



# NON –SEWER SANITATION IN URBAN ODISHA

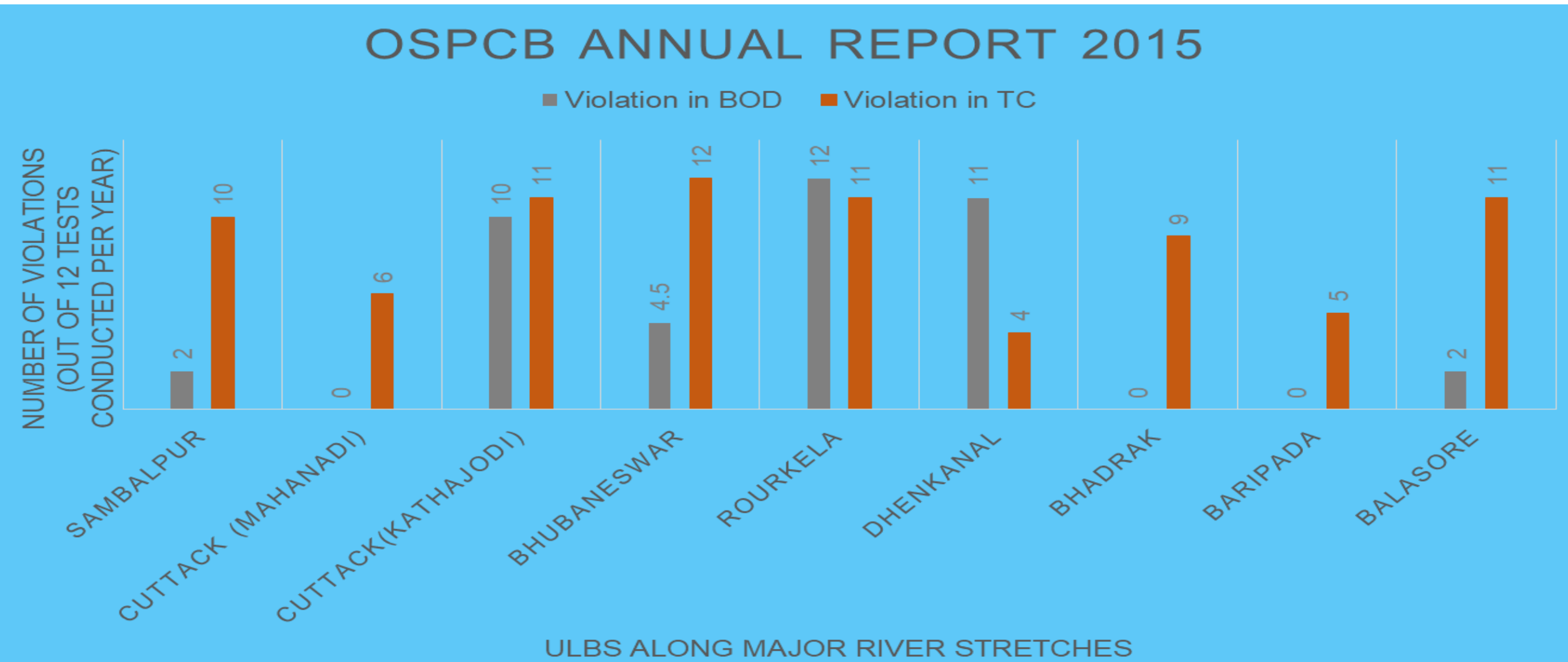
Presented By : G. Mathi Vathanan  
Principal Secretary to Government of Odisha  
Housing and Urban Development Department



# JOURNEY BEGAN IN 2014..

1. **No Septage Treatment Plants** in the State
2. **2% of the Urban Sludge** was being treated
3. Only guiding document – **Odisha Urban Sanitation Strategy, 2011**

# ODISHA STATE POLLUTION CONTROL BOARD REPORT ON NUMBER OF VIOLATIONS REGISTERED BY CITIES IN 2015 CONTAINING THE RIVER POLLUTION ISSUE

