Innovative Wastewater Projects Managed In The Megacity Of Mumbai- Approaches & Experiences

Dr Ajit Salvi,
Executive Engineer,
MCGM

Agenda

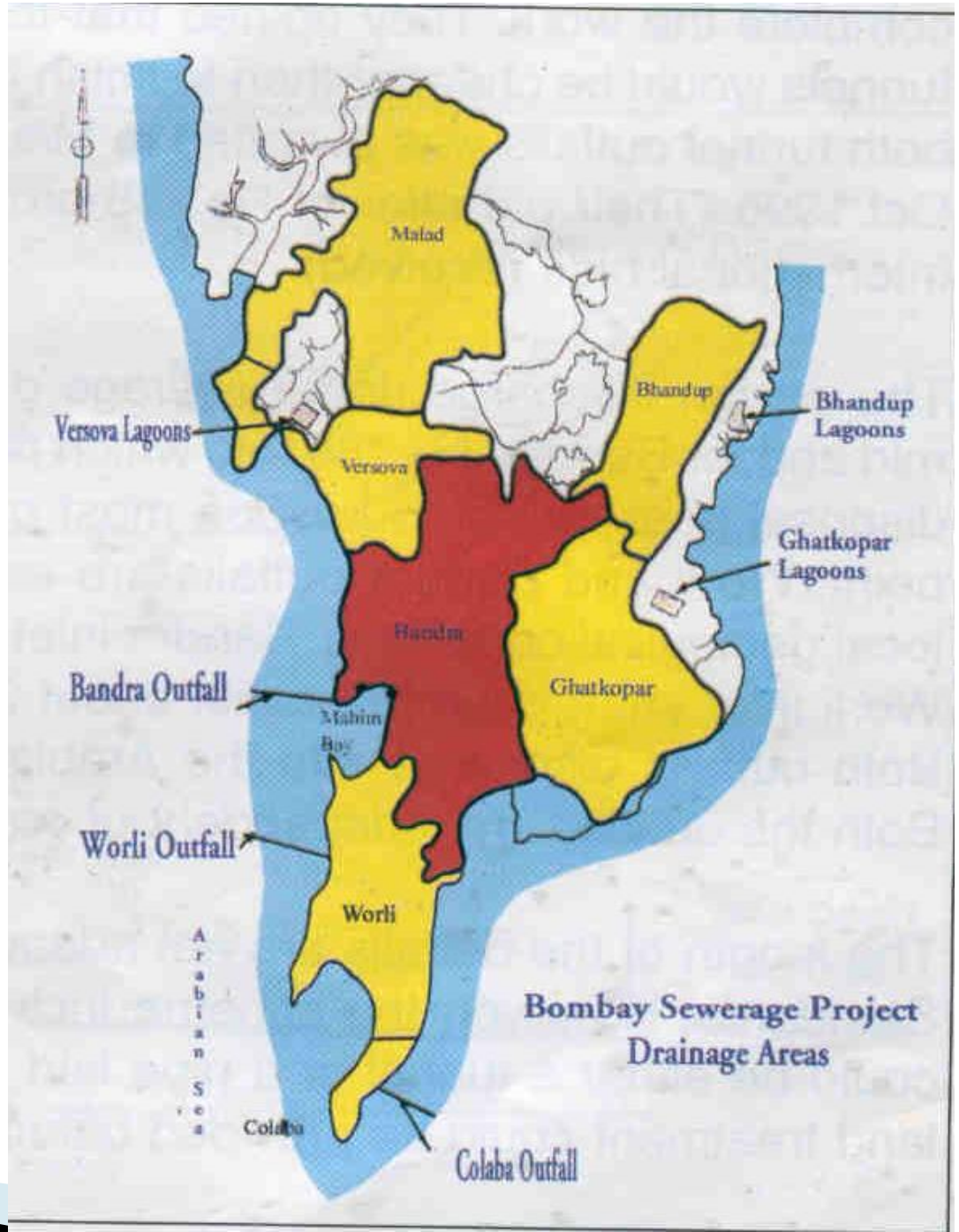
- Sewerage System Of Mumbai- Statistics
- Present Sewage Disposal system
- Future Plans- Approaches
- Challenges & Experiences
- Conclusion

Sewerage System Of Mumbai

- 130 years old Sewerage System.
- 40% Area Unsewered.
- Water Supply- 3750 mld
- Sewage Generated- 2190 mld.
- Area – 438 Sq.km
- Population- 12.44 million
- Floating population- ?
- Length of Sewer Line -1987 km.
- No of Pumping Stations -51
- No of Disposal Points- 7

