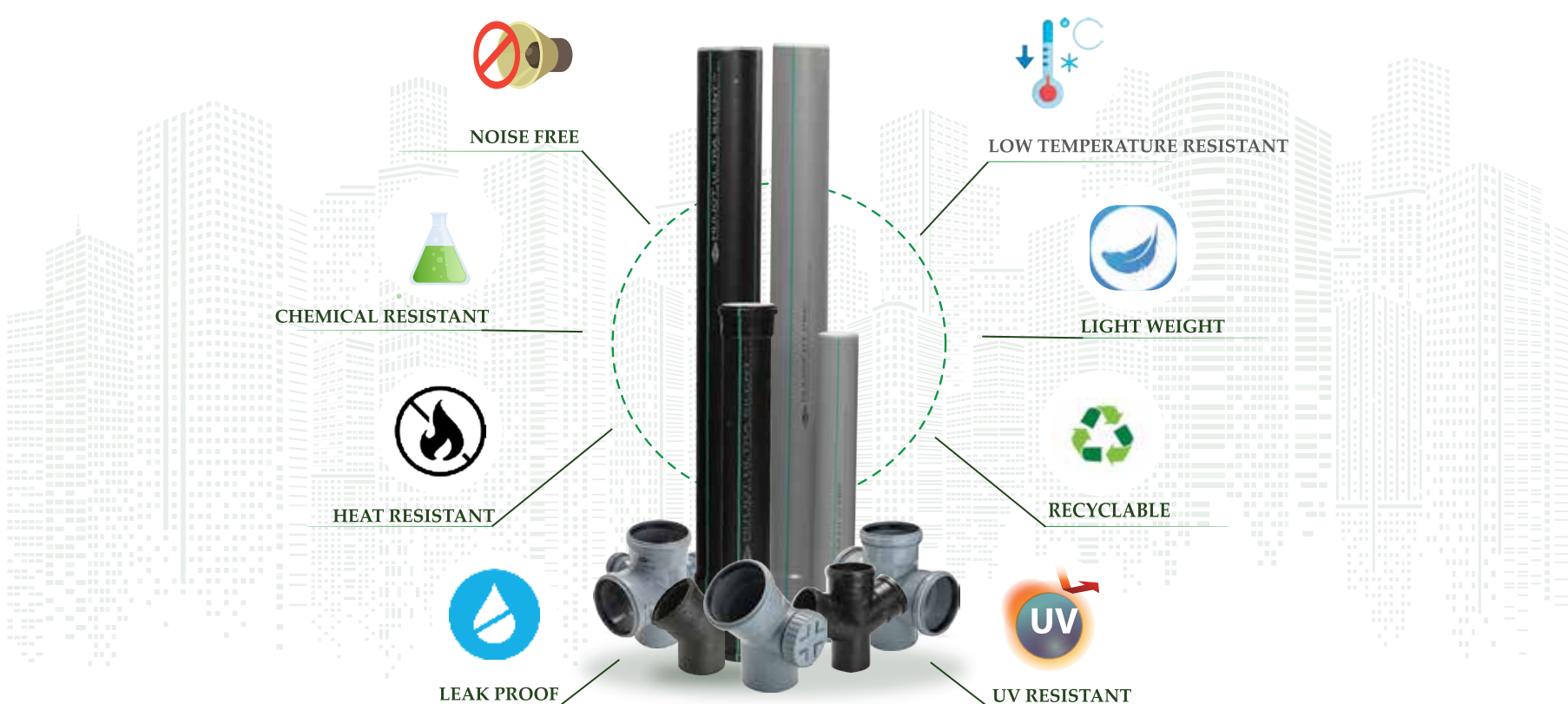


www.knestaluform.com

Atomium Labs



## INDIA'S ONLY CERTIFIED **GREEN PIPES** FOR A **GREEN FUTURE**



**EXPERIENCE THE BENEFITS OF HULIOT PIPES**

Call us on - +91 (265) 2330671/3

Email us on - info@huliot.in



# MODERN TECHNOLOGY FOR ULTRA-MODERN UNDERGROUND SEWAGE SOLUTIONS



**Prince Pipes and Fittings has a zero defect range of complete underground piping solutions.**

- CORFIT- Double wall corrugated pipes for underground sewage application.
- FOAMFIT- Three layered underground drainage application.
- CORFIT INSPECTION CHAMBER- Junction for cleaning, inspection and removal of debris.
- GULLYTRAP- It is a basin in the ground which receives waste water from kitchen & bathroom before it enters sewer.



## FOAMFIT<sup>™</sup>

Underground Drainage Piping Systems



## CORFIT<sup>®</sup>

Underground Double Wall Corrugated Pipes



INSPECTION CHAMBER

PIPES & FITTINGS

GULLY TRAP





# Real Estate sector regulating Act K-RERA, finally launched in Kerala

The Real Estate Regulation and Development Act (RERA) was brought into effect from May 1, 2017. Though it was launched earlier, some states did not see its application, among them, was Kerala. Resolving this issue and the excruciating wait of two and a half years, Kerala Chief Minister Pinarayi Vijayan formally launched its Kerala RERA (K-RERA) at Thiruvananthapuram on January 1, 2020.

K-RERA has been constituted as per the parent Act which makes it compulsory to establish a Real Estate Regulatory Authority in each state and Union Territory of the country. The law mandates every real estate project (where the total area to be developed exceeds 500 sq m or with more than eight apartments in any one phase) to get registered

with the respective state's RERA. The registration extends to not only the projects but also to the real estate agents or brokers to facilitate a deal or transaction.

The compulsory registration under RERA ensures transparency and brings the factor of accountability in the whole process. Along with it, it also filters out inexperienced, unprofessional and unethical brokers who do not follow the guidelines.

Accordingly, K-RERA issued a notification advising all prospective allottees and buyers to verify whether their respective real estate project or the real estate agent, is registered with the authority or not. It also issued a notice directing that all promoters, builders and developers shall not advertise, market, book, sell or offer to sell apartments, plots

of buildings from January 1, 2020, without obtaining registration from K-RERA if the apartment has more than eight units or the land proposed to be developed is more than 500 sq m. A similar direction was issued to real estate agents that they shall not facilitate sale or purchase of plot, apartment or building without obtaining registration from K-RERA under relevant sections.

Kerala's real estate sector is in the news for the demolition of apartment complexes covering 8,00,000 sq ft of concrete structures at Maradu, Ernakulam district, near Kochi. The Supreme Court ordered demolition is the first such exercise in India for violating Coastal Zone Regulations norms. The Supreme Court ordered the demolition in May 2019 after several rounds of litigation.

## Demolition drive takes place in Kochi because of non-compliance of CRZ norms

In an attempt of sending a strong message to violators of environmental norms, the Supreme Court ordered demolition drive against four illegal waterfront apartment complexes in Kochi by using controlled implosion method.

On May 8 last year, the apex court had directed that these buildings be removed within a month as they were constructed in a notified CRZ, which was part of the tidally-influenced water body in Kerala. The court had passed the order after taking note of a report of a three-member committee, which said when the buildings were built, the area was already notified as a CRZ and construction was prohibited. Earlier, it had rejected a plea filed by the residents of the area against the demolition order.

A total of 343 waterfront flats were built in the complexes, violating the Coastal Regulation Zone norms. The Supreme Court had in September 2019 directed demolition of the apartment complexes within 138 days after the Kerala government submitted the time line for carrying out the operation

In perhaps the first of its kind drive in the country against illegal residential high rises, the four concrete residential building with nearly 350 flats were reduced to piles of rubble in seconds. Explosives,

weighing totally nearly 750 kgs, were used in a controlled manner to bring down the lakeside structures in Maradu, eight months after the apex court ordered their demolition for violation of the Coastal Regulation Zone norms.

The Kerala government stuck to its time line of 138 days given to the Supreme Court in September last year as the meticulously planned operation was successfully carried out in a precise manner amid tight security and after people in the neighbourhood were evacuated as a precautionary measure.

Section 144 of the Criminal Procedure Code (CrPC) was imposed in the evacuation zone of 200 metre radius from 8 am to 4 pm on both days to ensure there was no movement in the area. The government, which made it clear that it will implement the court orders, had managed to evict the owners of the flat, who staged protests, saying they had invested their hard earned money in buying the flats.

Areas in the 200 metre radius of the buildings were kept out of bounds for people and all kinds of traffic during their demolition. In a precise sequence, explosives-filled in the structures were blasted in a controlled manner at the end of the third warning siren.

Following the blasts, clouds of dust billowed out

around the wreckage, enveloping nearby spectators. The stunning spectacles were witnessed by a large number of people who perched themselves on top of houses and other buildings in vantage points just outside the evacuation zone even as police and district officials kept a vigil. It was a perfect implosion with not single debris haven fallen in the lake. It was an absolute success. No damage has happened to the building adjacent to the demolished one. And no harm to any human life or any animal life. No properties in adjoining area damaged," the police officer said.

Not a single window of the building suffered any crack in the explosion. That was the level of accuracy these technical experts have maintained. While Mumbai-based Edifices Engineering carried out the explosion with the assistance of experts from South Africa-based Jet Demolition, the twin towers of Alfa Serene were demolished by Chennai-based Vijay Steels.



## Gujarat based real estate developer launches an application to ease property exchange

7 Oak, a Gujarat based real estate developers with a hope to ease the process of discovering and exchanging properties has launched 'Bada Property Exchange Application'. The app is available on both Play Store and App Store and enables customers from various Indian cities and towns to access it and identify individual properties that need to be exchanged across nearby and far distant locations.

Rajdipsinh Chudasama, Director, 7 Oak, explaining the working of the app said, "A customer from Gujarat may, for instance, put her flat in Ahmedabad for exchange against a property - shop, flat or plot of land - in Surat or Mumbai. When the two buyers and sellers agree upon the respective pricing of the properties, they may enter into a transaction to sell the properties, thereby exchanging them."

Hardeepsinh Rana, COO, Bada Property Exchange said, "While we are not eliminating property consultants from the system, we are opening a platform that would bring in more transparency and customer control." He added that since the app would help curb and with effect eliminate the chances of being manipulated by a property consultant as it would enable buyers and sellers to check out respective property listings.

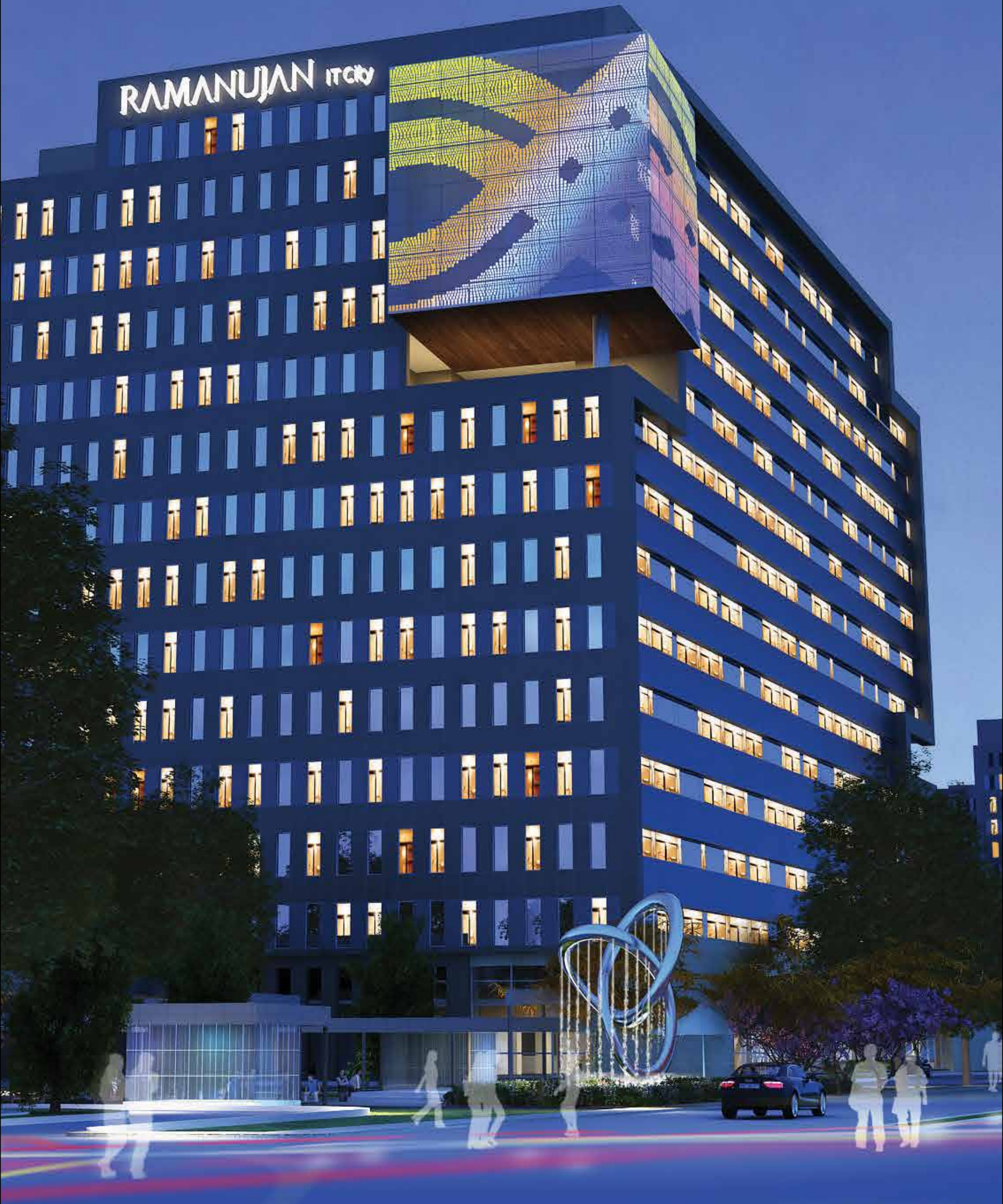
In line with Hardeepsinh Rana's claim that the property consultants would not be eliminated, the company has accredited property consultants whose services may be sought once a buyer and seller find a match. "Ahmedabad city has 20 property

consultants who are on the panel of the company. Any customer can take the service of these consultants and give him brokerage. A consultant can be avoided if any party feels that it has a satisfactory deal," Rana said.





A project by  
**TATA** REALTY AND INFRASTRUCTURE LIMITED  
Trust Builds



IT/ ITES SEZ | Serviced Apartments | International Convention Centre

TRIL Infopark Limited, Taramani, Chennai - 600 113  
Contact: +91-44-6685 5111 | [www.ramanujanitcity.com](http://www.ramanujanitcity.com)  
Enquiry - [contactus@ramanujanitcity.com](mailto:contactus@ramanujanitcity.com)

 **RAMANUJAN**  
IT City  
*Beyond infinity..*



# An insight into Tata Realty's growing presence in the infrastructure sector

Interview with Pramod Bisht, CEO – TRIL Infopark Limited & Business Head – South, Tata Realty & Infrastructure Limited (TRIL)



**You are handling one of the biggest Commercial & Residential Markets in India. What is your vision for TRIL in South India for the next 5-10 years?**

Yes, South India is one of the biggest markets in India for commercial and residential business and experiencing robust growth. TRIL has concrete plans to step up unique projects in cities like Chennai and Bengaluru. Also, we have a pan India presence and TRIL has made a significant impact in the residential, commercial and retail space in the country with more than 53 projects and 32 million sq ft already delivered. We are happy to be at the forefront of leading the change in the commercial real estate development with the inception of our new commercial identity, Intellion, established to create intelligent, collaborative and dynamic spaces.

**You are managing one of India's and possibly South East Asia's most envious commercial project – Ramanujan IT City SEZ. Can you share your experience of this project? Your shareholders must also be very happy with the way this project has come up?** Ramanujan IT City is a 'Jewel in the Crown' for our commercial portfolio. The project has come out very well and we are also keenly looking forward to opening the Taj Serviced Apartment & Convention Centre in the next few months. It has won many awards at national and international level. When you walk into the campus, you are convinced that this project is very unique. We would like to keep this as a very unique benchmark for our future projects. Naturally, our stakeholders are extremely pleased with Ramanujan IT City. I am also pleased to share that we are fully leased out and have a waiting list of clients with a requirement of 1 million sq ft or so. Not many IT projects in India have this sort of demand.

**Your occupants in Ramanujan IT City are one of the most sought-after IT companies in the world – Ambitious Plans, Very Demanding, Highly HR Centric, etc. How do you retain them and manage their expectations from the campus?**

It has been built to world-class specifications to meet international expectations for high-quality office space and is a preferred address to a multi-tenant profile comprising well-established multinationals and global IT companies. We have created sustainable infrastructure infused with green open spaces, smart building management and energy-efficient systems and eco-friendly environment. Ramanujan IT City has created a vibrant community with spaces to network and unwind; such as breakout zones, landscaped gardens, two grand food courts, cafes, gym and retail. The Podium (Main Street) is a great attraction. We also have huge parking spaces with five levels of parking and foot over bridge to reach the campus directly from the rail station. We

keep raising the performance bar every year. We have a very committed site team who has built great relationships with the occupants which helps us in a big way.

**We also understand that Taj Serviced Apartments are opening in Ramanujan IT City Campus. Can you share more on this?**

Yes, we are on schedule to open 112-rooms Taj Wellington Mews high-end luxury serviced apartments and a 1500-seater international convention centre. This will be open to the public from April 2020 onwards.

