SMART URBAN GOVERNANCE AND SOLUTIONS

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Coverage

- Vision ,Branding, Governance Challenge and Driving Forces
- On line innovations
- Smart Planning,Services and e-governance
- Case Studies-Bhubaneswar,Ahmedabad,Bengaluru,Rajkot
- Roadmap

Vision for Smart City/Solutions

Smart solutions that reduce pollution and improve quality of life, hassle free services such as water supply, power supply, collection of solid waste etc. through data and citizen participation, confidence building, resource recovery and upkeep of municipal assets

Branding of a Smart City

- Administrative Capital

- Commercial Capital

- Cultural Capital

- Tourist City

- Education/Health City

- Pilgrimage / Heritage City

- Service Centre to Rural hinterland

- Any other city to develop itself on above parameters

Governance Challenges for developing smart cities

- Master Plans: Either absent or outdated
- Weak Municipalities-funds functions and functionaries
- Institutional multiplicity: Who owns the city?
- Weak economy and normative base of infrastructure
- Haphazard housing/ slums and illegal land subdivision
- Integration of Smart City with Regional Plan

Driving Forces

◦ Global focus on urbanisation and economic development

◦ UNSDGs, Habitat III, Indian Commitment on UNSDG

◦ Govt of India Missions and state sector schemes

◦ Public awareness, media ,court and civil society focus on services

◦ Empowerment of ULBs-the political, fiscal and functional aspects

◦ New Normal to reorient post COVID governance and Economy

Main Features of Smart Urban Governance

○ Time, space collapse and real time linkages

○ Efficiency and equity in urban services in a decentralized manner

○ Involves all the three roles of ULBs - Regulatory, O&M and Development

○ T-enabled advanced manufacturing, delivery of services,

○ Connectivity to physical and virtual flows of goods, services and knowledge

○ Efficient last mile connectivity with environmental safeguards

Online Regulatory Role

◦ GIS mapping of city and use of GPS

◦ Certificates from Womb to Tomb (birth to death)

◦ Certificates on EODB (ease of doing business)

◦ Building permissions linked to online system

◦ Other licenses – hoardings, vending, parking etc.
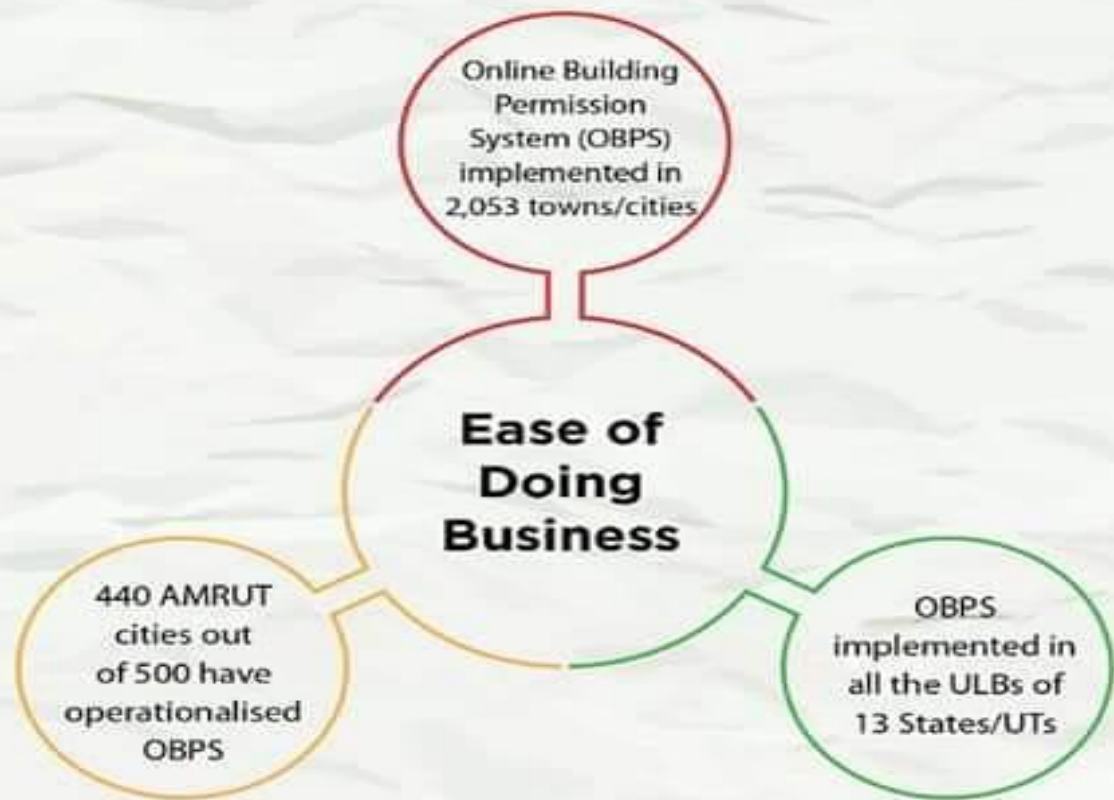
◦ Mutation of buildings/houses

Online Operations and Maintenance

◦ Revenue collections/enhancement and service efficiency

◦ Paperless office work (Hyderabad)

◦ Metering, Billing and Collection -on line system(ULBs and Para-municipals)

◦ GPS tracking of fleet (ULBs/Para-statals/Municipals)

◦ Attendance (biometric) and communication in WhatsApp and Teams etc.

◦ Grievance redressal mechanism and feedback

Online Projects/Investments Promotion

◦ Have Integrated control and command centre for services

◦ Smart cities and SPVs (Ahmedabad etc.)