DRAINAGE ZONES

- COLABA
- WORLI
- BANDRA
- VERSOVA
- MALAD
- GHATKOPAR
- BHANDUP



Capacities of Existing wwTFs

Sr No	Name of Sewerage Zone	Plant Capacity In mld
1	COLABA	41
2	WORLI	757
3	BANDRA	797
4	VERSOVA	180
5	MALAD	280
6	BHANDUP	280
7	GHATKOPAR	386

Sewerage Scenario of Mumbai

Zone	Area	Treatment level	Whether prescribed standards are achieved or not
1	Colaba	Preliminary treatment & discharge through 1.2 km long marine outfall in Harbour	100% samples do not achieve SW-II standards (BOD<3 & DO>4 mg/ltr)
2	Worli	Preliminary treatment & discharge through 3.4 km long marine outfall in Arabian sea	100% samples do not achieve SW-II standards (BOD<3 & DO>4 mg/ltr)
3	Bandra	Preliminary treatment & discharge through 3.7 km long marine outfall in Arabian sea	100% samples do not achieve SW-II standards (BOD<3 & DO>4 mg/ltr)
4	Versova	Preliminary ,Primary treatment by way of three stage lagoons & discharge to Malad creek	Effluent standards achieved (BOD<100 & SS<100 mg/ltr)
5	Malad	Preliminary treatment & discharge to Malad creek	Effluent standards **not** achieved (BOD<100 & SS<100 mg/ltr)
6	Bhandup	Preliminary & Primary treatment by way of single stage lagoons & discharge to Thane creek	Effluent standards achieved (BOD<100 & SS<100 mg/ltr)
7	Ghatkoper	Preliminary & Primary treatment by way of single stage lagoons & discharge to Thane creek	Effluent standards achieved (BOD<100 & SS<100 mg/ltr)

Future Plans- Approaches

- New Discharge Standards : **BOD – 10 mg./Ltr.**
- **COD – 50 mg/Ltr**

TSS – 20 mg./Ltr.

FC – 100 MPN/ 100 ml

Total Nitrogen – 10 mg/Ltr

Total phosphorus –1 mg/Ltr

- River discharge : BOD- 3 mg/ Ltr
- Open Technology
- DBO- O & M for 15 Years
- Minimum 20% capacity for Recycle & Reuse

Proposed WwTF capacities in MLD

Zone Number	Zone Name	Plant design capacity ADWF (MLD)	Plant design capacity Past Fwd Flow (MLD)
I	Colaba	37	85
II	Worli	500	1000
III	Bandra	360	720
III	Dharavi	250	500
IV	Versova	180	540
V	Malad	454	786
VI	Bhandup	215	461
VII	Ghatkoper	337	699

Challenges for Implementation of New Projects

- Inadequate land,
- Removal of mangroves as per Environmental Rules on land proposed for STPs
- Clearances from Environment Ministry and Coastal Regulatory Zone authority
- Population- Growth of City, Floating Population
- Location of Existing plants- In the heart of the City & at same place new plants to be constructed
- Data- Quality of Data

- Selection of Technology most Economical

  (Low Capex & Opex), Feasible, Eco-friendly, Reliable, Proven, with minimum footprint requirement and compatible for future up-gradation of Recycle & Reuse.
- Sludge Disposal
- Energy Generation

Expected Achievements of New Projects

- Conservation of environment
- Improvement in public health of Mumbai City.
- Improvement in Sea aquatic life.
- Improvement in Bathing water standards at sea coast.
- Recycle & Reuse of Water


KLARO
IFAT India ACTIVE LEARNING CENTER
IFAT India ACTIVE LEARNING CENTER
3) Project of "Development of 600 TPD capacity Waste to Energy (WTE) at Deonar, Mumbai on DBO basis."
• Waste to Energy - Open Technology
• As per success of this project, another two modules of 600 TPD capacity each can be installed at Deonar, Mumbai.

Make Over Facilities At Bandra WwTf

- 60% Green Cover
- Knowledge Center
- Auditorium , Library, Display of Projects
- Viewing Gallery
- Interconnecting Skywalks
- Fountains & Murals

Conclusion:

• Multiple challenges are faced while implementing Wastewater projects in megacity of Mumbai.

•It’s necessary to tackle the same by using site specific approach & innovative ideas.

Thank you