**With Ramanujan IT City more or less completed, where does TRIL go from here? When and where can we see the next Ramanujan IT City?**

Yes, this is the question which comes from all our occupants and also from the new prospects, IPCs, etc. We have a pan India presence with a growing portfolio of Grade 'A' commercial spaces, offering consistent quality across NCR, Mumbai, Chennai and soon in Pune and Bengaluru. We will be announcing some exciting commercial projects in Bengaluru and Chennai shortly. We believe that a place of work is beyond just a commercial property. It's an experiential, engaging, intuitive and rewarding ecosystem that nurtures both businesses and the community.

**Tata Realty's residential division is almost as big as your commercial. How do you see your residential competing with the other biggies in the most competitive South India Market?**

We have a large portfolio of housing projects in South India and I am really pleased with the way our residential projects have shaped up in South India. We have a mix of luxury and mid-income projects across Bengaluru, Chennai and Cochin. The projects have been very unique with their own well-established brand identity and received many accolades for eco-friendly construction, design and sustainable infrastructure.

## TATA Realty and Infrastructure | TATA Housing

TATA's real estate arm was established in the year 1984 and has over the years built a credible portfolio of projects in multiple cities across India. A 100% subsidiary of Tata Sons, which was founded by the great visionary Jamsetji Nusserwanji Tata, Tata Realty and Infrastructure has been built on a strong foundation of a 150-year-old legacy.

The company has made significant impact in the residential, commercial and retail space in the country - with more than 53 projects and 32 million sq ft already delivered. This includes over 20 million sq ft residential spaces, more than 15 million sq ft commercial spaces and 1.3 million sq ft retail spaces; with another 37 million sq ft under development.

With a relentless commitment to create world-class

office spaces as well as focus on value creation for all our stakeholders, Tata Realty And Infrastructure is happy to be at the forefront of leading the change in commercial real estate development with the inception of Intellion.

### Intellion – office spaces by TATA Realty and Infrastructure

Intellion is the exclusive office space vertical of Tata Realty And Infrastructure. Established to create Intelligent, Collaborative and Dynamic Spaces, Intellion is about fostering an environment conducive to not just grow but thrive, by creating experiential, engaging, intuitive and rewarding ecosystems that nurture both

businesses and people that are part of the community.

Intellion has crafted and designed four primary landmark addresses based on scale and type of commercial projects:

- Intellion EDGE - Commercial Projects
- Intellion SQUARE - IT/ITeS Small Scale Projects
- Intellion PARK - IT/ITeS/SEZ Large Scale Projects
- Intellion PRIME - Iconic Flagship Projects

With a growing portfolio of Grade 'A' Commercial Spaces, offering consistent quality across NCR, Mumbai, Chennai and soon in Pune and Bengaluru, each Intellion project is poised to become a landmark address of its own.





# Laying Foundation for Stronger India



## HUDCO in Promoting Sustainable Habitat for all to Enhance the Quality of Life

HUDCO has established itself as India's Premier techno-financing Company, providing loans for Housing and Urban Infrastructure projects in India since 1970. HUDCO lays considerable emphasis on the housing needs of EWS/LIG with sustainable development.

**PROMOTING HOUSING FOR ALL**

**TRAINING MANPOWER**

**COMMITTED TO CSR**

**INVIGORATING INFRASTRUCTURE**



HOUSING



URBAN DEVELOPMENT



INFRASTRUCTURE



BUILDING TECHNOLOGY



RESEARCH & TRAINING



CONSULTANCY SERVICES



**Housing & Urban Development Corporation Ltd.**

(A Government of India Enterprise)

Core 7A, India Habitat Centre, Lodhi Road, New Delhi - 110 003

CIN: L74899DL1970GOI005276, GST: 07AAACH0632A1ZF

[www.hudco.org](http://www.hudco.org)







# 1 crore houses sanctioned under Pradhan Mantri Awas Yojana: Housing for All scheme

Monitoring Report dated 1st Jan 2019

PMAY scheme which was launched by the Ministry of Housing and Urban Affairs by in 2015 to cater to the affordable housing problem, also being touted as one of the largest affordable housing programmes in the world. The scheme was aimed at providing 1.12 crore houses already has 1 crore houses sanctioned and the vision would also be catapulted by the Global House Technology Challenge.

The houses sanctioned so far under the scheme involve an investment of about ₹5.70 lakh crore with central assistance of ₹1.6 lakh crore. “Due to the investment being made in the scheme, around 568 LMT cement and 130 LMT were required for the sanctioned houses, out of which 178 LMT cement and 40 LMT steel has already been consumed in the completed houses,” said the statement.

The scheme has also had a compounding effect on other industries as it has helped in employment generation by creating 1 crore new jobs in 250 auxiliary industries like steel, brick kilns, cement, paint, hardware, sanitary etc. It has also created a ripple effect in the transport industry, horticulture, skill development, landscape, development sector etc.

At present, the current estimate of the project is 5.70 lakh crore with the central assistance of 1.6 lakh crore, and once the 1.12 crore houses are complete it will reach an estimated cost of 7 lakhs crore. As on date, nearly ₹60,000 crore central assistance has already been released.

According to Hardeep Singh Puri, the Ministry

## RAY & AHP : State wise Progress

Sl. No.	Name of the State/UT	No. of Project Approved	No. of City/ Town Covered	Financial Progress (Rs in Crores)				Physical Progress (Nos)						
				Project Cost	Committed	Released	Adjusted	ACA Balance / Recovery	DUs Sanctioned	Construction Completed	Under Progress	Yet to start	Occupied	Un-occupied
1	Andhra Pradesh	2	2	87.19	41.26	32.87	-	8.39	1,617	21	1,392	204	21	-
2	Bihar	7	5	454.65	297.72	161.70	-	136.01	11,276	3,325	4,019	3,932	3,313	12
3	Chhattisgarh	1	1	13.60	6.09	41.80	3.65	(35.71)	300	240	60	-	110	130
4	Goa	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Gujarat	25	13	1,737.17	451.46	303.55	54.47	147.91	30,494	22,878	3,831	3,785	13,853	9,025
6	Haryana	4	4	278.82	206.93	119.28	-	87.65	3,226	1,015	1,904	307	1,015	-
7	Himachal Pradesh	1	1	34.00	27.62	9.21	-	18.41	300	-	300	-	-	-
8	Jammu & Kashmir	1	1	22.22	15.98	11.56	-	4.41	369	62	15	292	62	-
9	Jharkhand	4	3	212.74	97.15	73.40	3.88	23.75	3,931	2,918	154	859	2,759	159
10	Karnataka	23	10	1,185.34	638.77	529.59	160.88	109.17	23,125	17,245	5,880	-	14,231	3,014
11	Kerala	5	5	160.77	66.06	25.96	-	40.21	2,118	343	1,087	688	325	18
12	Madhya Pradesh	8	7	444.32	229.65	183.92	72.85	45.73	8,123	5,372	2,751	-	2,667	2,705
13	Maharashtra	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Orissa	16	4	582.08	290.16	136.75	23.20	153.41	11,235	3,812	4,313	3,110	1,508	2,304
15	Punjab	-	-	-	-	3.78	-	(3.78)	-	-	-	-	-	-
16	Rajasthan	27	16	1,078.79	450.07	278.17	11.31	171.90	21,908	12,841	5,800	3,267	9,455	3,386
17	TamilNadu	15	8	317.36	135.25	112.52	1.84	22.73	4,880	4,818	62	-	4,720	98
18	Telangana	1	1	58.75	22.25	62.38	-	(40.13)	1,198	-	334	864	-	-
19	Uttar Pradesh	18	16	576.99	279.22	172.07	7.68	107.15	8,409	4,003	248	4,158	3,999	4
20	Uttarakhand	10	10	186.67	128.80	107.48	3.92	21.32	3,130	1,406	518	1,206	1,406	-
21	West Bengal	3	3	28.09	15.05	11.58	1.62	3.47	472	192	250	30	192	-
<b>Sub- total (States) :-</b>		<b>171</b>	<b>110</b>	<b>7,459.55</b>	<b>3,399.48</b>	<b>2,377.48</b>	<b>345.31</b>	<b>1,022.00</b>	<b>1,36,111</b>	<b>80,491</b>	<b>32,918</b>	<b>22,702</b>	<b>59,636</b>	<b>20,855</b>
22	North East States	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Assam	4	4	95.52	77.39	60.70	-	16.69	1,536	-	1,536	-	-	-
24	Manipur	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Meghalaya	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Mizoram	1	1	11.20	9.49	7.51	-	1.98	142	65	77	-	65	-
27	Nagaland	3	3	56.39	41.68	24.74	-	16.94	1,054	455	599	-	-	455
28	Sikkim	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Tripura	4	4	98.79	77.92	59.94	-	17.98	3,005	657	2,348	-	657	-
<b>Sub- total (NE States) :-</b>		<b>12</b>	<b>12</b>	<b>261.90</b>	<b>206.48</b>	<b>152.89</b>	<b>-</b>	<b>53.59</b>	<b>5,737</b>	<b>1,177</b>	<b>4,560</b>	<b>-</b>	<b>722</b>	<b>455</b>
30	Union Territories	-	-	-	-	-	-	-	-	-	-	-	-	-
31	A&N Island (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Chandigarh (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
33	D&N Haveli (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Daman & Diu (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Delhi (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Lakshadweep (UT)	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub- total (UT) :-</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Grand Total :-</b>		<b>183</b>	<b>122</b>	<b>7,721.45</b>	<b>3,605.96</b>	<b>2,530.36</b>	<b>345.31</b>	<b>1,075.60</b>	<b>1,41,848</b>	<b>81,668</b>	<b>37,478</b>	<b>22,702</b>	<b>60,358</b>	<b>21,310</b>

DRMC - MoHUA

will sanction all the 1.12 crore houses in the next 3-4 months. According to the ministry, a total of 57

lakh houses are in various stages of construction and 30 lakh houses have been completed.

## Adlkakha Associates develops innovative construction technology for Low-income housing

In the 4th Generation, social housing for weaker sections (EWS and LIG) needed to focus on incremental improvement in existing skill and technology rather than drastically change to only industrialised mechanisation. One of the solutions lies in implementing the existing intermediate technologies in-situ on-site for serial production in accordance with actual demand. Thereafter it could gradually evolve to Industrialised Mechanisation transiting into the 5th Generation.

The key element to designing 'Low Income Homes' according to Pramod Adlakha is the realisation of prospective people's hard-earned savings or borrowing defining the characteristics of people's lives, comfort level, aspirations, functionality thereby increasing their standard of living. Increasing the productivity and quality level of living with indigenous intermediate technology caters the synthesis of 'traditional practice' and 'modern technology'. With smaller modular units of components, the assemblage is easy and simple. Even altering and replacing components also is faster, easier and cost-effective. Keeping the cost reduction through a focus on 'cost drivers of the process', the adoption of technology to optimise lies in the construction principle of load-bearing walls.

In the above context, for low-income housing in low rise development up to G+3. Aap Ka Awas has developed packages of an 'Integrated Hybrid Solution'. It consists of walls with hydraform prefab

interlocking technology, floors and roof with mechanized precast RC planks and joist system, and Ferro cement staircase with other elements. 'Hydraform' prefab interlocking technology blocks are manufactured onsite/offsite with cement, coarse sand, fly ash and gypsum. Wherein male and female locking are in the horizontal direction and a ridge and bed in the vertical direction. The system locks in both X and Y-axis. The floors and the roof are cast with moulds on vibrating tables. Joists are partially pre-casted with egg-laying casting machine or with moulds on the levelled platform. The Joists are erected with light cranes and erected on walls as per the spacing required. The partially precast planks are placed joist to joists or joist to the wall. The reinforcement is provided in haunches and then haunches are filled with concrete. The landings are provided with precast RC Planks and Joists technology. The flight is of precast tread riser unit in ferro cement and fixed with cement mortar from wall to wall spacing.

With the past experience of more than 45 years, technology improvements have been made in mechanisation and for better quality and safety.

Housing with Hydraform blocks (InnoGeocity - Township in Oragadam, near Chennai)



## Housing thrust in North-Eastern States

The North-Eastern states have been experiencing an upgradation and development of cities under different segments such as water supply and sewerage, solid waste management, creation of affordable housing and pedestrianisation of roads.

According to the Ministry of Housing and Urban Affairs, North Eastern Urban Development Program (NERUDP) has been introduced by the ministry with financial assistance from Asian Development Bank that has provided for 70% of the cost of the programme as loan to the government. The scheme is being implemented in the capital cities of five North Eastern States viz. Agartala (Tripura), Aizawl (Mizoram), Gangtok (Sikkim) and Kohima (Nagaland) covering priority urban services worth an estimated cost of ₹1371 crore. The projects under the NERUDP scheme have been spread over three Tranches and are under execution in the project cities since 2009. These projects had been planned for completion by June 2019 but the deadline has been extended. In addition, Project Management and Capacity Development of the ULBs through institutional and financial reforms have also been included so that the ULBs become capable of planning and implementing infrastructure projects.

The PMAY: Housing for all is closer to achieving its goal as it recently sanctioned 1 crore houses out of 1.12 crore houses. "Achieving 1 crore housing target is a milestone. Ever since the mission began in 2015, almost every state has been immensely benefitted with the housing for all mission," said Urban Development Minister Hardeep Singh Puri. He also added that the North Eastern States are major beneficiaries of the scheme.

Assam witnessed the construction of 96,869 houses under PMAY beneficiary scheme according to the data released by the Ministry of Housing and Urban Affairs. It also indicated that in Manipur, 42,823 houses were constructed. The other states with the number of houses constructed are Mizoram with 30,339 houses; Meghalaya with 4,672 houses; Nagaland with 32,001 houses; Tripura with 82,011 houses; Arunachal Pradesh with 7,230 houses and Sikkim with 537 houses.



# Redefining Housing: The Kudumbashree way of addressing the homeless

Pradhan Mantri Awas Yojana (U) is a centrally sponsored scheme jointly implemented by the state government and urban local bodies (ULBs) with the objective of providing Housing for All. Kudumbashree, the state poverty eradication mission of Government of Kerala is the state level nodal agency for implementing the scheme in Kerala. Under the scheme, sanction has been obtained for constructing 88,672 houses, out of which construction of 26,546 houses has been completed and 72,671 houses have been started.

Providing a decent shelter to a family itself will improve the self-esteem of the members and ensure their upward mobility in the social ladder. Apart from these, the state has adopted a multi-faceted convergence model and various steps for ensuring effective implementation so as to improve the life of beneficiaries.

## Enhanced financial assistance

PMAY (U) is converged with LIFE Mission (Livelihood, Inclusion and Financial Empowerment), the comprehensive housing scheme of Government of Kerala and is implemented as PMAY (U)-LIFE. Unit cost under BLC (N) has been enhanced from ₹1.5 lakh to ₹4 lakh and additional assistance is provided under LIFE Mission. Central assistance is provided at the rate of ₹1.5 lakh/unit.

## Multi-faceted convergence model

Convergence with flagship programmes, schemes of state government, ULBs, NGOs and corporates are integrated towards providing gap fund for construction and also to ensure comprehensive development of PMAY beneficiaries.

Through convergence with Ayyankali Urban Employment Guarantee Scheme (AUEGS), 90 man-days are provided to PMAY beneficiaries so as to provide additional financial assistance of ₹24,390/beneficiary. An amount of ₹37,19,97,906 has been released to PMAY beneficiaries under the wages component of AUEGS till date. 63,210 beneficiaries of PMAY (U) are benefitted under the scheme.



Support is provided to PMAY beneficiaries through convergence with flagship programmes of the ministry such as National Urban Livelihood Mission (NULM), state schemes and external assistance. Convergence with NULM is envisaged towards providing better income to the family along with a safe and secure abode. Increase in income through skill upgradation and setting up of self-employment ventures will enhance the quality of life of urban homeless. 700 members of PMAY beneficiary families are oriented and 160 are given placement under the Employment Skill Training and Placement (EST&P) component of NULM. Training is also being provided to members of beneficiary families for starting enterprises.

ULBs have earmarked funds to provide support to PMAY beneficiaries to improve their living environment through the provision of bio bins, solar panels, etc. As part of the Corporate Social Responsibility of organisations, the gap fund is provided to vulnerable families for completion of houses.

Beneficiary selection is done with the support of Kudumbashree network to ensure inclusion of all eligible beneficiaries. Handholding for completion of construction and intervention like community support and bulk procurement is geared by the network. Mission as part of empowering women in self-employment identified construction as a potential area for meeting the desired objectives and constituted 'All Women Construction Groups'. Currently, 50 units consisting of 496 members are functioning across various ULBs in the state. Presently, 39 PMAY (U) houses are constructed by the women construction groups.

## Credit Linked Subsidy Scheme (CLSS)

As part of the CLSS component of PMAY (U), interest subvention is provided for the loan availed for construction or purchase of a house. 6.5% is the maximum interest subvention. The loan has been released to 14056 beneficiaries in the state. Kudumbashree has executed MoUs with Axis Bank and Bank of India in this regard. Loan melas and IEC initiatives such as exhibition of hoardings, distribution of leaflets and awareness through social media have been adopted towards mobilising beneficiaries.



## Addressing the issue of landless

The state has made considerable progress in redressing the issue of homeless having land under PMAY (U). Towards addressing the issue of landless, apartment complexes are constructed under Affordable Housing in Partnership component of PMAY (U). Construction of two apartment complexes are in progress and 488 PMAY (U) families are benefitted under this scheme. It is proposed to get sanction to construct 13 apartment complexes.

## Green Home (Haritha Bhavanam) competition to identify best PMAY home in the ULB

Haritha Bhavanam competition was conducted to recognise the 'Green Home' in each ULB. A Green Home is selected based on energy efficiency, waste management, maintenance of green space, etc. The competition enabled to spread the messages of rainwater harvesting, kitchen garden, waste disposal mechanisms and green energy among PMAY beneficiaries. A cash prize of ₹10,000 has been given to the best home in each ULB. Along with the competition, ULB wise competition was held among students on housing literacy. Poster competition, debate and quiz competitions were held. This instilled a competitive spirit to clean the house and premises.