◦ CPM/PERT (Event and Activity) Management for Projects

   (Critical Path Method and and Project Management and Review Technique)

◦ Minimise time and cost overruns

◦ Organise financial and services data for rating

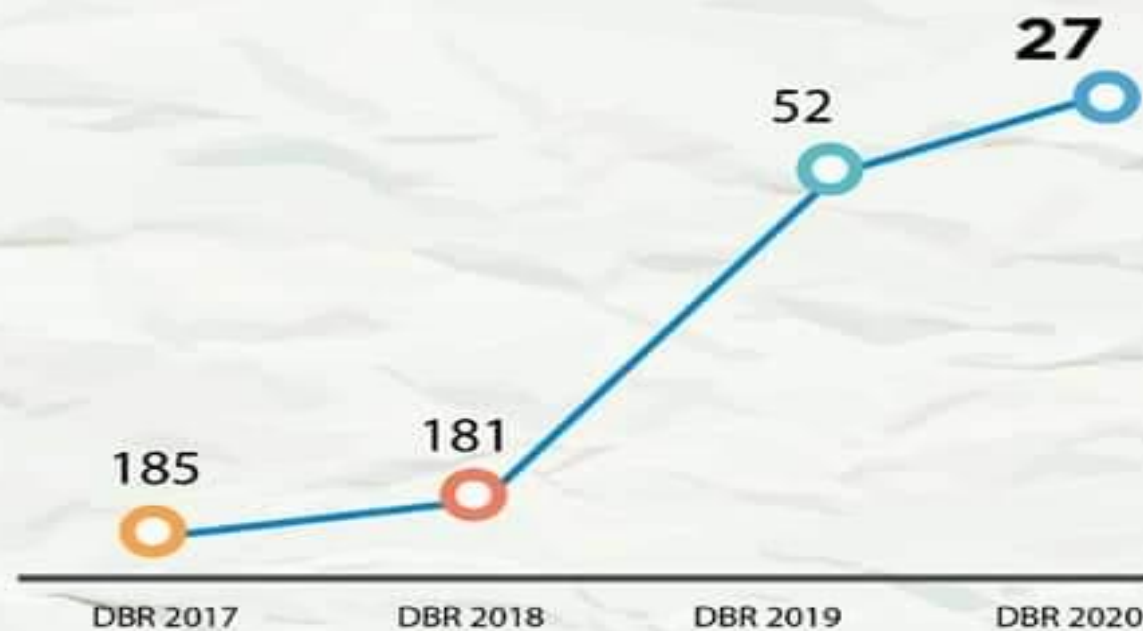◦ Investors confidence/Quid pro quo-Raise revenue and loans

EASE OF DOING BUSINESS THROUGH SEAMLESS INTEGRATION

Online Building Permission System (OBPS) implemented in 2,053 towns/cities

Ease of Doing Business

440 AMRUT cities out of 500 have operationalised OBPS

OBPS implemented in all the ULBs of 13 States/UTs

Ease of Doing Business Construction Permits

(Source: World Bank Doing Business Report)

Global Rank

27

52

181

185

DBR 2017   DBR 2018   DBR 2019   DBR 2020

Smart Planning:
As per UDPFI Guidelines of GoI

- Strategic Densification: TOD (Transit Oriented Development)

- Mixed Land Use: Live, Work, Play

- Segment Plans: Drainage /Mobility Plan; WATSAN, Housing, Business,…

- Regional Framework: City + Peri-areas

- Preserve & Nurture Natural & Cultural Heritage

- Inclusive planning: City for one & all

- Recycle all Waste: Zero land-fill

- Use Geospatial Technology

Storm Water Drainage Standards Target: Zero flooding

- Comprehensive drainage mapping: GIS
- Legal back up: Notify under Master Plan
- Storm water should nurture water bodies
- Also, aquifers(underground water sources)
- Sewage should not flow into SWD system
- Make SWD System as part of City's Beauty

Smart Sewage Management Standards
Target: 100% Recycle & Reuse

- Decentralised STPs: 1-2 MLD (Rs. 2-3 cr)

- No trunk line required=> No major digging

- Land for STP: ¼ acre

- Can be set up in Locality Parks: No LAQ

- Recycled water can be used locally- Horticulture, Construction, Industry: Gives money

- Easy to set up/ Manage/ Supervise

- (E.g.: Jaipur, Delhi -NBCC-New Moti Bagh Cubbon Park-Bluru)

Smart Solid Waste Management

Target: 100% Recycle & Reuse; Zero Land-fill
Decentralised units (~ 1 tonne)

○ Low Cost: Rs. 50 lakh; Set up in 3 months

○ No Dhalao=No stray animals/ Vultures

○ Easy Segregation, Daily recycling= No foul smell

○ No Transportation; No Land-fill

○ Land: ¼ Acre= At Locality level-Kormangla Bluru

○ No Leachate=No contamination of Lakes/Soil/Outside Areas

○ Easily usable Recycled materials: Manure, RDF

Smart C&D Waste Management Standards

Target: Zero Transportation; Zero Land-fill
Kidwai Nagar Redevelopment Project, Delhi (NBCC),(Also Ahmedabad)

○ 150 TPD Modular Plant: 30,000 Bricks per day

○ Land requirement: 1 acre, Add units when required

○ 100% Recycling & Reuse; Zero Land-fill

○ Buy Back Bricks @ Rs. 5 in PPP Mode

○ Relocate the plant when project is over

○ No transportation of waste/Produce thru city

○ Reduction in PM10

Smart City Transport Standards
Target: Walk to Work- Safely & Quickly

- NMT Lanes: Walking, Cycling= (Rickshaws & Tongas!)

- BRTS, Tramways, Metro Rail, Public Bicycles etc.