## Angikaar campaign for convergence and change management

MoHUA has launched a campaign 'Angikaar' for quality of life enhancement of PMAY (U) beneficiaries through convergence and change management. As part of the campaign, convergence with schemes such as Ayushman Bharath that provides cashless medical treatment up to ₹5 lakh, Ujjwala Yojana for providing free gas connection and various state-specific schemes. Ward level awareness programmes and IEC programmes such as street plays, flash mobs, broadcasting of audio spots through radio stations, signature campaigns, etc. towards creating beneficiary change in terms of waste management, energy conservation, health and hygiene, etc. are being undertaken on a massive scale.



## Online Monitoring Tool

Apart from the MIS, designed by the MoHUA, a state-specific well set monitoring mechanism 'PMAY (U) Tracker' is in position to review the scheme implementation in ULBs. The tracker enables to view various reports and status of the scheme implementation. All the reports on the website ([www.keralaurban-data.co.in](http://www.keralaurban-data.co.in)) are incorporated with dynamic data analysis searching and sorting options. The colour-coded scoring facility is included on the website to track the performance of the municipalities.

Hence, apart from providing a decent shelter, Kudumbashree has adopted an inclusive approach for the comprehensive development of the homeless.





# राजस्थान आवासन मंडल

आवास भवन, जनपथ, ज्योति नगर, जयपुर, दूरभाष - 0141-2744688



गौरवशाली 50 वर्ष पूर्ण होने के अवसर पर आवासन मंडल लाया है...

## स्वर्ण जयन्ती उपहार योजना

50% तक की छूट के साथ अब उपहार भी

### बम्पर उपहार



प्रत्येक क्रेता को निश्चित उपहार



## 5 मारुति अल्टो एसी कार

योजना अवधि में मंडल का आवास खरीदने वाले सभी क्रेताओं में से 5 को बम्पर उपहार योजना के तहत नवीनतम बीएस 6 तकनीक की मारुति अल्टो एसी कार (लॉटरी द्वारा )

## 500 हॉन्डा एक्टिवा स्कूटर

(अनुमानित)

“बुधवार नीलामी उत्सव” के दिन मंडल का आवास खरीदने वाले प्रत्येक 5 खरीददारों में से 1 खरीददार को 1 हॉन्डा एक्टिवा स्कूटर (लॉटरी द्वारा )

### योजना की अवधि

22.01.2020 से 19.02.2020

### पात्रता

योजना अवधि में बुधवार नीलामी उत्सव/ओपन काउंटर सेल/खुली नीलामी में आवास/सम्पत्ति खरीदने वाले क्रेतागण

### योजना की नियम व शर्तें

1. बुधवार नीलामी उत्सव के दिन प्रत्येक 5 सफल क्रेताओं में से 1 का लॉटरी के माध्यम से चयन किया जायेगा।
2. लॉटरी में चयनित क्रेता को 1 हॉन्डा एक्टिवा स्कूटर उपहार स्वरूप दिया जायेगा।
3. यह लॉटरी उसी दिन संबंधित मंडल कार्यालय में निकाली जायेगी तथा उपहारों का वितरण भी उसी कार्यालय से किया जायेगा।
4. उपहार हेतु सफल क्रेताओं की घोषणा नीलामी दिवस पर ही कर दी जायेगी लेकिन सम्पत्ति का सम्पूर्ण मूल्य चुकाने के पश्चात् ही उपहार क्रेता को दिया जायेगा।
5. बम्पर लॉटरी कम्यूटराईज्ड रेण्डम प्रद्धति से दिनांक 21.02.2020 को सांयकाल 4.00 बजे राजस्थान आवासन मण्डल मुख्यालय, जयपुर पर की जायेगी।
6. दिनांक 30.09.2019 से प्रारम्भ की गई ई-ऑक्शन योजना तथा दिनांक 4.12.2019 से प्रारम्भ की गई “बुधवार नीलामी उत्सव योजना” के सफल क्रेताओं के लिए पृथक से 20 हॉन्डा एक्टिवा स्कूटर का बम्पर पुरस्कार निकाला जायेगा तथा उनके नाम 5 कारों के बम्पर उपहार योजना में भी शामिल किये जायेंगे।
7. सभी निजी एवं राष्ट्रीयकृत बैंकों द्वारा ऋण सुविधा उपलब्ध।

नोट: योजना की सम्पूर्ण जानकारी राजस्थान आवासन मण्डल की वेबसाइट [www.urban.rajasthan.gov.in/rhb](http://www.urban.rajasthan.gov.in/rhb) पर देखी जा सकती है।

राजस्थान आवासन मण्डल द्वारा प्रत्येक बुधवार को आयोजित **बुधवार नीलामी उत्सव** में भाग लेकर अधिकतम 50 प्रतिशत तक की छूट के साथ अध्याक्ष अब पायें निश्चित उपहार एवं हॉन्डा एक्टिवा स्कूटर व एसी कार जीतने का अवसर आवासन आयुक्त



# Chhindwara Municipal Corporation demonstrates good progress under PMAY

After the inauguration of the Pradhan Mantri Awas Yojana by Narendra Modi, Prime Minister of India on June 25, 2015, applications were invited from the Municipal Corporation beneficiaries for implementation of the said scheme in which AHP - 1265, BLC - 16014 and CLSS - 285 beneficiaries were received applications and preparing the HFAPoA for the approval of the government was sent in which the report of the action taken till present is component-wise as follows -

## AHP (Affordable Housing in Partnership):

In the year 2016, under the AHP component, construction of 1131 EWS, 264 LIG and 144 MIG category houses, 1131 EWS houses has been completed and houses have been given suzerainty to the beneficiaries and 24 shops have been allotted for self-employment. Construction work is in progress in 264 LIG houses, in which 177 houses have been allotted and construction of 48 numbers shops is proposed for self-employment. The process of construction of 144 MIG houses is in progress, in which 50 houses have been allotted.

## BLC (Beneficiary Led Construction):

According to HFAPoA, 12697 beneficiaries have been sanctioned for self-built housing, the amount has been distributed to 10829 beneficiaries and 9136 houses have been completed. Construction work of 1512 houses is in progress, which will be completed soon. For the approval of 1868 beneficiaries, D.P.R. has been made and sent to the government.



## CLSS (Credit Link Subsidy Scheme):

Action has been taken to give the benefits of the said scheme to the beneficiaries by holding a meeting of bankers/colonizers for wider dissemination under the CLSS component. At present, 293 beneficiaries have been benefited under the CLSS component.

## Angikar Campaign:

Under the Angikar campaign, the beneficiaries of

the Municipal Corporation Chhindwara in Madhya Pradesh were given the benefit of the scheme after evaluating the scheme run by the central government and the state government.

In the implementation of the Pradhan Mantri Awas Yojana, the body was given the suzerainty by constructing the first 1131 EWS class houses in Madhya Pradesh and the construction of 9136 houses was completed by selecting the most eligible 12949 beneficiaries under the block component.

# Apna Ghar provides sustainable and affordable houses for the society

APNA GHAR is a Nagpur based construction startup which has taken an initiative to create eco-friendly, sustainable and affordable houses for the society without contributing any negative impacts on surroundings under PMAY (Pradhan Mantri Awas Yojana). It has been started by Prakash Jaiswal, an innovator with vast experience in green buildings. The construction system adopted here is a load-bearing structure, only approximately 20% cement concrete and steel is used. This construction system is primarily made up of Porotherm (clay) blocks and ISMB (Indian Standard Middleweight Beam) having a huge life span of nearly 150 years. Porotherm blocks are hollow and hence thermally insulated, having a compressive strength of more than 12mpa and are lightweight having weight density around 10.5 KN/m<sup>3</sup>. With this low environmental impact, green building material (G+3) floors can be made easily.

The main objective of the organisation is to provide alternative affordable and sustainable houses with those are eco-friendly and are easy to construct for all the financially poor sections who cannot afford any construction professional services and to save the environment by saving natural resources.

The design solution adopted here is sustainable, eco-friendly, locally available, cost-effective, less time consuming, less-skilled labour required, as well as provides thermal and acoustic comforts, pocket-friendly (post-occupancy) and emits less CO<sub>2</sub> to contribute carbon footprint to reduce global warming and last but not least it has a provision of earthquake resistance.

## Costing and Construction Duration

It is a very cost-effective construction system (1-BHK configuration of 321 sq ft costs around 3.25 lakhs). The construction system is also endeavouring to construct houses according to the affordability of EWS (Economically weaker sections). The organisation has shown its readiness to cater to the needs according to the economic status of the user. For example, if one has even ₹2 lakh, the organisation will customise and try to construct his house in 200 sq ft. As

shuttering is not required and there are no conventional RCC members, the time required in this construction system is very less. One flat of 2BHK configuration can be completed in just around 40 to 90 working days.

## An eye-opener element for Affordable Housing for entire south Asian countries

Hope, it is not arrogance but, this is final anticipation to provide dignified and most eco-friendly houses for poor and marginal people of not only in India but also for entire south Asian countries facing the same problem. By 2040, 60% of the population of India will live without their own houses. Mainstream construction professionals have still not taken any positive and effective initiatives towards EWS.





# NIRDPR training hosts a panel to discuss sustainable housing strategies

National Institute of Rural Development and Panchayati Raj (NIRDPR) is hosting an International Training Programme on 'Planning and Management of Housing Programmes' for participants from 13 developing countries. Being sponsored by the Ministry of External Affairs under 'Indian Technical and Economic Cooperation' initiative, this month-long training programme is being attended by 22 participants from Africa, Middle East, North America and Asia.

The training programme included a panel discussion that was called for taking urgent steps on the growing climate change concerns due to the increasing unsustainable construction technologies and lifestyle practices being adopted in the housing sector. The panel was held with respect to identify strategies that would promote sustainable housing technologies and encourage affordable and climate-resilient habitations and villages in India.

The members, who participated in the panel discussion, included Chairman of Indian Green Building Council (IGBC) V Suresh, architect Prof Eugene Pandala, former Engineering-in-Chief Andhra Pradesh Kondal Rao and Director General NIRDPR Dr WR Reddy.

Speaking during the discussion, IGBC Chairman Suresh emphasised the importance of incorporating green building measures such as the use of appropriate energy-efficient construction materials and adoption of efficient water, sanitation and energy management practices in buildings to ensure the promotion of climate-resilient habitations and villages.

Some recommendations that

stemmed from the discussions for promotion of sustainable housing technologies include: Providing special incentives to house owners who are constructing houses using these technologies; higher allocation of design and supervision fees for projects incorporating sustainable technologies, setting up effective sustainable technology demonstration buildings across the country for creating awareness; and incorporating sustainable housing technology practices in the specification of works and schedule of rates being followed by the government departments.

Prof Eugene Pandala stressed the need for taking steps to reduce the huge quantities of Carbon Dioxide emission emitted from urban areas due to improper housing design, use of conventional materials and unsustainable lifestyle practices being adopted by a relatively small number of the urban population. In the discussions, the members raised deep concerns over the lack of awareness on the sustainable housing technologies among the majority of the architects and engineers due to lack of a strong focus on this aspect in the curriculum of universities and colleges offering architecture and civil engineering.

In his concluding remarks, NIRDPR DG Dr WR Reddy raised concerns over the lack of wider thrust on this aspect and urged various government departments involved in construction of buildings to take proactive steps to incorporate sustainable building designs and use of appropriate materials in order to effectively mitigate the challenges being posed due to the impact of climate change.

# Inclusion of Housing and UD Department under Mo Sarkar

Odisha Chief Minister, Naveen Patnaik, announced the inclusion of the Housing and Urban Development Department under the 'Mo Sarkar' initiative. He said, "I am glad that our initiative to bring all the departments under Mo Sarkar by March 31, this year is catching up momentum. The Housing and Urban Development Department is coming under Mo Sarkar initiative."

Considering the rapid urbanisation, and the growing demand for modern infrastructure for providing efficient amenities, the H and UD is one of the most important wings of the government. As per an official release, the move will enable these most important wings to bring in professionalism and effect behavioural change under the Mo Sarkar initiative.

"While we are set to provide quality drinking water to all the households in urban areas, we are also providing basic rights to urban poor through Jaga Mission. The Jaga Mission has received the World Habitat Award for providing land rights to more than 50,000 urban poor families. The Drink from Tap Mission in Bhubaneswar is one of the most promising initiatives taken up by this

department," he said.

The department is fully prepared to function under the Mo Sarkar. Necessary capacity building, technology upgradation and awareness efforts have been taken up. "One of the basic objectives of Mo Sarkar is every public servant must understand that the citizen is the master. The public servant is here to serve the citizens. There should be a conviction on this vision. So I would like to ask every public servant to treat the citizens with dignity," he reiterated.

Pratap Jena, Housing and Urban Development Minister informed, the department has already opened Mo Sarkar cells to facilitate the provisions of the initiative.

On the occasion, V K Pandian, 5-T Secretary interacted with Executive Officers of Patnagarh, Rairangpur, Bonei, Rajgangpur, Athamallik, Talcher, Jeypore and Kabisuryanagar to know about their understanding on Mo Sarkar. He appreciated that most of the officers have quite significant awareness of Mo Sarkar. He advised the officials that there should be no harassment of any citizen coming for any service to any public office.

Presenting

Smart Steel Doors

DOORS  
TO SET  
YOU  
FREE.

Avante - Smart Steel Door is a unique combination of the strength of the steel and the warmth of wood which stands out by exuding not only style and the panache but also sets you free from the worries of wooden doors.

Weather Proof

Fire Resistant

Termite Proof

Easy to Install

Eco-Friendly

For Inquiries:

West & North: Mr. Dipesh Jain | Tel.: +91 76668 95379

South: Mr. Vishwas S | Tel.: +91 98865 02505

www.jswsteeldoors.in







**अशोक गहलोत**  
माननीय मुख्यमंत्री, राजस्थान सरकार

# अपने शहर को स्वच्छ सर्वेक्षण 2020



में अक्वल बनायें

## स्वच्छ भारत अभियान के साथ जुड़िये

### स्वच्छता ऐप

डाउनलोड कीजिये



अपने घर में रखें दो कचरा पात्र



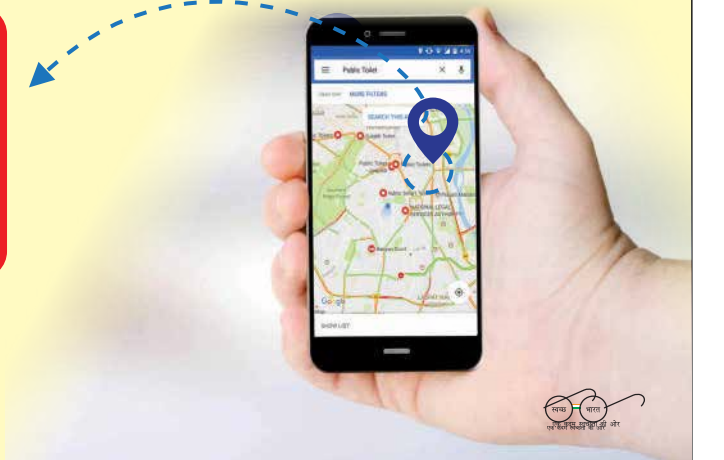
कचरा-कचरा एकत्री करण वाहन में डालें



बनवाएँ अपने घर में शौचालय और उसका उपयोग करें

**परेशानी और  
मुश्किलों को करो  
गुडबॉय शौचालय  
ढूँढने का आ गया  
नया उपाय**

गूगल मैप पर  
जाइये निकटतम  
शौचालय पाइये





# Kerala sets up the country's largest floating solar plant

Kerala has set up the country's largest floating solar power plant on the Banasura Sagar reservoir in Wayanad. This is a commendable approach towards a sustainable future. It is an innovative project by the Kerala State Government. It is an unusual juxtaposition of water and electricity. Not only the solar plants but also the sub-stations float on water. As India looks up its focus on renewable energy, the setting up of multiple solar power plants across the country will come as a definite boost.

The 500 kWp (kilowatt peak) solar plant of the Kerala state electricity board (KSEB), floats on 1.25 acres of water surface of the reservoir. It has been set up at a cost of 9.25 crore. The solar plant has been installed on 18 ferro cement floaters with hollow insides and contains 1,938 solar panels. The project has used high-efficiency solar panels and a floating substation on the reservoir itself, to convert the output into 11kV, considering economic and safety aspects.

The solar project consists of 500 KVA (kilo volt-ampere) transformer, 17 inverters, a supervisory control and data acquisition (SCADA) system to control and monitor power generation and an anchoring system. The plant itself will be able to generate 7.5 lakh units of power annually which will be fed to the Kerala state



electricity board (KSEB) grid using underwater cables. A Thiruvananthapuram based private company, Adtech Systems Ltd, is the agency behind the implementation of this project. The floating solar plant is highly efficient compared to ground-mounted installations due to the

moderating effect of water bodies on panel temperature. "We are giving importance to rooftop solar plants as well. Not only solar but in the coming days there will also be a focus on setting up wind energy plants," said J Mohammed Siyad, Chief PRO of KSEB.

## Ludhiana's Phase II of solar energy project to power education

Ludhiana will soon implement its Phase II of Solar Energy Power Project in accordance with the agreement signed between Ludhiana Smart City and Punjab Energy Development Authority (PEDA). As per the agreement, PEDA will install the rooftop solar panels with funding received through the Smart City Mission.



The site survey for the project is almost over with officials claiming that the installation process will start by the last week of January or first week of February.

In 2018, Ludhiana, under the pan-city component started with the implementation of Phase I under which it installed rooftop solar panels on 20 existing municipal corporation buildings. As Phase I, covered all zonal and subzonal offices of MC, Guru Nanak Stadium, fire brigade offices, Indoor Stadium and Municipal Corporation workshop. Now, Phase II of this project will now focus on the installation of rooftop solar panels in government schools, government colleges and meritorious schools. Phase II specifically aims to reduce hefty electricity bills at government educational institutions, for which, 25 locations have already been identified for the same with site surveys conducted.

MP Singh, Director, PEDA informed that the agreement was signed last month and claimed that with surveys almost over the project will commence soon and will be completed in a time period of the next 4-5 months.

As Phase I of Smart City Mission's installation of solar panels effectively resulted in the reduction of electricity bills, phase II of the project was undertaken in the same direction. As per officials, the success of Phase I has paved a road for the implementation of Phase II.

## Punjab decides to set up a waste to energy plant under its SAPCC initiative

The Government of Punjab recently decided to build a 7-megawatt Waste-to-Energy plant at Simgauli Village in Mohali District. The plant will be set up in an area of 50 acres and is said to see completion in the next two years.

The plant proposed will enable the conversion of municipal solid waste generated to a source of renewable energy, as municipal waste has always proved to be a challenge in terms of its disposition. The plant is designed to generate power from the waste collected from the areas of Mohali and Patiala and has a per day capacity of converting 600 tonnes of waste into energy.



A Memorandum of Understanding (MoU) was signed between National Thermal Power Corporation (NTPC) and Municipal Corporation of Mohali, that is assigned as the nodal agency to execute the project. The project is being implemented as a Public-Private Partnership (PPP) model of BOO (Build-Own-Operate). Build-Own-Operate is a model under which a private organisation builds, owns and operates some facility or structure with some degree of encouragement from the government. Although the government doesn't provide direct funding in this model, it may offer other financial incentives such as tax-exempt status. The developer owns and operates the facility independently.

The project will contribute to the implementation of the State Action Plan on Climate Change (SAPCC) and the Swachh Bharat Abhiyan. Punjab's recent SAPCC was drafted in February 2014 which will see six years post it's coming into action. The responsibility of drafting SAPCCs for the State of Punjab is given to the Punjab State Council for Science and Technology.

In India, State Action Plans on Climate Change (SAPCC) are primary policy document drafted at the sub-national level that addresses vulnerabilities and increases resilience in cases of climate change. To implement the plans and targets laid out under SAPCCs, several pilots and demonstration projects are conducted, with funds from designated agencies and by the national government under the National Adaptation Fund on Climate Change.

## Madras Waste Exchange paving way for a circular economy

Madras, in order to manage its waste, has approached it in an innovative manner. It had been launched 'Madras Waste Exchange' in the month of December, by the Commissioner of Greater Chennai Corporation. This was done in order to address the ever-growing waste being accumulated at different dumping locations which approximately accounted for 5,000 metric tonnes. There has been a considerable amount of effort being put in composting wet waste, but it is the dry waste that poses the question of how it could be reused. Recyclers only show interest in reusing dry waste if that meets their pre-set quantity of waste quantity. By registering on the website, recyclers can know about the availability and volume of dry waste by the click of a button.

The recycler relies on Resource Recovery Centres and bulk waste generators for volumes of dry waste that is to be recycled. The process of acquisition is time-consuming and complicated and needs to go through a lot of approvals before recycling.

The website connects recyclers to citizens as well as GCC. The manure can be bought from GCC and could also bid for dry waste online. The resource recovery centres, which is used by GCC has been

geo-tagged and hence making it easy for recyclers to know about the quantity and type (dry/wet) waste.

The website is also aiming at bringing together scrap dealers on the platform so as to improve waste collection. As a part of the pilot project, 800 buyers and 300 sellers have registered on the app. GCC has



geo-tagged 220 RRCs and MCCs in Chennai. It will take three to four months to stabilise. This is a good initiative towards a circular economy.

Temples, schools, hospitals are public spaces that generate a huge amount of waste and the aim is to include them under the gamut of waste collection.



# How can cleaner air be achieved through policy shift?

Pollution has been an ever-increasing problem in our country but not much has been said and done to improvise the critical situation. According to the WHO report that was released India had 14 cities out of the 20 most polluted cities in the world. These cities have been categorised as polluted as according to the PM 2.5 levels data that was collected in 2016. The PM 2.5 level is of importance as cities who have higher values or levels of particulate matter tend to have citizens with lower life expectancy and lower bone density. It contains pollutants like sulphates, nitrates and black carbon that can cause extreme harm.

Delhi-NCR region has been in the limelight for all the wrong reasons with its residents struggling for cleaner air. There has been a loss of life expectancy by 6 years for the Delhi residents as compared to their healthier counterparts. Where the blame is being continuously pointed towards stubble burning, but it's necessary to acknowledge that there are other factors that are contributing to the rising particulate matter levels. There is data regarding the impact of stubble burning but no data for how the coal-based industries, dust from construction sites, inefficient or lack of clean fuel cars, or how the increased use of private transport is affecting the alarming levels of pollution in the air. China is lauded for its battle with air pollution through Air pollution Action plan. In order to achieve the target of PM 2.5 China had to put a ban on coal-based industries even though that would have had financial repercussions on the economy.

In the global mobility summit that was held in 2018, Prime Minister Narendra Modi pledged for clean kilometres which would be achieved through biofuels and electric or solar charging transport. Mixing ethanol with the current fuel also increases

engine efficiency and reduces carbon emissions. The government of India has recently launched the National Clean Air Program and Graded Action Response Program. The bad quality of air has led to the formation of the Clean Air Program. This allows for the public monitoring of the pollution levels through Continuous Emission Monitoring (CEM) equipment. The North Delhi Municipal Corporation has also already executed that which allows for data collection and to identify the source of the pollutant. This could help the government in locating the offenders who would then have to work towards curbing the pollutants. This is achievable through emission trading system (ETS) which has proved to be highly effective in China in curbing the pollution. The Shenzhen ETS which was put in action in many Chinese cities market-based reforms and it aims at multiple sources of emissions and combats fiscal policies. These policies have helped the city to move towards better air quality by taxing high polluters



and granting benefits to low polluters. The idea of smarter cities under the Smart City Mission gives importance to greener and more livable cities by encouraging non-motorised transport, green spaces, bus rapid transport system in order to cut down private transport and pedestrianisation. To combat the degrading air quality like China completely banned the Coal-based industries Delhi also needs a policy regarding the coal-based industries only any industry that deteriorates the air quality.

As announced by Nirmala Sitharaman recently this year that the automobile industry will only be allowed for the production of BS-VI vehicles which will be working towards the idea of clean fuel, is a welcome change even though it has financial implications on the sector. Apart from motorisation the country and the city is experiencing transit-oriented-development which also affects the city fabric. In order to encourage the use of public transport, there needs to be zoning done such as it allows for mixed-use development around huge transport infrastructures so as to bring down the cost of the project and also cuts down the need to travel long distances or distances that cannot be traversed through public transport. There needs to be a shift in development/zoning strategies and importance needs to be given to cultivating more green spaces because trees are capable of absorbing pollutants. There have been studies than indicate that coal-based cooking also gives rise to harmful gases and gives rise to chronic respiratory diseases. The Ujjwala scheme which works towards providing electricity forms an essential component to shift from fuel-based cooking to induction cooking. This could prove effective in bringing down pollution levels if advocated properly by the government.

## GreenPro Ecolabelling



Confederation of Indian Industry



**950+** Ecolabelled Products available for Green Buildings  
**100+** Companies adopting GreenPro  
**20+** Product Categories

GreenPro is an ecolabel launched by CII in India. GreenPro assesses 'How Green is a product' based on a holistic product life cycle framework and highlights the way forward to achieve excellence in environmental performance. The ecolabel guides the manufacturers to position their products as 'Green' and gain increased market reach in 'Green Building' sector

### Why GreenPro ?

- Facilitate green building projects in selecting the right products and equipment
- Help manufacturers to reach out to environmentally conscious customers
- Puts a system in place for a product to be called 'Green'

### Benefits

#### Product Manufacturers

- Complements National & International Standards
- Easier to convince Green Building Architects, Developers, Corporate, and Consultants
- Differentiates the Green product from the competition
- Enhances the market reach with credible and precise information on the Green features
- Enables Green Product Innovation

#### Users of the Ecolabelled Products

- Helps in achieving National and International Green Building Certification
- Eliminates time and effort in carrying out due diligence for selecting Green products
- Assures environmental performance of the Products and Equipment
- Ensures toxic & carcinogen free products

### Accreditation by GEN

GreenPro is accredited by Global Ecolabelling Network (GEN) through GENICES - 'GEN's Internationally Coordinated Ecolabelling System



Confederation of Indian Industry  
 CII-Sohrabji Godrej Green Business Centre  
 Survey No 64, Kothaguda Post, R.R. Dist.,  
 Near HITEC City, Hyderabad - 500 084  
 Tel: +91 40 44185111 Fax: +91 40 44185189  
 e-mail: greenpro@cii.in

**Utsav Tayade**  
 +91 86003 06589

**Dhanarasu**  
 +91 88836 27967



# Indian Green Building Council (IGBC)

## - in pursuit of a greener and healthier India

IGBC was formed by the 125-year old apex industry association, the Confederation of Indian Industry (CII) in 2001. IGBC with the support of all the stakeholders has facilitated India become one of the top three Countries in the world in terms of largest registered green building footprint. IGBC is the founder member of World Green Building Council (WorldGBC) and the premier certification body in the country.

The vision of the council is, "To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025".

### IGBC GREEN Cities

The 'Green Cities' concept seeks at promoting an eco-friendly city that balances social, economic, and environmental dimensions, as well as good urban governance as its foundation.

IGBC Green Cities Rating System is the first-of-its-kind rating in India to address environmental sustainability in greenfield & existing cities. The rating system shall enable the development authorities and developers to apply green concepts and planning principles, so as to reduce environmental impacts that are measurable and improve the overall quality of life in cities.

### Primary Benefits of Cities adopting IGBC Green Cities standard:

- Promote higher density and compact development
- Encourage public green & open spaces
- Promote use of Renewable Energy
- Effective Solid Waste Management
- Preservation and Restoration of Water bodies and Eco-sensitive Zones
- Promote use of Public Transport
- Efficient mobility & city infrastructure
- Encourage pedestrian and bicycle - friendly environments
- Enhanced community bonding in neighbour hoods
- Enhanced quality of life of citizens
- Attract investments from environmentally conscious multi-nationals and corporates



Award of IGBC Green City Platinum to Dholera Industrial City, Gujarat



Award of IGBC Green City Platinum to New Town Kolkata



Release of Booklet on townships of India - Going Green



Green Building Congress 2019 - Session on Green Mobility

## India's Green Building Movement

14,00,000+ Green Homes    1,800+ Green Offices    14 Green Cities

325+ Green Factories    45+ Green Townships    24 Green Villages

### National Benefits

achieved through IGBC Certified Green Buildings



Energy Savings  
15,000 MWh of Energy per million sq ft per annum

Water Savings  
45,000 KL of Water per million sq ft



CO<sub>2</sub> Emissions  
Reduced CO<sub>2</sub> emissions by 12,000 Tons per million sq ft per annum

Materials

Diverted 400 Tons of construction waste from landfill every year



### Green building movement in India- the growing numbers:

1,857 Organizational Members

5,507 Registered Projects

7 Billion sq.ft. Green building footprint

5,75,728 Acres of Large developments

4,084 IGBC Accredited Professionals

### Cities adopting IGBC Green City Standard

Dholera city, Gujarat (Delhi Mumbai Industrial Corridor) : Platinum  
 AURIC city, Maharashtra (DMIC) : Gold  
 Sri City, A.P : Gold  
 New Town Kolkata, West Bengal : Gold  
 Kedarnath Redevelopment, Uttarakhand : Platinum  
 Mahindra Industries Park Chennai Ltd, Tamil Nadu : Platinum  
 Mahindra Industries Park Chennai Limited, Gujarat : Gold  
 Amaravati, A.P : Platinum  
 Gujarat International Finance Tech-City, Gujarat (under certification process)  
 Bhopal Smart City ABD (Area Based Development)  
 Rajkot Smart City ABD (Area Based Development)  
 Visakhapatnam City  
 Panchkula City  
 and 50+ Large Township projects, covering an approximate large development of 1,60,000 Hectares.



# IGBC spearheading 21st century green building movement, since 2001: Facilitating Indian cities turn greener and healthier

Indian Green Building Council (IGBC) part of CII with the support of Government, Developers, Builders and all other stakeholders has enabled India to have over 5,700 IGBC green building projects, amounting to over 7.9 billion sq ft of the registered green building footprint. This, in turn, has enabled India to become one of the Top 3 Countries in the World in terms of largest registered green building footprint, with various types of projects spread across the country.

IGBC aspires to facilitate 10 billion sq ft of green building footprint by 2022 (when India turns 75). This can be achieved only with the continued support, guidance and involvement of various national and international stakeholders.

## Green buildings to green built-environment

Over the years, IGBC has been focusing on the greening of various forms of the built environment including - cities, townships, villages, schools, railway stations, hospitals, etc.

All the 25 rating systems of IGBC are designed to address national priorities and are facilitating in meeting UNs 2030 SDGs.

## Facilitating greening of cities

IGBC has launched two exclusive rating systems to green the upcoming and existing cities, which is evoking an excellent response. As on date, 13 cities (9 new and 4 existing) have been registered under these two rating systems. Some of the IGBC registered cities include Dholera; Sri City; New Town-Kolkata; Bhopal city; Rajkot; Visakhapatnam; Panchkula; Mahindra Industrial Park; GIFT City; Shendra-Bidkin.

## Partnership with Government

IGBC is partnering with the government in facilitating its

various path-breaking initiatives like Smart Cities Mission, AMRUT Cities, PMAY, Swachh Bharat Mission. Policy incentives in terms of higher FAR and faster environmental clearance from various government departments are auguring well for the spread of green building projects, across the country.



## Green Building Congress

The annual flagship event of IGBC - Green Building Congress 2019 was a grand success.

Green Building Congress 2019 held on September 25-28 at Hyderabad had the honour of H.E. Dr Tamilisai Soundararajan, Governor of Telangana inaugurated the three-day annual event.

The annual event focussed on topics including green homes; green schools; health and well-being; net-zero buildings; green and smart cities; green affordable housing; commercial buildings; construction technologies; green products and technologies; green hotels; sustainable mobility.

## IGBC Accredited Professionals (APs)

Qualified Accredited Professionals (APs) have an important role in facilitating and handholding the project team



meet and reach its desired IGBC rating levels. As on date, India has over 4,285 IGBC APs who can facilitate various types of projects. In days to come, India would need manifold professionals to address the growing needs of project teams.

## The way forward

As IGBC ushers in a new decade, green building movement looks very inspiring and promising. The year 2020 gains all the more significance, as CII celebrates its 125th year and IGBC celebrates its 20th year of establishment.

These two historic occasions will further drive and accelerate the 21st century green building movement and further shape up the global green building initiatives. Global initiatives like Advancing Net Zero, Better Places for People will receive increased thrust and focus in India, which in turn will facilitate a greener and healthier tomorrow.

What began as one green building project in 2001 - IGBC's Headquarters, became a national movement and today this movement belongs to all of us. We all should build on the green momentum which we have collectively generated and take the movement to the next and higher level and year 2020 will be our springboard is re-defining the contours of the 21st century green building movement.

Rating System	IGBC Score card:2019						
	Till 2018		Current Year-2019		Till Date		
	Projects	Built-up Area(Million sq ft)	Target	Projects	Built-up Area(Million sq ft)	Projects	Built-up Area(Million sq ft)
IGBC Green Homes	1863	1744.09	200	198	176.66	2061	1920.75
IGBC Green New Buildings	434	358.78	150	150	64.63	584	423.41
IGBC Green Factory Buildings	318	151.74	100	49	17.65	367	169.39
IGBC Green Existing Buildings	139	44.93	100	35	16.79	174	61.72
IGBC Green Healthcare Facilities	27	9.53	50	5	0.65	32	10.18
IGBC Green Data Centre	4	3.04	10	2	0.58	6	3.63
IGBC Green Interiors	63	8.71	30	42	1.74	105	10.44
IGBC Green Schools	102	14.2	50	19	1.68	121	15.88
IGBC Green Residential Societies	54	20.31	30	12	1.67	66	21.98
IGBC Green Campus	29	75.28	15	24	15.14	53	90.42
IGBC Green Townships	48	1438.29	5	0		48	1438.29
IGBC Green New Cities	8	1143.86	5	1	9.59	9	1153.44
IGBC Green Existing Cities	2	860.93	10	2	26.53	4	887.46
IGBC Green New MRTS	392	48.35	80	82	7.62	474	55.97
IGBC Green Existing MRTS	41	4.41	50	0		41	4.41
IGBC Green Landscape	16	0	4	2		18	0
IGBC Green Villages	24	0	20	0		24	0
IGBC Green Place of Worship	8	0.8	5	1	0.18	9	0.98
IGBC Green SEZ	7	66.03	1	0		7	66.03
IGBC Green Railway Stations	17	7.78	15	12	1.48	29	9.26
IGBC Green Affordable Housing	23	13.42	20	28	16.74	51	30.16
IGBC Health-and- Well being Rating	2	0.07	10	3	1.23	5	1.3
IGBC Net Zero Rating	5	0.06	25	2	0.4	7	0.46
IGBC Green Resorts	2	0.03	10	4	0.92	6	1.22
IGBC Green Hill Habitat	0	0	5	1	1.02	1	1.02
New Construction	640	198.55				640	198.55
Core and Shell	614	470.02				614	470.02
USGBC Projects	167	44.36				167	44.36
<b>Total</b>	<b>5049</b>	<b>6727.84</b>	<b>1000</b>	<b>674</b>	<b>362.89</b>	<b>5723</b>	<b>7090.73</b>

<b>Total Site Area of IGBC Registered Projects (Large Developments Only)</b>	576884 acres
<b>Total No.of Dwelling Units/Flats under IGBC Green Homes/GRS/Affordable Housing Rating</b>	13,64,931

Latest IGBC registered project statistics: 5,723 projects equivalent to 7,091 million sq ft (7.09 billion sq ft)

IGBC Certified Projects		
S.no.	Rating System	No.of Projects
1	IGBC Green Homes	256
2	IGBC Green New Buildings	124
3	IGBC Green Factory Buildings	156
4	IGBC Green Existing Buildings	102
5	IGBC Green Healthcare Facilities	6
6	IGBC Green Data Centre	2
7	IGBC Green Interiors	79
8	IGBC Green Schools	69
9	IGBC Green Residential Societies	



# DELHI HYDERABAD NEW YORK LONDON

have all chosen our smart  
C&D Waste Recycling solutions.