- Multi-storey Parking: In Markets & Residential zones

- Intelligent Tpt Mgmt (ITM):Unified Fare Tickets: Banks (Kochi Metro Model)

- Use ITM infra for mgmt of crime, disaster etc. too

- Multimodal, Multipurpose Trpt Hubs: (Also, for trucks)

- Regional /Intercity Transport Network

- Transit Oriented Development

Standards for Smart Buildings

Target: Safe, Net Zero Waste & Net Zero Energy

- Generate and save energy: : Reduce dependence on electricity(lighting & cooling)
- Sustainable design,Safe w.r.t. Fire & Earthquake
- In-house Recycle of solid & liquid waste
- LED Lighting with intelligent controls
- Zero visible parking(Optimum use of plot)
- Use ECBC (Energy Conservation Building Code)effectively

ICT Standards for Smart Cities
Target: Safe Storage, Easy Access

- Real time collection of information: Crowd sourcing

- Geo-spatial maps: Bhuvan & Q-GIS

- Internet of Things/ Persons/ Persons & Things

- Big Data Storage, on the Cloud, Retrieval & Access

- Convenient to access: thru MoPho

- Social Robotics

- Open protocol

- Data security

- Citizens' privacy

- Reduce visible presence of regulators /police

- Develop in-house capabilities too.

Standards for Financing Urban Infrastructure

- Betterment Tax

- Optimise land use & FAR- TOD

- Rationalise Tax rates

- Update Property Tax Register: GIS Maps + mutations

- Monetise land & other properties (Shops etc.)

- Sale of FSI/FAR

- Municipal Bonds, FI Loans, ECBs, User charges

- Circular Economy Sale of recycled waste

- Technology adoption /Timely repair and Replacement

Initiatives

Smart Solutions in India

- City websites (around 1500 cities and urban agencies)
- ICCCs (Integrated Command and Control Centres):80 Cities
- Management of Transport network-Road(Janmarg) and Rail(metro)
- e-Citizen service centres EoDB, Ahmedabad/hundreds of other cities
- Network of WhatsApp groups (Bengaluru etc. for SWM
- m-Governance, Stakeholder meets, Monitoring/cooperation

Bhubaneswar

KEY CHALLENGES

DIGITAL DIVIDE

36% population live in slums

MULTI-AGENCY COORDINATION

More than 10 agencies manage the City services

NO DATA STRANDARDIZATION

Unavailability and lack of consistency

CAPACITY CONSTRAINTS

Limited resources to implement

VENDOR DISCONNECT

Limited innovation & conventional material palette

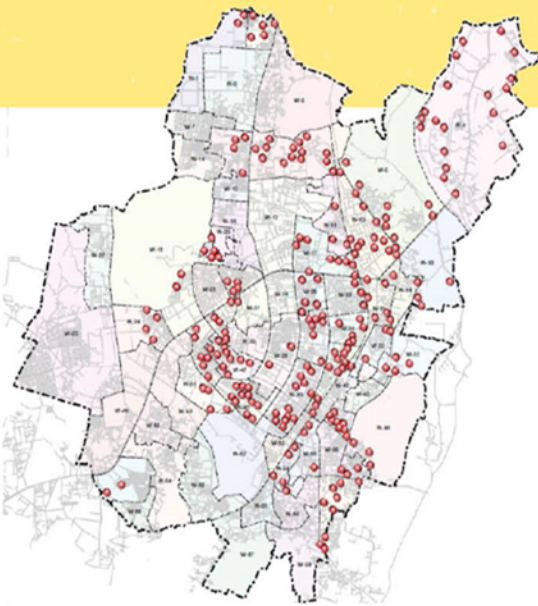# BHUBANESWAR CITIZEN'S CONNECT INITIATIVE

ENGAGEMENT STRATEGY

(Adapted IAP2's Public Participation Spectrum)

KEY AUDIENCE SEGMENT

32%
CITIZEN'S PARTICIPATED

- Elected Representatives
- Institutional Stakeholders
- City Staff

- Media Persons
- NGOs
- City Makers
- Transgenders
- Slum Dwellers

- Women
- Youth and
- Children
- Senior Citizens
- Specially-abled

OFFLINE

ONLINE

19.7lakh: Votes
1.6lakh: Suggestions
3.1lakh: Participation

Likes: **86,851**
Reach: **3.4cr**
Engagement: **11lakh**

TOOLS ▼

INFORM	Provide citizens and stakeholders with objective information.	PRINT MEDIA ELECTRONIC MEDIA LAUNCH PROGRAM - CITIZEN'S CONNECT
CONSULT	Obtain feedback from citizens on main challenges faced and discuss proposed solutions.	CONFERENCES WHATSAPP GROUPS
INVOLVE	Conduct participatory planning exercises to co-create solutions.	CONTEST DISCUSSIONS
COLLABORATE	Partner with individuals, formal and informal groups to generate ownership in implementation.	SMART CITY LABS CHAMPIONS
EMPOWER	To place final decision making in public hands through ballots and citizen juries.	DEMOCRACY AT WORK POLLING PROGRESS THROUGH PARTNERSHIP

BHUBANESWAR STRATEGIC PLAN

UN-HABITAT'S NEW URBAN AGENDA

3 LEGGED APPROACH

- LEGAL SYSTEMS
- LOCAL FISCAL SYSTEM
- NEW URBANISM

VISION

Bhubaneswar, through participatory decision-making, responsible governance and open access to information and technology, to be a:

LIVABLE CITY
Providing diverse range of housing, educational and recreational opportunities; while enhancing its heritage, arts and traditional communities

ECO CITY
Co-existing in harmony with nature for nurturing a resilient, clean, green, and healthy environment

CHILD FRIENDLY CITY
Providing accessible, safe, inclusive and vibrant public places

TRANSIT ORIENTED CITY
A compact urban form that promotes active, connected and sustainable mobility choices