Upto 95% waste recycled for  
construction applications

Non-polluting, eco-friendly technology

Wet processing, Zero dust emission

Recycling of water, zero liquid discharge

Smart City Ready (IoT enabled)

Portable plant for in-situ recycling

Globally we are processing 45000 tonnes  
of C&D waste. Every single day.

Save your city. #JoinTheRevolution



Watch Film



For demonstration, please contact  
Email: [info@cdeasia.com](mailto:info@cdeasia.com) | Toll Free: 1-800-120-3800  
Website: [cdeasia.com](http://cdeasia.com)







## Keith Walking Floor India Private Limited

Pioneers in providing automatic unloading solutions for various materials across industries

Invented by Keith Manufacturing USA  
Used and loved in **80+ countries**



Automatically unloads materials up to **90 m<sup>3</sup>** in less than **5 mins**

## KEITH WALKING FLOOR® Technology

Revolutionized unloading technology for moving bulk cargo **NOW in India**  
(Being used at BMC, India)



Efficient



Profitable



Faster



Safer



### Unloads various materials across Industries

Aggregates, Asphalt, Bagged goods, Biomass, Blue metal, Bulk cargo, Coal, Cotton, Crushed stones, Fly Ash, Hazardous Waste, Metals, Mineral ore, Pallets, Sludge, Sugar, Wheat, Waste, Recyclables, Wood products, and other agricultural products

### Contact

+91 - 63799 03230 / 044 4852 6805  
solutions@keithwalkingfloor.in  
www.keithwalkingfloor.in



**Indian Presence**  
Chennai, Mumbai, Gurgaon





# India takes a leap by standing 63rd globally in 'Ease of Doing Business'

India has recently moved to 63rd rank globally in 'Ease of Doing Business' according to World Bank's EDB index. The ranking is done on 10 parameters out of which India fared well in 6 parameters including starting a business, dealing with construction permits, trading across borders, resolving insolvency, paying taxes and getting electricity. The cities where the survey was carried out in order to record the performance were Mumbai and Delhi.

It's good news in a slowed-down economy but the survey has not essentially captured the national scenario.

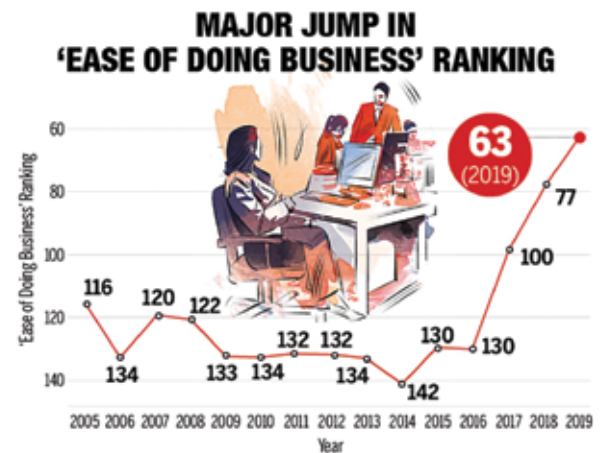
On the parameter of 'Getting credit', India has a relatively high rank of 25, but the fact that the banking and financial sector are having an enormous number of non-performing assets as well as facing contagion risks highlight a need for better allocation of resources nationwide. India has also shifted to 22nd rank under a parameter of 'getting electricity' which would have been possible through recent schemes such as Ujjwala to universalise access to power.

Under the four parameters of enforcing contracts, registering property, starting a business and paying taxes the rank remains similar to the previous rank in EDB. In enforcing contracts, India stands at 163 among 190 countries which imply that time and cost delays in commercial disputes. The long judicial process also creates a barrier in the ease of doing business. The high stamp duty rates create a hindrance in registering property and India stands at 154th globally. The country has moved to 136th ranking in starting a new business by waiving off filing fees and has shifted to the online application form.

India has risen to 115th in paying taxes due to the Goods and Service Tax reform but the average time taken for filing taxed in lower-middle-income economies like India is higher.

The country has also risen to 27th rank in dealing with construction permits with the recent reforms in the budget to boost infrastructure.

The ease of doing business is important and plays a key role in improving a country's economy. Business



cannot flourish in their own capacity but need a favourable economic environment globally as well as nationally.

## AURIC pacing towards becoming the centre of India's Industrial Revolution

Inaugurated on September 7, 2019, by Prime Minister Narendra Modi, AURIC city (Aurangabad Industrial City) has set the benchmark for the other industrial cities that are to be developed in the country. Narendra Modi in his speech called out the strategic importance of the project by stating that "AURIC is already becoming a new smart city but will also become the centre of our country's industrial activity. It is also an important part of the Delhi Mumbai Industrial Corridor. Several big companies have already started production and in the near future many more companies will follow. This will generate employment opportunities for lakhs of young people."

Spread over an area of 0,000 acres, AURIC is India's first well-planned, Greenfield and Smart Industrial Cities. The strategic location of AURIC city in Shendra - Bidkin area of Aurangabad, allows it to be well connected to the major cities via air, rail and roadway. Due to its close proximity to Aurangabad International Airport and Jawaharlal Nehru Port Trust's (JNPT) dry port and container terminal at Jalna, the city is a profit hub for industries seeking investment in exports. The city is developed as a Transit Oriented City, with 60% of total land reserved for Industrial purpose and 40% for residential, commercial, institutional and socio-cultural amenities. In the 60% land reserved, 20% of the Land is reserved for MSMEs to enable them to set up industries. These city plans have the potential to create 3,00,000 jobs in the next 15 years.

### E-governance and Integrated Command Control Centre:

The city is well managed under the Aurangabad Industrial Township Limited (AITL), the special purpose vehicle between Maharashtra Industrial Development Corporation (MIDC) and Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) for AURIC. It brings all matters such as land allotment, lease documents, water supply etc. are under its purview thereby enabling ease of doing business. The Key AITL staff is set to operate and manage the city operations from AURIC Hall.

The AURIC Command and Control Centre (ACC) will enable the city to carry out city operations in an intelligent, integrated and efficient manner. All city infrastructure and systems are integrated at ACC and the same are visualised over a central GIS-based platform (AURIC map view) for real-time monitoring and control. It also provides

an integrated, holistic and bird's eye view of all city operations on a video wall. ACC entails that all departments of the city will operate and manage the operations on a day-to-day basis to enable collaborative decision making. The Smart City Platform forms an essential part of the ACC as it is an advanced tool for the city operators for city operations analysis and optimisation. It is capable of functions such as threat detections in the city, emergency alarms, events, news and notifications, etc. Through the central contact centre solution at the ACC, citizens will be able to connect with ACC operators via different mediums including SMS, email, telephone, mobile application and social media for emergencies and other requirements.

ACC would enable to carry out advanced operations like Integrated monitoring of control of SCADA systems for water and power, geo-tagged monitoring of grievances and complaints filed by users. Real-time location monitoring of emergency vehicles such as ambulances, police vehicles and fire fighting vehicles for proactive response in case of emergencies will be available. Along with it, real-time streaming analytics on tweets and social media posts, blogs and other citizen engaging applications for refined citizen engagement and sensing of citizen environment will be done.

All systems use GIS as a base layer to ensure a truly integrated and collaborative tool for city operations and management.

### Green City:

Going by the name, often industrial cities are imagined to be good centres of commerce but are causes for an increase in the carbon footprint thus being poor in environmental management. In case of AURIC, it is truly an industrial city as the Environmental Impact Assessment clearance for it has already been obtained, with AURIC Hall receiving Gold Certification from Indian Green Building Council (IGBC). The city is set to recycle its waste and chemical generation through Common Effluent Treatment Plant (CETP) and Sewerage Treatment Plant (STP) of international standards with SCADA controls. The recycling of waste and chemicals generated in the city, the city has adopted a grass-root level approach whereby all utilities such as water and recycled water supply, electricity, optic fibre, CETP, STP etc. are provided to the doorstep through 'Plug and Play' features. These utilities are provided through and underground trunk infrastructure.

### E-Land Management:

In order to provide an impetus to the city's growth, ease of doing business was facilitated through an online land management system. It consists of a simple and efficient process for land management by which AITL staff is able to review, validate and approve prospect land applications. This enhances the operational efficiency of AITL officials for the purposes of the review process of land management. The ICT enabled e-Land Management System (e-LMS) allows both investors and AITL for tracking and monitoring the entire process of land allotment, building plan permits and other associated activities, whereby ensuring minimal in-person interventions.

It features the Single Window Clearance service that allows tracking all land-related activities both pre and post-application, it is an Integrated Online Payment gateway for seamless transactions and provides a complete history of a particular property at one place through an e-Property Card.

### Chatbox:

In order to cater to the needs and queries of investors, businesses, citizens in a 'smart' way, Chatbot is introduced. It will provide the inputs for the questions or queries raised by citizens, businesses or potential investors in the form of text. Customers shall be able to interact with AITL through different channels. It could be either through the existing social media accounts (Facebook, Twitter, etc.) or through the AURIC website and portals launched by AITL. The Chatbox will categorise inputs received and incidents registered under the following categories, thereby Chatbot layer enhancing the working of the city:

- Transaction issues
- General Queries
- Complaints/ grievances
- Feedback for any AURIC services
- Incidents related to the filing of applications and/or document submission

In order to execute the vision of AURIC, state-of-the-art smart technology is being used with a focus on infrastructure that is clean, reusable, recyclable and industrial growth will be encouraged in targeted areas to build upon the industrial success of the region.





# MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

Transforming Mumbai and its Metropolitan Region into a world class habitat

## Infrastructure Projects in MMR



BKC-EEH Connector

### Metro Corridors

	Kms	No. of Stations
Line 1 - Versova-Ghatkopar	11.4	12
Line 2A - Dahisar-DN Nagar	18.6	17
Line 2B - DN Nagar-Mandale	23.6	20
Line 3 - Colaba-SEEPZ	33.5	27
Line 4 - Wadala-Kasarwadavali	32.3	30
Line 4A - Kasarwadavali-Gaimukh	2.7	2
Line 5 - Thane-Bhiwandi-Kalyan	24.9	17
Line 6 - Swami Samarth Nagar-Vikhroli	14.5	13
Line 7 - Andheri (E)-Dahisar (E)	16.5	13
Line 8 - Airport Metro (CSIA-NMIA)	35	11
Line 9 - Dahisar (E)-Mira-Bhayander & Andheri (E)-CSIA	13.5	10
Line 10 - Gaimukh-Shivaji Chowk (Mira Road)	11.2	4
Line 11 - Wadala-CSMT	14	10
Line 12 - Kalyan-Taloja	25	17
Line 13 - Shivaji Chowk (Mira Road)-Virar	23	8
Line 14 - Kanjurmarg-Badlapur	45	15
<b>TOTAL LENGTH</b>	<b>337</b>	<b>225</b>

### Facilities at all Metro Stations

- ★ The Energy efficient elevators, escalators, LED fittings with use of Solar energy
- ★ Elevators for differently abled commuters-braille's buttons at lifts
- ★ Elevators with special features like Automatic Rescue Device and Emergency operations
- ★ Public information displays, signage, clocks, drinking water
- ★ Stations will have glass facades and ceiling with aesthetic look
- ★ Fire detectors and suppressors will be available
- ★ Synchronized Platform Screen Doors to avoid crowd pushing
- ★ CCTV surveillance with cameras, Intrusion detection, unattended object detection

### Mega Infrastructure Projects

- ★ **Ropeway:** 7.2-km-long Ropeway from Mahavir Nagar via Pagoda- to Gorai Village will act as a feeder system to Metro Line 2A by covering the areas of Essel World, Gorai, Manori, Malad etc.
- ★ **Kalyan Ring Road:** The 30.30-Km-Long road passing through 26 villages from Mangaon (Dombivali) to Titwala (Kalyan) will ease traffic flow in these two congested cities. 1
- ★ **Coastal Road:** 35-km-long extended road from Marve (Malad) via Bhayandar to Ghodbandar Road (Thane), that will provide much relief to lakhs of commuters daily.
- ★ **Surya Water Supply Scheme:** This project to supply 403 MLD water to several cities and villages of MMR including Mira-Bhayander Municipal Corporation (MBMC) and Vasai Virar City Municipal Corporation.
- ★ **Mumbai Trans-Harbour Link:** The 22-km-long and 6-lane bridge- the longest sea bridge of the country- will provide faster and shorter connectivity to Mumbai to Navi Mumbai.
- ★ **Virar-Alibaug Multi-Modal Corridor:** This 129-km-long will promote growth centers of Vasai, Kharbav, Nilje, Taloja, Shedung, Khopta and connect major Roads, Highways, ports and airport.
- ★ **Sewri-Worli Connector:** 4.30-km-long connector will help dispersal of traffic from MTHL, besides ROBs across Harbour railway and Mumbai Port Trust will ease the flow of traffic.
- ★ **Grand Memorial of Late Dr. Babasaheb Ambedkar:** Gigantic 450-feet-high (including pedestal) statue of Bharat Ratna Dr. Late Babasaheb Ambedkar coming in the heart of the city.
- ★ **Late Balasaheb Thackeray Memorial:** Present 100-year-old Mayor's bungalow to be restored a national memorial with it's original heritage value.
- ★ **Suspension Pedestrians Bridge:** 500-meter-long world's largest suspension pedestrians bridge will connect City park to Mahim Nature Park, giving passerby Scenic look of the city and its landscape.

### Metro Bhavan



The 140-meter tall Bhavan will consist of a state-of-the-art OCC with features of Green Building. The 27-storey Center will operate and control 14 Metro Lines, a network of 337 km. Will be constructed on the 20,387 square meter plot. Buildable area for the Bhavan is 90,047 square meters, of which 24,293 square meters are spared for Operation Control Center. Construction period is 36 months.



# Rajasthan launches three new industrial policies

Chief Minister Ashok Gahlot launched three schemes for the state of Rajasthan with the aim of creating inclusive, balanced and strong industrial development atmosphere to make Rajasthan a favourable investment destination.

Along with launching Rajasthan Industrial Development Policy, Rajasthan Investment Promotion Scheme, Chief Minister Small Scale Industries Promotion Scheme, the existing scheme named, Rajasthan Investment Promotion Scheme (RIPS) 2019 has also been worked on and is further simplified and made easy. According to the amendments made in the Rajasthan Investment Promotion Scheme (RIPS) 2019, eligible industrialists have been provided 100% rebate on electricity tax and stamp duty and along with it, investment subsidy has been increased from 30% to 75% of SGST.

Chief Minister said that they are working on resolving issues related to pollution faced by industrialists in the state, adding “subsidy up to ₹50 lakh will be given on behalf of RIICO on setting up CETP. Earlier, this subsidy

was of ₹25 lakh. New industrial areas will be developed through RIICO in 11 districts.” In order to make policies beneficial and to attract investors, the Government of Rajasthan has announced an investment subsidy of 75% of state tax for seven years, employment generation subsidy in the form of reimbursement of 50% towards employees EPF and ESI for seven years, 100% exemption on electricity duty, land tax mandi fees and stamp duty for seven years.

The policy has also identified 11 sectors as thrust areas like agro-processing, biotechnology, dairy, defence, DMIC, electric vehicle, food processing sector, auto-component, electronic system design manufacturing, textiles, handicrafts, chemical and petrochemical, pharmaceutical, leather and accessories, jewellery, mineral, and medical device manufacturing etc. The Chief Minister also awarded 42 industrialists under various categories with Rajasthan Udyog Ratna and Rajasthan export awards.



## Retail loans expected to double in next five years: ICICI-CRISIL Report

According to a recent study conducted in collaboration by private sector lender ICICI Bank and rating agency Crisil, it is estimated that retail loan book of financiers in India will double to ₹96 trillion by March 2024, in comparison to ₹48 trillion in March 2019.

Anup Bagchi, Executive Director, ICICI said, “We believe that this rapid growth will take place in the next five years on the back of increased demand for private consumption and the willingness, especially from the youth to take loans. Also, we are witnessing the trend of urbanisation and nuclearisation, which we believe will drive the demand.” The study report is a work culminated from assessing interviews with 200 experts from the retail loans industry, ICICI Bank’s deep understanding of the consumer finance category, Crisil’s proprietary economic projection models, publicly available company disclosures, annual reports and industry data from RBI among others.

He continued that there are various factors that have

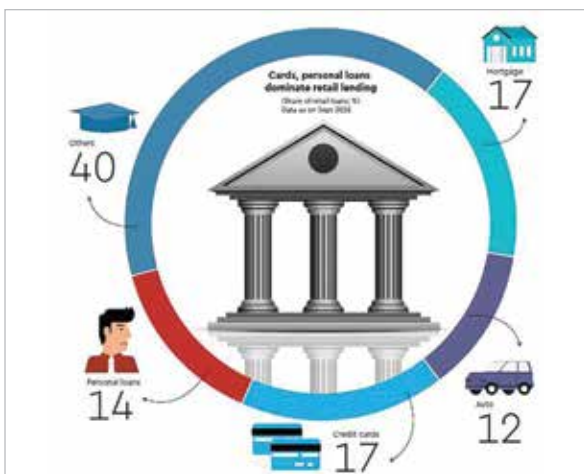
contributed to this growth. It includes the regulatory and legislative measures adopted by the government that have propelled growth in low-cost housing loans. Bagchi also said, “Besides, the initiatives like GST has resulted in MSMEs availing more funding and thus the loans to this sector have also gone up.” According to the report, an upcoming hike in loan demand is observed. As per Amish Mehta, Crisil COO and President, the expectation of the doubling of retail loans is also based on the expectation of the GDP estimated to grow to 6.5% - 7%.

The report suggests that banks will dominate the market, accounting for 77% of total digital lending along with new private banks that are expected to gain market share from their public sector peers. It also noted that mortgage loans market, normal and low-cost housing and loan against property is expected to double to ₹46.1 trillion in FY24. Further, unsecured loans - personal loans and credit cards are expected to more than double to ₹13.8 trillion in FY24 while the credits to MSMEs are likely to more than double to ₹13.2 trillion. Also, vehicles commercial vehicle, two and four wheeler loans are tipped to nearly double to ₹17.5 trillion.

Bagchi said that in the wake of rising loans, the availability of large data from traditional and non-traditional sources is helping financiers leverage technology and data analytics which has allowed lenders to lend with confidence.

According to the report, the other key drivers include enhancing focus on digitisation of ownership of land records and providing access to the same to financial institutions with requisite consent, greater thrust on digital payments and developing industry-wide standards on key aspects such as innovation hub and environment, data security, customer privacy, consumer protection and loan pricing.

Based on the key drivers aforementioned, the report forecasted that digital lending will increase to ₹15 trillion by the Financial Year 2024 which is estimated at ₹2.7 trillion as of March 2019, representing 16% of retail lending.



# Tripura to set up its first Special Economic Zone

Tripura will soon have its first Special Economic Zone that will help in boosting economy and employment for the state. The SEZ will be developed by Tripura Industrial Development Corporation Ltd. It is being built at Paschim Jalefa, Sabroom, South Tripura District, which is 130 km away from Agartala. It will be a Sector-Specific Economic Zone for Agro-Based Food Processing.

With an investment of about ₹1550 crore, the creation of SEZ will generate the need for 12,000 skilled employees. Rubber-based industries, textile and apparel industries, bamboo and agri-food processing industries will be set-up in the SEZ.

The creation of SEZ will promote private investments and open up new options because of its proximity to the Chittagong Port and construction of the bridge across Feni River in South Tripura which is underway.

After it is set up, 100% income tax exemption will be provided on export income for SEZ units under Section 10AA of the Income Tax Act for the first five years. Also, 50% exemption will be provided for the next five years and 50% of the ploughed back export profit for another five years.

## Sri City set to get Panasonic manufacturing unit

Sri City Industrial Park in Chittoor District of Andhra Pradesh will soon receive a new wiring device factory, this is a result of the Panasonic Corporation’s plans to expand its manufacturing base.

As the GDP forecast suggests, the Indian economy will expand, along with the growth of not only big cities but also medium cities. It is estimated that the GDP will experience a growth of 6% per year by 2030.

In this view, the proposed factory at Sri City will produce wiring devices, electrical wire and switchgear with an investment of ₹2,946 million. The factory, to come up is of 1,33,546 square meters (35,000 square meters total floor area) in the industrial park. It will be Panasonic’s fourth electrical equipment production base in the country and is expected to get started with its production in October 2021.

In addition, as India stands second in the world in its population count, followed by China is the first, it is projected to see a substantial population increase, particularly of the middle class. Under these circumstances, demand for electrical equipment materials such as switches, sockets and switch gears is increasing and will rise more. To cater to this need, investments such as these will prove beneficial to the economy.







## LIGHTING SOLUTIONS FOR EVERY INDUSTRY.

SYSKA LED OFFERS OVER 600 LIGHTING PRODUCTS.

Syska LED now offers comprehensive illumination solutions for any space or environment. From highly efficient Street Lights and Flood Lights for outdoor applications, superior quality Highbays and Battens for Industrial use, and even the exceptional decorative panels for commercial applications, you will find we have over 600 illumination products and 40 patents. For your project requirements, our products are also now upgradable to Smart Features, wherein you can control & monitor the LED Luminaires with our APP or your PC. So if you have any LED illumination or SMART lighting requirements, we are here to give you the solution for any application.



Up to 70% Savings • Operating Voltage (90 - 300 Volts) • Non-toxic, no lead or mercury • Lasts up to 50,000 hours • Upgradable to Smart Features

Corporate Office: Syska House, Plot No. - 89/90/91, Survey No. - 232/1/2, Off VIP Airport Road, Lane No. - 4, Sakore Nagar, Lohegaon, Pune - 411 014.  
Toll Free: 1800 102 8787 | Tel.: +91 20 4013 1000 | Extn. No.: 205 / 206 / 209 / 213 | Email: projects@sskgroup.in

Visit us at: Municipalika - Stall No. D-400, Palace Grounds, Bengaluru | November 28-30, 2019





# India's National Capital Region connected by RRTS with world-class rapid trains

Urbanisation is a global phenomenon and India is no exception to this population shift, primarily due to the evident disparity in rural-urban opportunities. The growing aspirations of the country's citizens force around 25-30 people to migrate every minute from rural areas to cities in search of better opportunities.

The national census in 2011 counted 139 million people as domestic migrants in the country between 2001-2011. The future is no less challenging for India, with the national economic survey of 2017-18 predicting that about 40% of India's population will be living in cities by 2030. The influx of domestic migrants is predominantly to Indian megacities like New Delhi, Mumbai, Bengaluru and Hyderabad, primarily because they are the sectoral hubs driving the economy's meteoric growth. This trend of domestic migration, particularly in Delhi, has led to uncontrolled urban sprawl, posing serious challenges for infrastructure, environment and citizen's quality of life, constraining economic growth.

The National Capital Region (NCR) of India encompasses several districts adjoining New Delhi in the state of Haryana, Uttar Pradesh and Rajasthan, with New Delhi at its centre. NCR is one of the largest urban agglomerations in the world, formed in 1985 in line with the internationally adopted approach of regional planning to decongest New Delhi by enabling holistic development of the region. The lack of planning and uncontrolled urbanisation in NCR in general and Delhi in particular, has resulted in serious issues of over-stressed civic amenities, severe congestion, a high number of road accidents and hazardous pollution levels.

Plans for transport arteries that create enhanced regional mobility serving the aspirations of NCR have become critically important for sustainable development. To address existing issues and meet organically growing demand, as well as the mobility requirements of the future, to unlock the NCR's economic development potential, the need to develop Regional Rapid Transit System (RRTS) was identified. The National Capital Region Planning Board, a statutory body under the Government of India, in its Functional Plan on Transport for NCR - 2032 identifies eight corridors for constructing high-speed RRTS in the NCR by 2032. Out of these, three corridors were strategically prioritised for implementation in Phase 1. The responsibility of designing, developing, RRTS has been assigned to the National Capital Region Transport Corporation (NCRTC), a joint venture with the Indian government and the state governments of



Delhi, Haryana, Rajasthan and Uttar Pradesh.

The RRTS will connect cities, towns and urban centres across the region, largely serving the needs of daily commuters travelling within the larger urban agglomeration. RRTS is a high-speed, high-frequency rail-based system with a design speed of 180 kmph and an average speed of 100 kmph. Once operational, the RRTS will be NCR's fastest, most comfortable, most reliable and safest mode of transport.

RRTS is the first of its kind project in India. The priority corridors of Delhi-Ghaziabad-Meerut, Delhi-Panipat and Delhi-Gurugram-SNB-Alwar will not only converge at Delhi's Sarai Kale Khan but will also be interoperable. Equipped with state-of-the-art technology, best-in-class command and control systems, level two ETCS signalling, and ballast less tracks, the RRTS will not only revolutionise public transport in the region but will set a benchmark for similar future projects in India.

RRTS corridor to be implemented by the NCRTC. The foundation stone is laid by the Prime Minister on March 8, 2019. Civil construction work of the first 17 km corridor is

already in progress, slated to be commissioned by March 2023. The full corridor is set to be operational by 2025.

In New India, a sound mobility infrastructure network will define the transformation of cities in a more planned, equitable and sustainable manner, which is also the Prime Minister's vision of 'New India'.

RRTS is equipped with the capacity to move 70,000-80,000 passengers per hour per direction. With minimal footprint on the land, it will act as the transport backbone of the NCR. It will result in substantial time savings by cutting the current travel time for a 100 km journey of around three to four hours by about a third on its route. Around two million daily commuters are likely to benefit from the operations of Phase 1 corridors. The high-speed regional rapid transit system will bring people closer to opportunities, construction of Phase 1 corridors alone is expected to create around 21,000 direct jobs.

An easy, safe and faster commute by RRTS would improve access to healthcare, education and economic opportunities, leading to improved quality of life and delivering progress through speed.

# Punjab transforming the face of transport and travel in its cities

The Punjab government has partnered with the World Economic Forum (WEF) to design a public-private pilot project on shared, clean and electric mobility. The state, which is also formulating its own Electric Vehicle (EV) policy to support the adoption of e-vehicles, has been chosen for the pilot project by the WEF as it is well-positioned for the shared EV transition.

According to Vini Mahajan, state Additional Chief Secretary, Investment Promotion, the pilot project will

examine how public and private sectors can interplay to offer the most robust and successful EV ecosystem, as a part of the collaboration to be formulated at the WEF annual meeting in Davos on January 2020. The study will form a blueprint for EV implementation across cities and countries worldwide. This initiative, undertaken by the state government, is a step forward to combat the growing problem of environmental pollution, a way to transform the state's transport system

into a cleaner one.

The state has already prohibited new registrations of diesel and petrol on three-wheeler vehicles in Ludhiana, Jalandhar, Amritsar, Mohali and Fatehgarh Sahib districts. The state has encouraged the construction of EV battery units in the new industrial park located over 380 acres in Dhanansu village in Ludhiana district.

Punjab is also set to get India's first auto shredding plant, with the capacity to handle two lakh cars per annum in an eight-hour shift. The plant has been set up in technical collaboration with German technology.

The two-day progressive Punjab Investors Summit in Mohali town is set to see key discussions on automobile and e-mobility with participation from prominent dignitaries and research institutions. Delegates from Volvo Group, Virgin Hyperloop One, Mahindra Electric, Hero Electric, SML Isuzu, Hella India Lighting Ltd, among others, will be part of the session to outline the opportunities that prevail in the state to be well placed in the global value chain in e-mobility.

Punjab is already well placed as an auto and auto ancillary manufacturing destination, with leading players present in the state access to large consumer markets and the state-of-the-art infrastructure. Many other auto components such as automobile engine parts, steering system parts, braking components and gear lever are being manufactured and even being supplied to majors like BMW, Ford, Honda, Nissan, Maruti Suzuki, Tata Motors and Mahindra and Mahindra.





# Amritsar moving towards e-mobility

Amritsar is one of India's largest tourist attractions, being the home of Harmandir Sahib (also commonly known as the Golden Temple). It is a major spiritual and cultural centre for Sikh religion and other people from all over the world. Additionally, the city with over a million residents is also a major trading and commercial centre for the Majha region of Punjab. Apart from the Golden Temple, Wagah Border and other historic places attract tourists throughout the year. In 2016, the city had more than 2.5 crore tourist visitors.

Under the Smart City Mission, many cities in Punjab are moving towards e-mobility, Amritsar is one of the cities. The transition from fuel operated vehicles to electric vehicles will have many benefits. It will help improve the city's air quality. It will provide a more viable employment for those engaged in public transportation services. The use and experience of e-mobility by millions of tourists will enable citizens travelling from India and all over the world to understand the benefits of e-vehicle adoption. This will further improve the city's profile, as it attracts more visitors due to upgraded quality of transport and ease of travel. Keeping in mind the demand of e-vehicles, a number of charging locations and public charging infrastructure points are proposed in the city to serve the required needs.

The e-mobility programme aligns well with the Smart City Mission goals, as it envisages and focusses on investing in the city's critical areas of traffic and transportation. Moreover, the program will significantly contribute to balancing the environmental changes and quality-of-life in the city, which are also the outcomes envisioned under the Smart City Mission. This further supports its vision to emerge as a world-class destination of religious, historical and cultural importance.

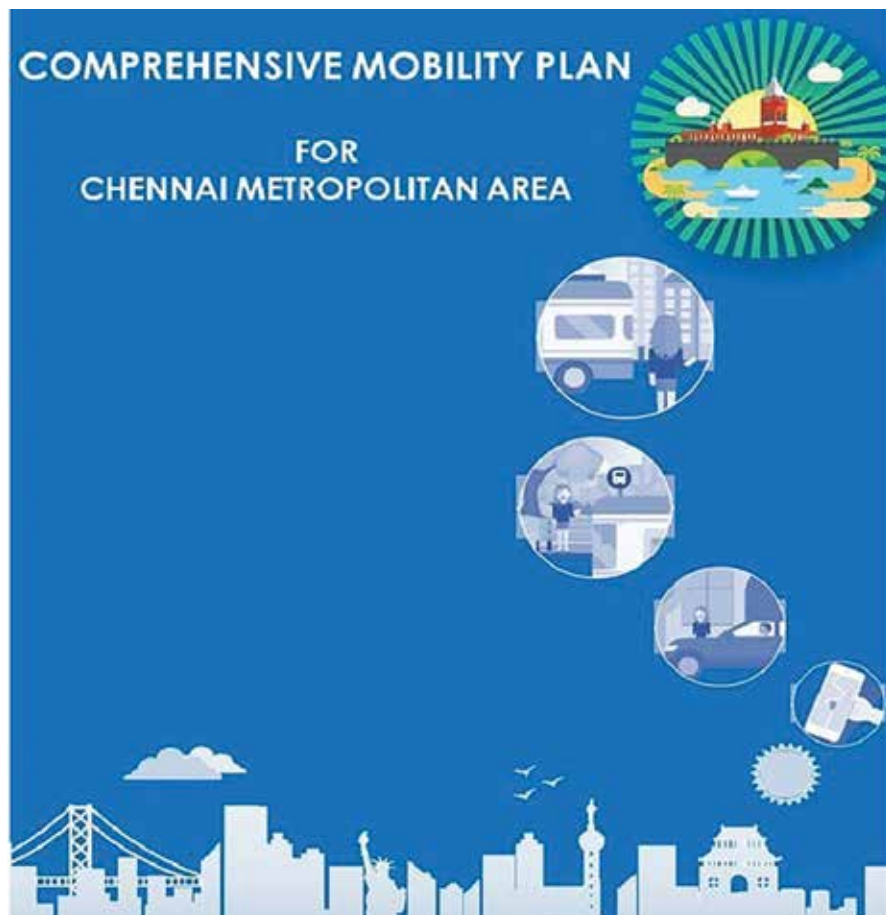


Department of Heavy Industries (DHI), Government of India is implementing a scheme named Faster Adoption of manufacturing of Hybrid & Electric Vehicles (FAME) to promote the electric mobility in India and simultaneously reduce dependence on fossil fuels. The scheme aims to improve comprehensive air quality and promote a multi-modal public transportation system through shared electric mobility in cities having a population above 1 million as per the 2011 census. For the same, the rapid adoption of electric mobility such as electric buses, electric 4-wheelers, electric 3-wheelers and creating public e-vehicle charging infrastructure in target cities is the goal.

## Chennai's Mobility Plan nears completion

As per Chennai Metro Rail, the comprehensive urban mobility plan (CMP), prepared with the help of the Urban Mass Transit Company for Chennai Metropolitan Area (CMA), is expected to be completed in another six months, according to sources. Officials also said the Urban Mass Transit Company, engaged by Chennai Metro Rail, has already submitted an inception report and traffic survey report.

A comprehensive mobility plan (CMP) of any city presents a strategy for short,



medium and long-term investments to improve accessibility and mobility for its residents. The CMP is a key document that justifies and supports transport proposals of the city to the Central Government and multilateral funding agencies. It presents a long-term vision of desirable mobility patterns for both; people and goods in a city and provides strategy and policy measures to achieve this vision. A CMP should follow the National Urban Transport Policy (NUTP), which emphasises the importance of pedestrian facilities, non-motorised transport measures and public transport systems, including buses and sustainable mass rapid transit systems. It is an essential document as it outlines the scope of work for the appointed consultants for the preparation of a city's comprehensive mobility plan to be put in action.

The decision to have a new comprehensive urban mobility plan is essential as the city has changed a lot and the factors considered while as per the previous study are now outdated. As per the previous Chennai Comprehensive Transportation Study (CCTS) that was unveiled in August 2010, focused on mobility needs of car users where it provided solutions and allocation of the majority of resources to 'solving' vehicle congestion.

The new study has to address the requirement of public transport and also the infrastructure required for all modes and to integrate both land use and transport systems. The new CMP is expected to be updated by incorporating the expanded corporation limits as per 2011 population census and recent infrastructure or development proposals. It is a much-needed study as now, the Union Government is in the process of drafting an act for the creation of a Unified Metropolitan Transport Authorities (UMTAs) in many cities, which will be a single-body governing transport system.