REGIONAL ECONOMIC CENTRE
Attracting knowledge based enterprises and sustainable tourism activities by leveraging and empowering its institutions, local businesses and informal workforce
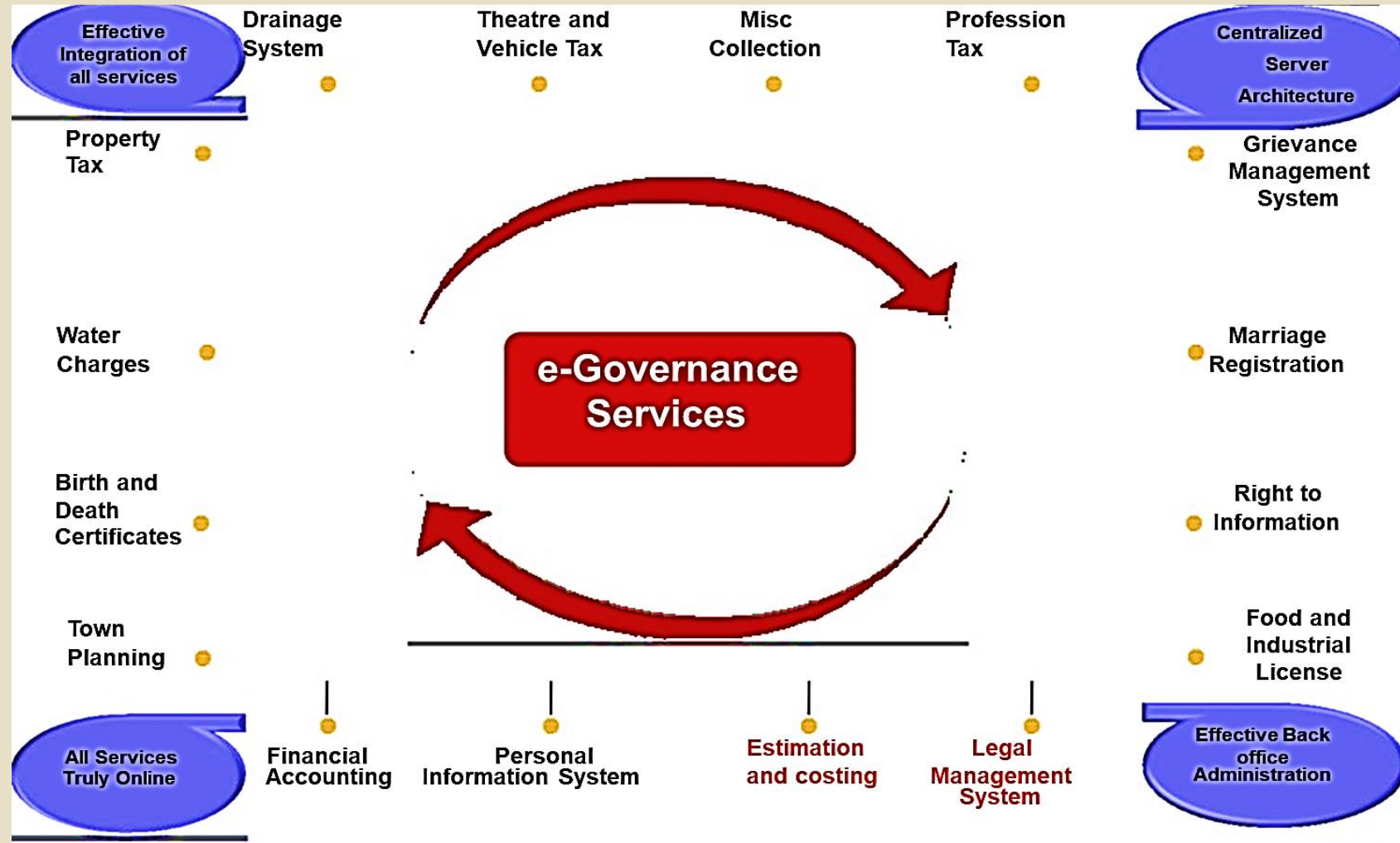
Ahmedabad Today

- **Water Supply –** 100% City Coverage with treated high quality water

- **Sewerage –** 100% city Coverage

- **Storm Water- 607 km** of storm water sewerage , **Door to door** collection of waste

- **Good Quality Urban Transport** System in the form of BRTS and AMTS

- **Availability of land** for housing development, **Housing** for Urban Poor

- **50+ Bridges**, Underpasses and Flyovers across the city

- **Solid Waste Management**- Sanitary Landfill Sites

- **Social Support** (02 Medical colleges, 01 Dental College, 01 Physiotherapy College)

- **E- Governance**   - (55 City Civic Centres functional, CCRS- Comprehensive Complaints Redressal System)

- **Water Fronts-** SRFD, Kankaria Lakefront etc.**100+ Theme based Parks and Gardens**
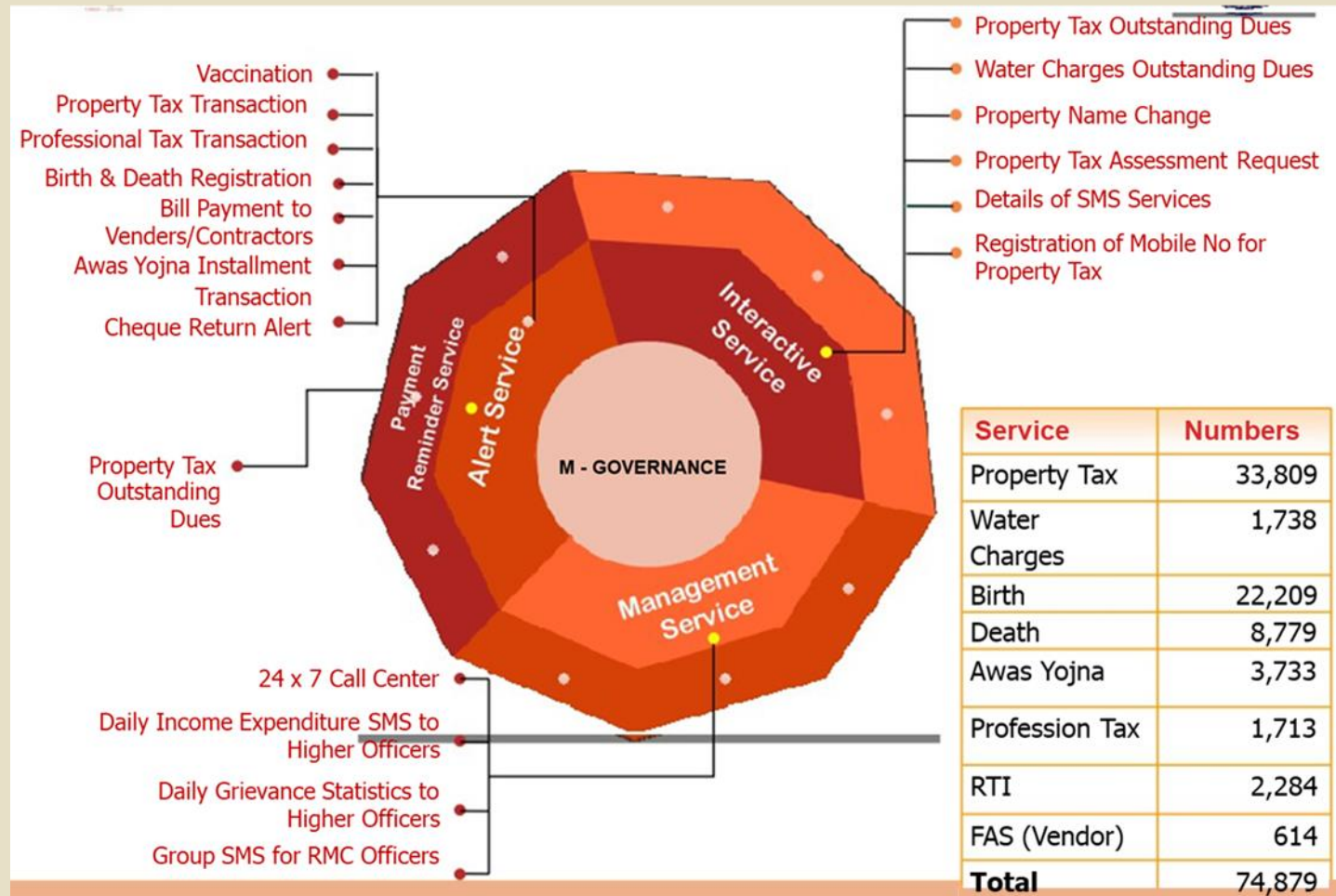
Application of E Governance in Ahmedabad

☞ **Property Tax**

☞ **Vehicle Tax**

☞ **Building Plan Approval**

☞ **Issuance of Birth & Death Certificates**

☞ **Shops and Establishment Licenses**

☞ **Registration of Complaints**

☞ **Online Tenders**

☞ **Hawker License**

☞ **Restaurant License**

☞ **Right to Information**

☞ **Hall Booking**

☞ **TDO fees**

Brief Details: e-Governance at Rajkot

Brief Details : m-Governance Rajkot

Alert Service
- Vaccination
- Property Tax Transaction
- Professional Tax Transaction
- Birth & Death Registration
- Bill Payment to Venders/Contractors
- Awas Yojna Installment Transaction
- Cheque Return Alert

Payment Reminder Service
- Property Tax Outstanding Dues

Interactive Service
- Property Tax Outstanding Dues
- Water Charges Outstanding Dues
- Property Name Change
- Property Tax Assessment Request
- Details of SMS Services
- Registration of Mobile No for Property Tax

Management Service
- 24 x 7 Call Center
- Daily Income Expenditure SMS to Higher Officers
- Daily Grievance Statistics to Higher Officers
- Group SMS for RMC Officers

M - GOVERNANCE

Service	Numbers
Property Tax	33,809
Water Charges	1,738
Birth	22,209
Death	8,779
Awas Yojna	3,733
Profession Tax	1,713
RTI	2,284
FAS (Vendor)	614
Total	74,879

How to Access ?

m-Governance

Process to Access m-Governance Services

Interactive Service	Alert Service	Management Service

Interactive Service

1. Light <Pole No>
2. Property Tax Due Bill <17 Digit Property No>
3. Water Charges Due Water <13 Digit Water Connection No>
4. Name Change Name <17 Digit Property No>
5. Assessment Request Assess <Name and Address of Property>
6. Complain Status Status <complain no>

Send SMS to 9624096241

Alert Service

1. Property Tax Register on www.rmc.gov.in
2. Professional Tax Register at the time of registration
3. Awas Yojna EMI collection at the time of creation of master record
4. Birth Registration at the time of registration of birth
5. Death Registration at the time of death registration
6. Vendor/Contractor payment at the time of preparation of bills