Interestingly, the new bill focusses on having a comprehensive mobility plan (CMP) which would also bring the far-flung areas of the city under UMTA's scope, especially when Chennai Metropolitan Area is being expanded by 7,700 sq km due to encompassing the whole of Chennai, Tiruvallur and Kancheepuram districts and the Arakkonam taluka in Vellore district.

Since land-use planning influences travel patterns, the CMP will scrutinise the land-use patterns from the perspective of developing urban transport. It is comprehended that the Urban Mass Transit Company's study will include four stages - preparation of inception report, interim report, draft comprehensive mobility plan and final comprehensive mobility plan.

The move to have a new comprehensive urban mobility plan comes in the wake of the Tamil Nadu State Government planning to improve upon the outdated Chennai Comprehensive Transportation Study (CCTS) that was unveiled in August 2010. In contrast to the earlier study, the need of the hour now suggests the actions to be taken to address the need of 'mobility for all' needed for effective and sustainable urban development in the new CMP.

## Delhi to have electric vehicles after the recent approval of EV policy by the Cabinet

Delhi cabinet has given a green light to the Electric Vehicle Policy 2019 in order to curb pollution. Chief Minister Arvind Kejriwal estimates that Delhi will experience the registration of 5 lakh electric vehicles. It will result in saving 6,000 crore on fuel expenditure.

The policy is being brought in to ensure that 25% of the new vehicles that are being registered by 2024 are electric vehicles. With Delhi being branded as the pollution capital of the country, the electric vehicle policy is a welcome change to combat unhealthy air. 40% of particulate matter is being caused by the gasses emitted by the vehicles which need to be regulated. The compulsion of BVI vehicles will also help in reducing the toxic gases which are increasing the risks to respiratory problems.

The aim of the policy is to make Delhi the electric vehicle capital of India. EV Policy includes conversion of commercial ICE vehicles into electric, E-bike taxi etc. as they are the key drivers to take the e-mobility momentum forward. The additional

incentive offered by the government to the buyers of the vehicles is that it provided subsidies to those opting for electric vehicles.





Manufacturer of **GAZEBO & PERGOLA**



# Poly Fibre<sup>®</sup> World

**Display Store:** 405, Opposite Metro Pillar No. P-120,  
Mehrauli- Gurgaon Road, Ghitorni, New Delhi

✉ polyfibreworld@kfplindia.com, info@kfplindia.com

🌐 www.polyfibreworld.com ☎ +91-8750049951, 9717814961



GAZEBO

Best Product for Smart City



BEAUTIFYING LANDSCAPE  
& TERRACE GARDEN  
WITH OUR PRODUCTS



PERGOLA

20 Designs, Starts from 50,000/- (8'x8'x9'H) \*

30 Sizes, Starts from 25,000/- (8'x8'x7'H) \*

10 Years of Excellence\*

10 Years of Warranty \*







Ministry of Consumer Affairs,  
Food & Public Distribution  
Government of India



# NATIONAL BUILDING CODE OF INDIA 2016

*The building code for the nation*

**ONE PUBLICATION FOR ALL ASPECTS OF BUILDING CONSTRUCTION REFLECTING MODERN TRENDS AND PRACTICES**

### Salient Features:

- Disaster resistant buildings
- Accessibility in buildings and built environment for persons with disabilities and the elderly
- Fire and life safety of buildings and occupants
- Lists around 1300 Indian Standards for quality parameters of building materials and components and their test methods
- Good and safe construction practices
- New and alternative building materials and technologies
- Solar energy utilization
- Bamboo housing
- Promotion of use of agricultural, industrial and construction & demolition waste
- Up-to-date structural design methodologies
- Prefab technology for speedier construction
- Project management for ensuring timely completion
- Habitat and other welfare requirements for workers at construction site
- Energy efficient lighting systems
- New, eco-friendly and energy efficient options of air conditioning, heating and mechanical ventilation
- Protection from electrical hazards and lightning protection of buildings
- Requirements for special buildings like high-rises, glass-facade buildings, buildings on podium, metro stations, data centres, healthcare facilities, etc
- Acoustics, sound insulation and noise control
- High speed lifts, escalators and moving walks
- Information and communication enabled buildings
- Rationalized water supply, drainage and sanitation, including for high rises
- Hygiene and safety for swimming pools
- Rain water harvesting, and recycle & reuse of waste water
- Solid waste management
- Piped gas supply in houses and hospitals
- Landscape planning, design and development
- Sustainability in buildings and built environment
- Management and maintenance of building assets and facilities
- Security of occupants and assets/facilities
- Ease of doing business in building construction permits

### The model Code is to be used by,

- Local bodies – for revamping their building bye-laws
- Government construction departments / agencies, builders and developers – in their construction activities
- Building professionals and consultants – in their profession
- Academia – for imbuing knowledge on good practices
- Common public – when building or buying their own home

Associate building professionals for compliance to NBC 2016 for creation of safe, accessible and sustainable built environment

Issued in public interest by BUREAU OF INDIAN STANDARDS



**BUREAU OF INDIAN STANDARDS**

www.bis.gov.in

a product by **magicrete**

**MAGIC POD**  
PLUG & PLAY HOMES

INTRODUCING  
**THE NEXT  
BIG SHIFT**  
IN CONSTRUCTION  
3D MODULAR TECHNOLOGY



**3<sup>rd</sup> Generation Construction Technology**

LEGO like plug and play modules cast and finished in factory and assembled on site.

Building Homes Better, Cheaper, Faster | Save finishing time upto **50%**



## Brihanmumbai Municipal Corporation working towards making Mumbai resilient by data mapping



Brihanmumbai Municipal Corporation is planning to install 5000 CCTV cameras across the city in the next three months which will capture real-time information and will identify disasters through video analytics software. This will then help in notifying the disaster management authority. This will be done via machine learning technology that will identify data patterns of the past and will help in predicting patterns of real-time data that will be captured through the CCTV cameras.

This project will be done at the state disaster control room at Mantralaya. This will require coordination between the police officers and traffic police as some cameras are being installed by the police officers.

The Disaster Management Cell was set up at the Municipal Head Office in 1999, with a specific aim of minimising loss of life and property due to any dangerous situation that might occur anywhere within the jurisdiction of the Municipal Corporation of Greater Mumbai.

## Haryana Chief Minister approves 212 schemes to protect agriculture land and avoid future flooding

Haryana Chief Minister Manohar Lal Khattar has approved as many as 212 new schemes related to agriculture costing around ₹201 crore at the 51st meeting of Haryana State Drought Relief and Flood Control Board (HSDR & FCB). Most of the schemes approved particularly focus on the protection of agriculture land, procurement of flood machinery, repair or reconstruction of bridges or structures and more, says an official statement.

All the Deputy Commissioners in the state and Superintendent Engineers (SEs) of the Irrigation Department are directed to ensure speedy implementation of the approved these schemes, with the target to complete all short-term schemes by June 30, 2020.

Among those who were present at the meeting included Keshni Anand Arora, Haryana Chief Secretary, Dhanpat Singh, Additional Chief Secretary

and Financial Commissioner, Revenue and Disaster Management and Consolidation Department and Alok Nigam, Additional Chief Secretary, Forests and Wildlife Department.

Devender Singh, Additional Chief Secretary, Irrigation and Water Resources Department, highlighted that although the Yamuna River experienced an all-time high flood this year, there was no loss of life or property marking the previous year's flood situation as normal.

Khattar said, "As floods could result in huge loss to life and property, prior arrangements should be made to avert any untoward situation." He added that in order to avoid any kind of loss during the upcoming monsoon, the HSDR & FCB is being held in the month of January, from the past two years so that all flood-related works should be completed well before time.

## National level training programme in IIT Roorkee concluded

The National Level Training Programme on 'Climate Change, Hill Area Development and Landslides Management' concluded in IIT Roorkee. The three-day programme was organised by National Institute of Disaster Management, NIDM and Centre of Excellence in Disaster Mitigation and Management, IIT-Roorkee. Participants include officials from various state Disaster Management Authorities, Research Scholars and the National Disaster Response Force (NDRF) officials.

The sessions deliberated on landslide hazard assessment, approach to evolve solutions for slope stabilisation and rockfall protection and nature-based solutions. Dr Surya Prakash, Head Geo-Meteorological Risks Management Division, NIDM stressed on the preparedness, response, mitigation and mitigation aspects of the landslides.

Dr Champati Ray from Indian Institute of Remote Sensing underscored the 5Rs for landslides disaster mitigation: Remote/direct monitoring, Removal of

excess water, Remedial measures for slope strengthening, Reinforcing the river bank and retention wall, Revegetate the slope.

The programme included a field visit to Himalayan Region on Rishikesh Devprayag road. Landslide prone areas in India are in the Himalayas, North East Hills, Western Ghats, Vindhya Plateaus, Eastern Ghats and Andaman and Nicobar island.



## Kerala looking for concrete solutions to combat flooding situation

After Kerala's devastating floods of 2018 and 2019, the state is still in process of building up itself under its Rebuild Kerala initiative, but in spite of its efforts, the state is still stranded in terms of funds. To avoid the magnitude of similar destruction in the time to come, the state of Kerala has decided to find a concrete solution to its system of flooding.

In an effort to draw up a practical strategy for water management and flood control for Kerala, the Water Resources Department is looking at innovative methods including the Chinese initiative of 'Sponge City' alongside the Dutch 'Room for River' concept and the department's own plans for flood-control dams in key river basins.

All the three above mentioned concepts was featured at a national conference on 'Policies and Strategies for Flood Management: Kerala Scenario'. The conference was planned in Thiruvananthapuram on January 23 and 24, 2020; against the backdrop of the devastating floods of 2018 and 2019. The discussions were anchored on the central theme of integrated water resources management, a key component of the Rebuild Kerala initiative.

The deliberations were held at the two-day conference and are expected to help the department draw up integrated plans, policies and strategies for improved water security and flood management. Understanding the complexity of the destruction and its ecosystem, Kerala is actively looking at multiple methods to contain floods, as the scenario here may demand a hybrid strategy combining different approaches.



China's 'Sponge City' initiative launched in 2015 envisages urban localities designed to 'soak up' rainwater and harvest it for various purposes including household use. After the floods, the Kerala government had already voiced its interest in the Netherlands's 'Room for River' concept. As per the recommendations of the Irrigation Department officials, this concept will be practical only in a few locations in the State such as Kuttanad. Both these concepts will be discussed at the conference under the theme 'Flood Management in Urban Prospect'.

Apart from just discussing the prospects, it is expected that the Irrigation Department will present its projects in detail where it had announced plans to construct a number of flood-control dams in major river basins including Periyar, Chaliyar and Chalakudy of which, five dams have been planned already. The conference will also discuss the integrated operation of reservoirs, ecosystem-based disaster risk reduction, flood early warning systems, climate change and its environmental implications, and land use control measures.



# Cityrene - a Chennai based startup's ready-to-use solar-powered homes produce water from air

Cityrene is a Chennai-based sustainable construction startup founded in 2016, by Dilipan Bose and A Niveethitha. The devastating natural calamity of floods in Kerala and Chennai's groundwater depletion urged Dilipan to start researching alternative construction technologies, to explore how sustainable practices in the construction process would be beneficial for home dwellers in the long run. Dilipan became sure that he wanted to design and construct sustainable and resilient homes. After reaching out to Niveethitha and convinced by his vision, the duo joined forces with him and established Cityrene in 2016.

## Models and Features of Cityrene homes

Homes built by Cityrene offer two models to potential clients. The first model is for a 'Basic Economic Home,' where the house is built using eco-friendly technology and comes with features like wastewater recycling, rainwater harvesting and an organic terrace garden. This construction cost of this model is about ₹1700/sq ft.

The second model is for a 'Self-sustainable home,' which includes a solar set up for electricity, a device named 'Water from Air' which generates drinking water from the air, and a bio-digester for wastewater recycling. "The bio-digester is buried underground and is an effective replacement for conventional septic tanks and STPs. It uses live bacteria to recycle wastewater instead of chemicals and electricity, is eco-friendly and also maintenance-free," said Dilipan. All the features of a basic economic home are also included in this model

and they charge about INR 2000/sq ft to construct it. In case there is a need to install additional solar panels, the cost goes higher.

Cityrene uses modern building materials and technology in their building processes like the GFRG and Autoclaved Aerated Concrete (AAC) blocks. AAC blocks are made using fly ash, a by-product in the industrial sector, which makes it eco-friendly and compared to the conventional red bricks, they are much lighter. AAC blocks are also more durable and easy to manage, which helps in hastening the construction process.

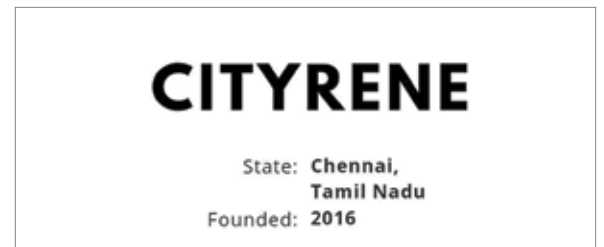
Cityrene also sets up organic terrace gardens for the homeowners so that they can eat the food they grow, informed Dilipan.

"We are collaborating with companies in the sustainability space that manufacture devices for the conservation of natural resources like water. For example, we work with Geok Energy for the installation of bio-digesters and with Airowater for the atmospheric water generator," stated Dilipan.

## Challenges

In the past two years, the startup has faced several challenges during its operations. The two biggest hurdles were transporting and storing raw materials. The team is still working around this challenge and looking for ways they can more efficiently transport the building materials.

"The other challenge that we face is the scepticism that exists among prospective clients about these modern technologies. However, once they get acquainted



with the long term benefits and the feasibility aspects, it doesn't take too long to convince them," said Dilipan.

## Impacts of Cityrene Sustainable Housing

Despite the challenges, a 1000 sq ft home built by Cityrene can save up to 5 lakh litres of water per year merely by harvesting rainwater and recycling the wastewater from the house.

The work done by Cityrene has been validated by various organisations like the Founder Institute based in California which awarded them with the 'Founder X Award,' declaring them as the best startup in India in 2017. They have also received a certificate of recognition by the Department of Industrial Policy and Promotion.

Dilipan expresses his future wish and vision by saying, "I want to build a self-sustaining township of 100 villas. The township will be completely solar-powered, practise rainwater harvesting and have wastewater recycling units. Government power and water supply will only be backup options. Imagine if we do this. Wouldn't it be a great example for builders across the country?"

## Emerging technologies being used for affordable housing

The Building Material and Technology Promotion Council (BMTPC) has identified, evaluated and certified a number of new construction systems for mass housing which facilitate faster delivery of quality, sustainable and safe houses. The field application of these materials and technology is updating the criterion of achieving affordable housing. The factors that make affordable housing include cost-effectiveness with quality materials, area limit, project timeline and most importantly the beneficiaries.

In order to test that the newer materials and technology suffice the above needs for building affordable housing, BMTPC has undertaken the field level application of

these under the Pradhan Mantri Awas Yojana (Urban) - Housing for All Mission. The model demonstration housing projects using the emerging technologies are being executed in the states of Andhra Pradesh, Odisha, Telangana, Bihar and Uttar Pradesh. The objective is to spread awareness about the new technologies and disseminate their technical know-how in the above-mentioned states under PMAY Mission. The execution of these projects will facilitate in extending the use of the new emerging systems across the nation.

The Glass Fibre Reinforced Gypsum (GFRG) System Panel is made of industrial waste gypsum system, with no need for plastering. It consumes less embodied

energy and has a minimum carbon footprint. The panels manufactured are versatile in nature, meaning they can be used as floors, roofs and staircase. The light-weight quality of the material ensures safety during disaster events, also enabling as speedy construction.

The above technology is an in-place formwork system known as 'Coffer' to build load-bearing monolithic concrete wall structures based on shear wall concept. The system is efficient for building good quality monolithic earthquake resistant structure. The other advantages being speedy construction, no need for skilled labour and no use of heavy machinery to execute the project.



Demonstration Housing Project using Glass Fibre Reinforced Gypsum Panel System at Nellore, Andhra Pradesh



Demonstration Housing Project using Coffer Structural Stay in Place Formwork System at Biharsharif, Bihar



Demonstration Housing Project using Coffer Structural Stay in Place Formwork System (16 houses) and Light Gauge Steel Frame System (16 houses) at Gachibowli, Hyderabad, Telangana

## Magic pod: Building homes in a better, cheaper and faster way

Having been a key proponent of modern methods of construction in India, Magicrete, over the last decade has revolutionised the way walls are built with its flagship product MagicBlox. Magicrete with an aim to further transform the construction process in the country is proud to introduce the 3rd generation building construction technology - MagicPod.

MagicPod is a 3D Modular construction technology wherein building structure to be made is modularised into parts called Pods, which are manufactured and finished in a factory. These fully finished pods are then shipped to the site and assembled. MagicPod is designed with the aspects of speedy

installation, modular architecture, stringent quality control, structural stability and efficient use of resources.

Siddharth Sharma, President, Magicrete Precast stated, "Construction in India has been struggling in terms of increasing labour productivity. The need of the hour is to 'industrialise' construction by adopting a manufacturing and assembly approach."