Management Service

1. Daily Income Expenditure SMS to higher officials every day @8.00 PM
2. Daily Complain statics SMS to higher officials every day @9.00 PM
3. Call Center Service
   1. Complain registered send to officer by SMS
   2. Officer has to change status by SMS only
   3. PND to know pending complain
   4. PND <mobile no> to get pending complain of other officer
   5. ID <Complain No> to details of complain
   6. EDP <Complain No> to know complain is sent to which officer
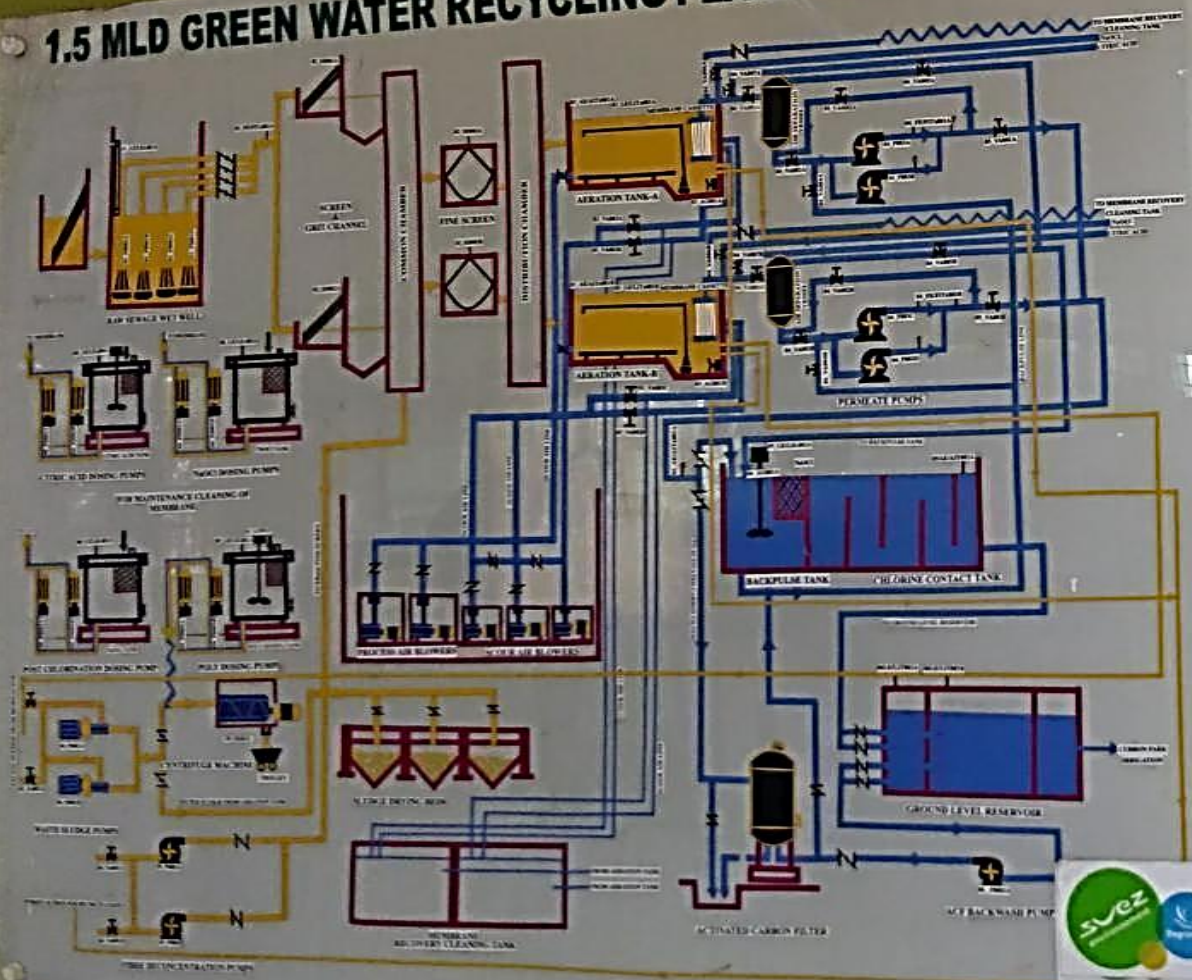
Smart Roads in India

- Smart Footpath , Retaining Wall and Solar Street light - Aizwal, B'luru, Delhi etc.

- Advertisements/bus stands with solar lights/Signals - NOIDA, Delhi, Mumbai etc.

- CCTV Cameras/Panic Buttons for traffic violations/crimes/accidents detections

- Solar Roof top panels for govt. buildings, malls and other buildings-Chennai etc.

- Multilevel Parking for Bi-cycles, Motorbikes and Cars with Parking Management

- Promotion of Low Carbon Intermediary Transport (e-Rickshaws/Motors)

Smart Waste Management

- D2D segregation and collection-Ahmedabad, Bengaluru, Rajkot, Chennai etc.

- Decentralised Treatment – solid waste and liquid waste - Bengaluru etc.

- Smart Treatment strategies – Waste to wealth-Circular economy – Bengaluru etc.

- Discarding use of Plastic bags in the city - Mumbai etc.

- Urban Mining - use of existing material (B'luru)

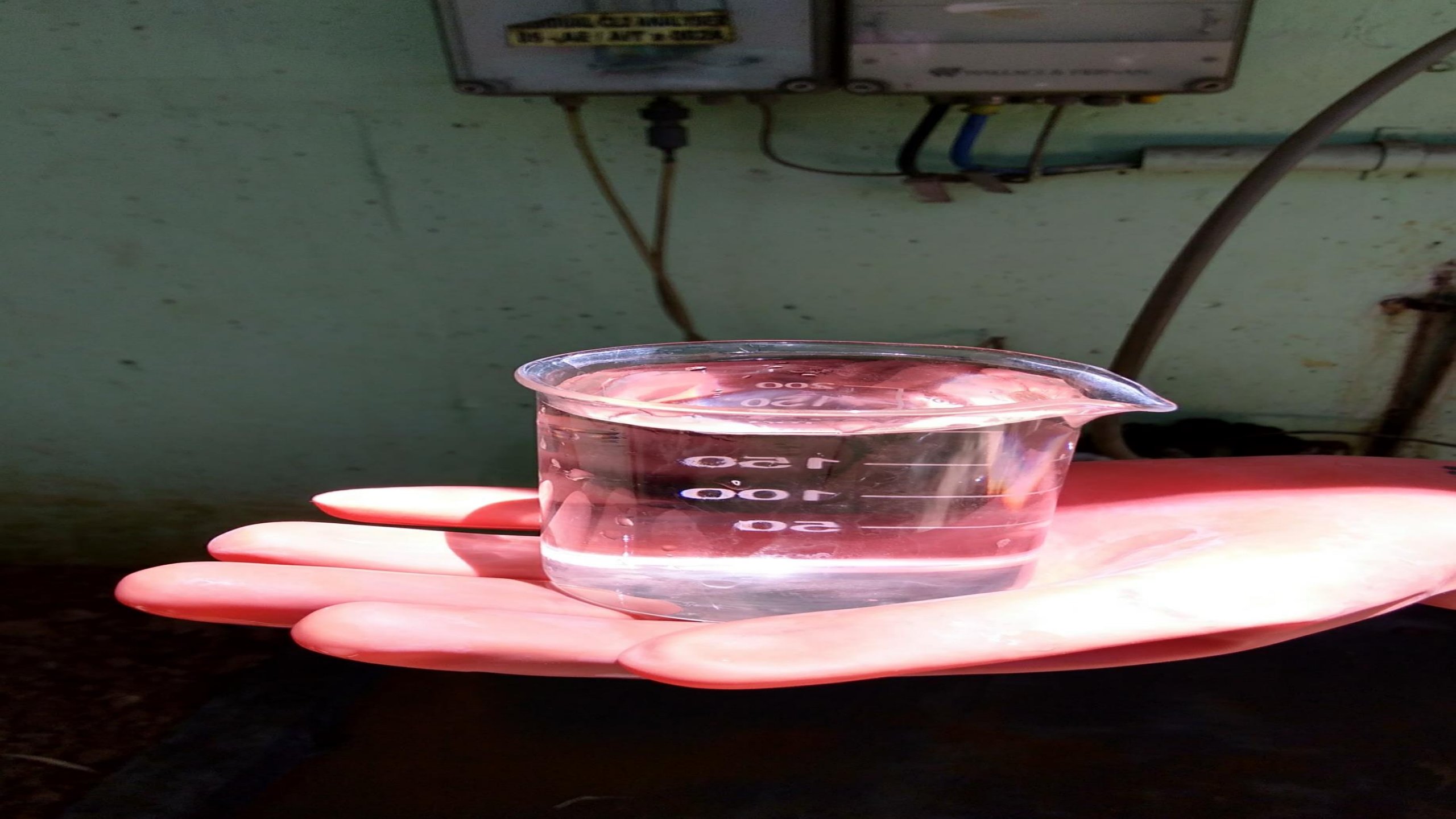- C&D waste management (Ahmedabad, Delhi)