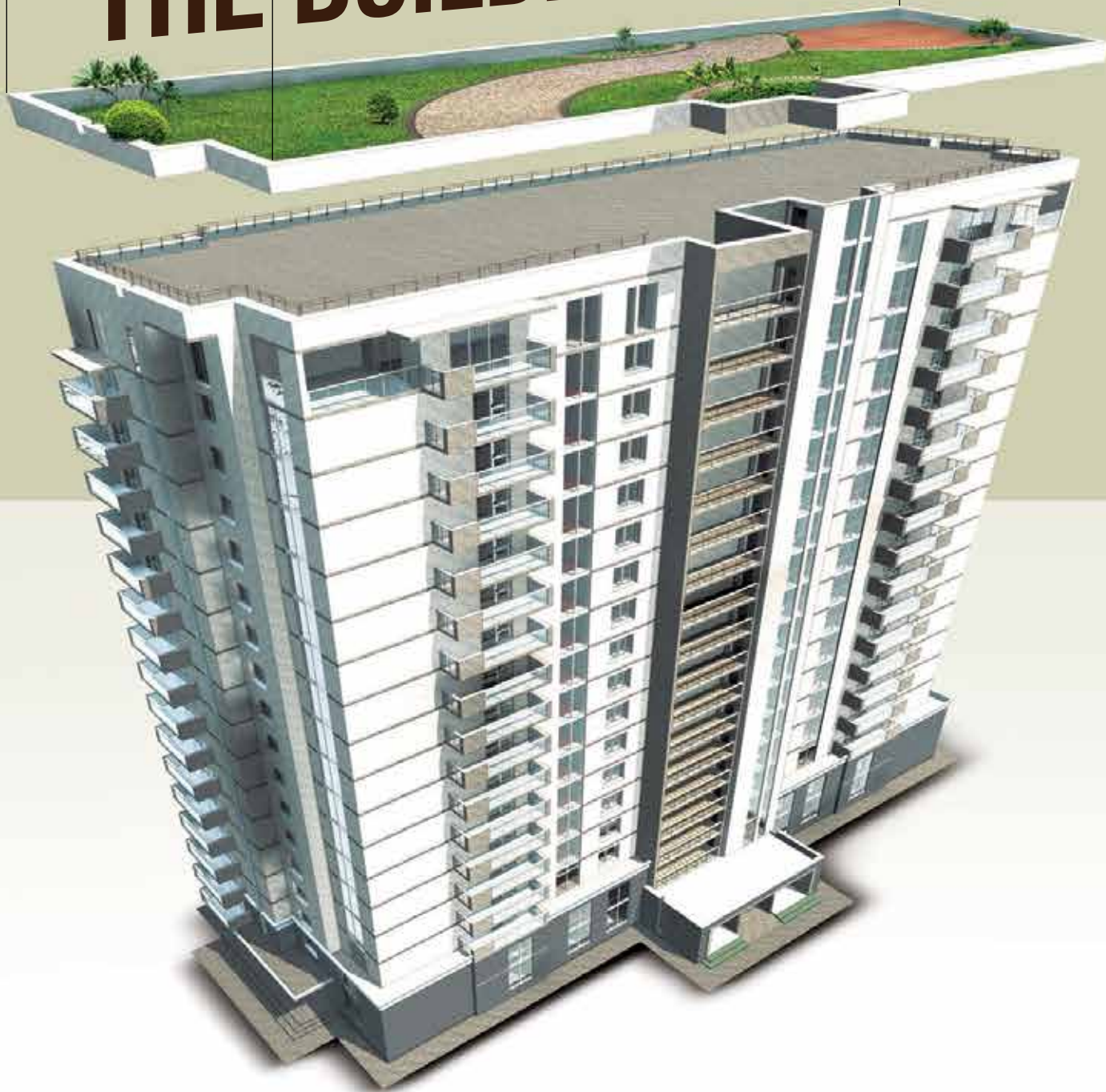
The Ministry of Housing and Urban Affairs recently organised the Global Housing Technology Challenge with the objective of speeding up home construction in the country. Magicrete has won the challenge with its bid for the Lighthouse Project,

under which it will deliver 1000 homes in Ranchi over next 12 months using its MagicPod technology.





# ROOFTOP GARDEN? IT'LL TAKE A REAL EXPERT TO KEEP THE BUILDING DRY.



O&M 4816

## **DR. FIXIT'S SOLUTION FOR COMPLEX WATERPROOFING.**

However complex your waterproofing needs, Dr. Fixit has the answers. Whether it's for a terrace garden, rooftop pool, or a deep basement, top builders like Lodha and DLF trust Dr. Fixit's expertise in making their buildings truly future-proof.

- Decades of expertise across all sectors
- Warranty up to 25 years for special systems\*

You can count on Dr. Fixit's waterproofing expertise right from design stage onwards by writing to **CEO.DrFixit@pidilite.com**

\*For more information please contact team Pidilite





# Signature Global: 'Making India Affordable again'

Signature Global is a 21st century real estate and infrastructure development company that emphasizes on creating values of reliability, responsibility and global standards. Established in 2011, with offices in Delhi, Gurugram, Ghaziabad and Karnal. It has been working relentlessly over last five years to create its own distinct identity in the field of real estate, especially in the domain of affordable housing. The company has outlined its vision for 'India of tomorrow', with a mission of 'Making India Affordable' and 'Harparivarekghar' (A home for every family).

Signature Global is a customer-centric organisation and the management believes in strong business ethics. In the last five years, the company has successfully launched 19 affordable housing projects, all in prime localities of Gurugram, Sohna and Karnal in Haryana, each residential project is complemented with one branded retail hub christened as Signum and have also launched a commercial mall in Vaishali, Ghaziabad, Uttar Pradesh christened as Signature Global Mall, focusing on the interests of customers. Signature Global works with a team of experienced architects, master planners and designers who are among the best in the industry. It has partnered with several leading financial institutions like HDFC Capital, ICICI Pru, KKRetc and takes pride in growing its reach to customers by seeking direct online applications. Signature Global is an active IGBC Member & ISO 9001:2015; 14001:2015 & 45001:2018 Certified Company.

The company is fully committed to timely delivery and the construction of all projects is going on in full swing. As per the norms of Haryana Affordable Housing Policy, the project delivery time line is 48 months. However, the company is far ahead of this timeline and is striving to deliver its projects within 36-42 months from the time of project conceptualization. And to ensure that, innovative technologies are being deployed to achieve speed, quality and efficiency of construction as the company strongly believes in customer-oriented development. And one



such innovative technology used for mass construction is 'Aluminum Form work' - a fast paced construction technique which offers strength and durability to building.

With an aim to become a key player to fulfill government's mission of "Housing for all by 2022", Signature Global has already launched 16,583 units under Haryana Affordable Housing Scheme & Deen-Dayal Jan AwasYojna. Signature Global is also aiming to launch 1,00,000 units by 2022 to support Prime Minister's Vision of 'Housing for All'. This financial year, the company is targeting to launch 20,000 units; 9000 units in Sohna, South of Gurugram, under DeenDayal Jan AwasYojna, 9000 units

in various locations of Gurugram under Haryana affordable housing policy & 2000 units approx. in Raj Nagar Extension, Ghaziabad under Pradhan Mantri AwasYojna.

It had also achieved the distinction of delivering the first project in Haryana under the Affordable Housing Policy of the state - a 1000 unit Project - Solera, Sector 107, Dwarka expressway, Gurugram. on October 2018 & its second project - a 820 unit Project - Synera, Sector 81, NH8 in November 2019.

The company has set the delivery target of 3181 units more under Haryana Affordable Housing policy in Gurugram this year making a total delivery of 5001 units by year 2020.

*Your own home isn't a place but a feeling.  
Created with hopes and dreams, not just bricks and beams.*

*Where late night laughter can freely echo within its halls,  
and children's unbound imagination adorn the walls.*

*Where the answers to peace of mind lie,  
and questions about lease or rent do not arise.*

*It's a feeling that welcomes you each time with open doors,  
and lets in the sweet smell of your success through its windows.*



## APNA GHAR, TOH APNA HI HOTA HAI!

INDIA'S NO. 1, AFFORDABLE HOUSING COMPANY\*



SIGNATURE GLOBAL, GROUND FLOOR, TOWER A, SIGNATURE TOWER, SOUTH CITY -1, GURUGRAM, HARYANA-122001 | WWW.SIGNATUREGLOBAL.IN



7053-121-121

Promoter urges every applicant to inspect the project site and shall not merely rely upon or to be influenced by any architectural impression, plan or sales brochure and therefore requested to make personal judgment prior to submitting an application for allotment. The images shown here are indicative of design and for illustration purposes only. Further the actual design may vary in fit and finished from the one displayed above. Project details / specifications can also be accessed at the office of Haryana Real Estate Regulatory Authority website <https://haryanareg.gov.in/>. Journey time shown, if any is based upon google maps which may vary as per traffic at relevant point of time. T & C Apply. 1 Sq. mt = 10.7639 sq. ft. \*Signature Global is developing the highest number of projects amongst private developers under any government approved policies for affordable houses. Here the term 'company' includes the group companies, subsidiary companies, associate companies etc.





# IoT, BIM and Data Analytics to advance India's construction sector with new cutting edge technologies

The volume of construction output globally is predicted to grow by 85% to \$15.5 trillion by the end of this decade. According to a PWC report, it is expected that India will be at the forefront of this growth along with China and the U.S. and will drive the segment by accounting for 57% of the overall growth.

With the constant increase and rapid urbanisation, the construction space is now looking at cutting edge technology solutions such as robotics, cloud and artificial intelligence among others. Already, a number of start-ups and legacy companies have entered the space to leverage the imminent growth.

Tracecost, a Delhi-based startup has developed a cloud-based project management automation suite for the construction industry in India. The company uses a mobile application for efficiency in work allocation, team collaboration on projects and monitor team performances.

Prabh Paul, Co-founder and CEO, Tracecost said, "Tracecost uses technology to predict the outcomes of projects using data you already have, such as the planned start and end date of various phases of the project (and, if you have them, estimates about any backlogs) to learn the completion rate of the team and predict the likelihood of delivering on time. Estimates are always

uncertain, so you can put in upper and lower bounds for how long tasks will take (or the software can model it). You also need to put in some information on the source of risks. We believe in not blaming the last person holding the problem, but figuring out what is going wrong."

Robotics, the Internet of Things (IoT), data analytics, geospatial technologies and telematics are being hugely adopted by the construction equipment manufacturers today to develop NEXT-Gen machines to provide better facilities and achieve quality and quick construction. The Building Information Modelling (BIM) is seeing an effective use of technology to develop accurate and detailed 3D structural models which help a better visualisation of a project. They allow one to resolve the minutest details in the building ranging all the technical solutions from the structural design, to architectural and the services in a building. These are influential in checking the constructability of a building without actually spending the amount of money needed to build it in real. It effectively reduces time to build, errors and wastage are minimised, thereby reducing the risk of a project going off-budget or off-schedule.

The Indian construction industry is still being an unregulated, unorganised and fragmented sector, most of these applications are seen to be involved in the

working of large scale projects.

Chetan Singh, Principal Designer, Founder and CEO, ArchChat, points out that along with the above-mentioned conditions of the sector, another cause for low technology adoption in the Indian construction industry is the unwillingness to use paid tools. "It's because a large number of Indian companies are still family-driven. But, as the size and scale of operations grow due to the fast-changing economic paradigm, it would be imperative for companies to adopt new technologies that help them secure a competitive edge over their counterparts," he said.



## White topping of roads in metro cities to combat problems caused due to heavy rains

White topping is defined as a Portland cement concrete overlay constructed on the existing bituminous pavement. It involves overlaying PCC as rehabilitation or structural strengthening alternative on the bituminous pavement. The PCC overlay may or may not be bonded to the layer below. Rutting of bituminous pavement is a real problem in a hot climate like India, with heavy truckloads, operating under frequent start/stop conditions. It is commonly applied where rutting of bituminous pavement is a recurring problem. Concrete overlays offer the potential for extended service life, increased structural and functional capacity, reduced maintenance requirements, and lower life-cycle costs when compared with bituminous overlay alternative. Conventional white topping and thin white topping (TWT) with 15-20 years of design life offer immense potential as a rehabilitation strategy for Indian roads. Several successful projects have been executed at Pune, Mumbai, Delhi, Nagpur, Jaipur and Bangalore in the last few years.

Mumbai city has adopted concreting of its roads

in a phased manner over the past 20 years because of the damages that are caused due to heavy rains every year. As a result, out of the 1941 km of roads maintained by the Municipal Corporation of Greater Mumbai (MCGM), there are 507 km of concrete roads. Both thin white topping and ultra-thin white topping have been adopted. The technique has been adopted on existing pavements having a minimum thickness of 75 mm of bituminous layers. Milling of the bituminous surface has been done to create a good bond. A fast-track construction has been used with a concrete developing one-day flexural strength of 4 MPa. To achieve a good quality concrete of this strength, admixture like silica fume, super plasticisers, synthetic fibres and low water/cement ratio have been used.

In Bengaluru city, the stretch selected was 30 m wide and 350 m long stretch of the Hosur Road. The bituminous pavement layers overlaid on the road were 100-175 mm thick. The traffic was 1000 commercial vehicles per day. In order to obtain a good bond

between the concrete overlay and the bituminous layers, the bitumen surface was milled and roughened. The concrete overlay was 150 mm thick using M-45 grade concrete.

Pune city, Pimpri-Chinchwad region, Thane city are a few other examples of where white topping technology has been used effectively in the past 10 years. The white topping technology has emerged to be a very cost-effective and maintenance-free rehabilitation alternative for structurally sound bituminous pavements which can be converted to the concrete pavement without any excavation or disturbing the existing bituminous pavement crust. White topping technology provides a highly economical rigid, durable, maintenance-free specially pothole-free and high resistant surface against braking action. The technology has received general acceptance and has proved ideal for urban roads as it has provided solutions to the urban roads which suffer heavy damage mainly in the form of potholes due to poor subsurface drain, low embankment and also frequent braking action.

## A mega quantum technology mission is in the offing

It is significant to satellites, military and cybersecurity as it promises fast computing and safe, unhackable communication

India is set to enter the hotly pursued domain of quantum technologies in a big way with a new National Mission on Quantum Technologies, according to a senior official of the Department of Science and Technology.

This area is significant to satellites, military and cybersecurity among others as it promises unimaginably fast computing and safe, unhackable satellite communication to its users.

Worldwide, governments, information technology giants and scientists have made this their thrust area and have invested big money and efforts into it, said K R Murali Mohan, Head of DST's Interdisciplinary Cyber-Physical Systems, New Delhi, in a recorded speech at an international scientific gathering at the Raman Research Institute.

Quantum technologies, he said, are strategically important and the inter-ministerial mission would involve 'sensitive' departments. China, the U.S. and a few European countries are in the lead and India wants to join the scene in an era of highly damaging cyber attacks.

"The Government of India is also very much committed to developing these technologies. It is contemplating a National Mission on Quantum Technologies [by providing] huge investments through DST," he said, inviting Indian scientists to provide insights to a detailed project report that is being prepared.

About 18 months back, the government initiated serious discussions in quantum technologies and kick-started research projects across 51 organisations under QUEST - Quantum Enabled Science and Technology.

### 'Not just research'

Dr Murali Mohan said, "The NMQT will be a bigger mission than that with huge investments and widespread applications. We are in the stage of developing a DPR and [issuing] a memo on expenditure, finance and funding." QT, he said, would not be just about research but aim to translate it into products and useful technologies.

The six-day meeting on 'Quantum frontiers and fundamentals' was hosted by the RRI's Quantum lab, whose head Urbasi Sinha is leading high-end work in quantum communication.

One of the world's leading QT exponents, Jian-Wei Pan of

the University of Science and Technology of China, told this newspaper that companies such as Google, Microsoft, Intel and IBM are intensely working on a 'quantum computer' that can crunch big data with ease: such a computer can crack 300-digit problems in seconds - while it would take today's computers several thousand years to figure it out.

Other possibilities, he said, are precise time, position and magnetic field that will allow us to navigate without the GPS one day. "In future, this emerging area of QT can change information science as also our lives," beyond what we can imagine now, he said.





# IN A FIRE, SMOKE KILLS.

FIRE SAFETY | GIVE OCCUPANTS A FIGHTING CHANCE

EXTRACT SMOKE TO SAVE LIVES.  
DON'T TAKE RISKS. TAKE RESPONSIBILITY

# SE

CONTROLS

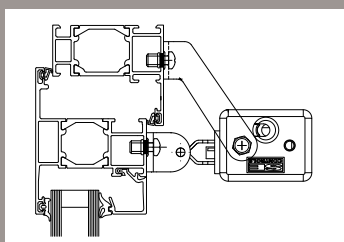
## Smoke Ventilation is an integral part of a building's design for fire safety, without it you compromise the life safety of occupants.

The most common cause of death for fire-related fatalities is being overcome by gas or smoke.

For over 35 years, SE Controls has been developing innovative control systems that automatically open vents in a fire to facilitate the extraction of smoke, keeping escape routes clear for the fire service to enter the building and allowing occupants to escape safely.

SE Controls is the trusted global expert in fire safety, façade engineering and product manufacture, providing bespoke project specific smoke ventilation and control solutions by partnering with our clients from early stages of the project to system installation, commissioning and testing.

Contact us today for technical tailor made solutions for your façade ventilation needs, as every building is different.



MADE IN  
BRITAIN



Nikhil Parasuraman +91-9940664360

nikhil.parasuraman@secontrols.com

www.secontrols.com

find us on:   

Creating a  
healthier  
& safer  
environment





# POTHOLE FREE ROADS FOR 20 YEARS IN JUST 2 WEEKS



**TAR ROAD**

**WHITE  
TOPPING ROAD**

Presenting UltraTech White Topping, a smarter, efficient and durable solution for urban roads. A concrete overlay that transforms pothole ridden tar roads in just 2 weeks. White Topping roads will make your everyday commute safer, smoother and faster for the next 20 years.



**2 WEEKS  
BUILD TIME**



**LONG LIFE  
20+ YEAR**



**LOW  
MAINTENANCE**



**UltraTech  
CONCRETE**

*The Engineer's Choice*

**INDIA'S NO.1 RMC**