1.5 MLD GREEN WATER RECYCLING PLANT CUBBON PARK

1.5 MLD GREEN WATER RECYCLING PLANT CUBBON PARK ANALYSIS REPORT

TREATED FLOW: 1247 m³
DATE 03-06-2017

PARAMETERS	RAW SEWAGE	TREATED WATER	GUARANTEE	REMARKS
pH	6.8	7.2	6.5 – 8.0	SAMPLING DATE 02-06-2017
TSS(Mg/l)	218	0.9	≤ 3(Mg/l)	SAMPLING DATE 02-06-2017
BOD₃ (Mg/l)	190	22	< 4(Mg/l)	SAMPLING DATE 30-05-2017
COD(Mg/l)	400	15	—	SAMPLING DATE 02-06-2017
TURBIDITY (NTU)	178	0.06	< 2(N.T.U)	SAMPLING DATE 02-06-2017
TOTAL COLIFORMS	17×10⁶ mpn/100mL	BDL	2.3 mpn/100ml	SAMPLING DATE 02-06-2017
FECAL COLIFORMS	5×10⁵ mpn/100mL	BDL	B.D.L	SAMPLING DATE 02-06-2017

DRY WASTE PROCESSING CENTRE

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Swachha Eco Solutions in association with BBMP

swachha

Collection of Construction & Demolition Waste

- Work outsourced to Ahmedabad Enviro Projects Ltd. (AEPL) on PPP basis for 30 years. 5 acres of land was allocated by AMC for this project.

- Citizens are required to dump C& D waste at 16 pre-defined locations, at their own cost. AEPL is authorized by AMC on PPP mode to collect, transport & process 300 TPD C & D waste from designated locations and convert it into various recyclables.

- AMC paying Rs. 155 per ton to AEPL (with an escalation clause of 5% yearly increase).

C&D Waste Processing in Ahmedabad

Final Products from C & D Waste

1) Precast RCC

   - Benches, Drains, Concrete Manholes, Slabs

   - Sleeper, Louvers Fins, Pavers Rubber Mould, Walls, Drain Covers

   - Pipes & Cement Articles

2) Precast Concrete Box Culverts and Manhole.

3) RCC Fencing Pole, Door Frame, Grill

4) Kerb Stone & Ferro Cover, Road Edge Stone, Paving Stone.

5) Paving Blocks Mortar less for Concrete and Interlock Pathways.

Mechanised cleaning of public toilets and open defecation sites in Ahmedabad

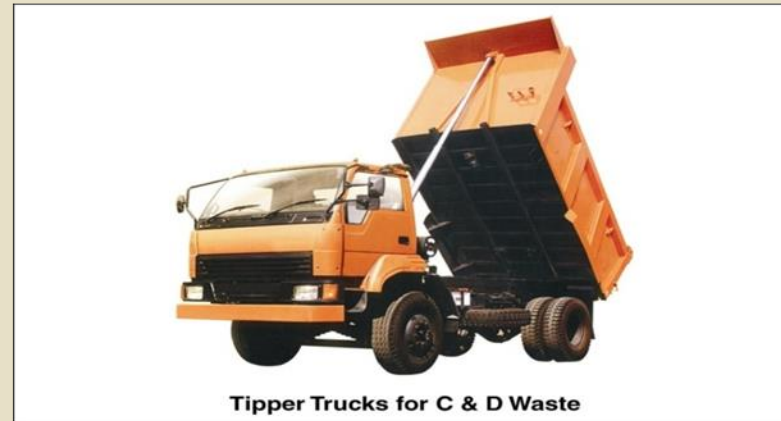30 GPS equipped vehicles deployed for daily cleaning of public toilets & dirty sites.

Collection of Construction & Demolition Waste

5 CMT skip containers for C & D removal on chargeable basis

JCB type machine for C & D waste

Tipper Trucks for C & D Waste

COMPOSTING SANTHE

Date : 19th Feb,2017,
Time : Sunday, 7.30 Am to 1:00 Pm
Venue : Boulevard park, Behind RMV club,
Dollors Colony, Sanjayanagar.

EXPLORE & LEARN Composting Solutions.
MEET the Experts.

- **SwachaGraha Composting** workshop @9AM
  by Mrs.Vani Murthy - TEDx Speaker, Composting Expert
- **Leaf Composting Demo**
  by Dr.Meenakshi Bharath,SWM Expert
- **Multiple COMPOSTING & BIOGAS**
  solutions for Individual homes & communities
- **Gardening equipment stalls –** Start your Dream **"The Clean Bengaluru"** from today!

VENDORS LIST

Quantum leaf	Daily Dump	Hasirudala Innovations P. Ltd
Visfortec	Bioflame	Cupsters
Venson Green solutions P. Ltd.	Shudh Labh	Aptamitra consulting P. Ltd.
Stonesoup	One Hop organics p Ltd	R K Associates
Soil and Health	GPS Renewables	Trustbasket
Shree skanda solar composte	Vermigold Ecotech Pvt. Ltd.	Eco-Gifts
Bioman Technologies pvt Ltdr	Saahas zero waste	Alleppey municipality

Invitation by:
Smt G. Padmavathi, Worshipful Mayor
Shri Y. A. Narayanaswamy, Hon'bl MLA, Hebbal
Shri M. Anand, Deputy Mayor
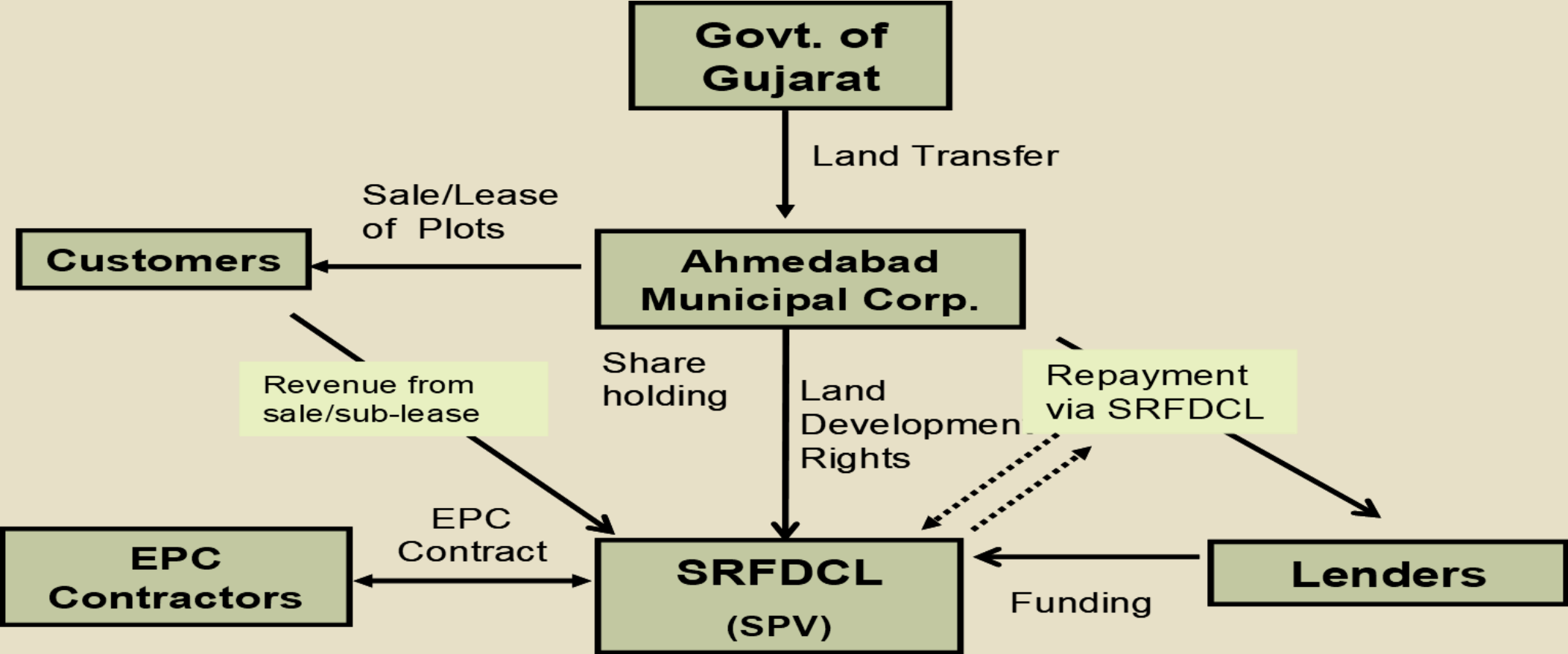Shri N. Manjunath Prasad, I.A.S, BBMP Commissioner

CLEAN Bengaluru
NAMMA KASA NAMMA

BBMP

SPV for the Smart City
As per Smart City Mission Guidelines

- 50:50 Equity of State Govt (SG) & Urban Local Body (ULB)

- All Mission Funds to go to SPV

- BOD: nominees of GOI, SG, LB & Independent Directors (IDs)

- CEO to be appointed after approval of GOI.

- All powers of SG & LB be delegated to SPV

- SPV shall sanction & execute all projects

- SPV to collect taxes & user charges

Sabarmati Riverfront – Project Structure

Sabarmati Riverfront Development Project

Before

After

Capacity Building

◦ Models are emerging across the country

◦ Systems and procedures are in place

◦ Innovations are evolving

◦ Need wider information and Replication

◦ Training, study visits need to be used

◦ Each town can become smart city

Sum-up

- Smart Solutions must for smart urban governance
- ICT is a viable and inevitable tool
- Brings environment friendly livable and productive city
- Complimentary to mobilise participation for resources, O&M and investment
- P2P Learning
- Adapt ICT to choose options and involve stakeholders
- Capacity building and awareness is critical