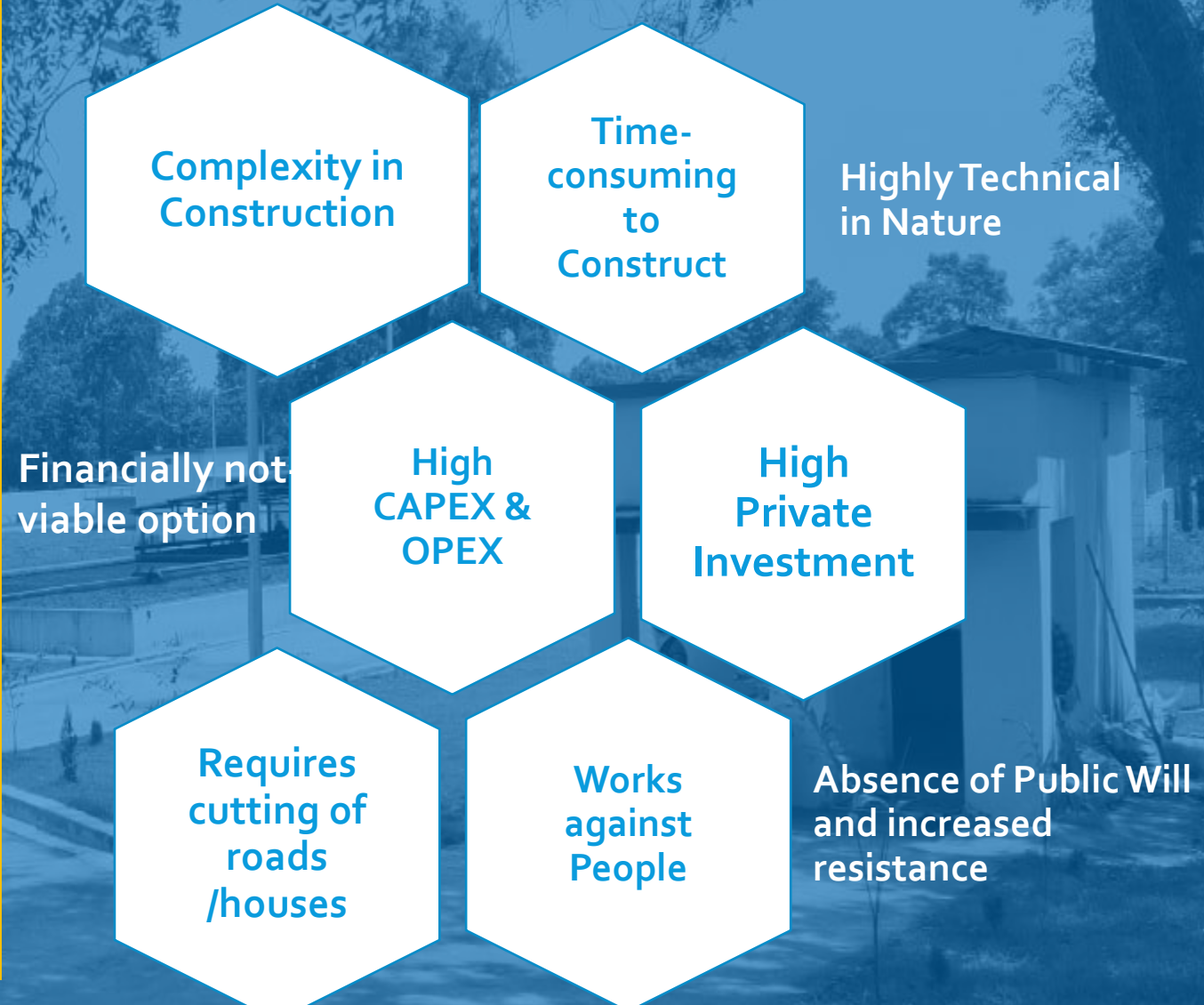


# AT CROSS ROADS IN 2016

**Bhubaneswar's contract was terminated**

**Cuttack's JICA project was critical**

**Puri commissioned the STP but connections were not happening**





# NON-SEWERED SOLUTION SHOULD IDEALLY BE..

Easy to design and construct

Low/no technology

Faster construction & operation

Low CAPEX and OPEX

No Private investment

Solution shouldn't disturb Status  
quo



# HOWEVER, AN EXPOSURE VISIT TO MALAYSIA LED TO A COMPREHENSIVE FSSM PLAN...



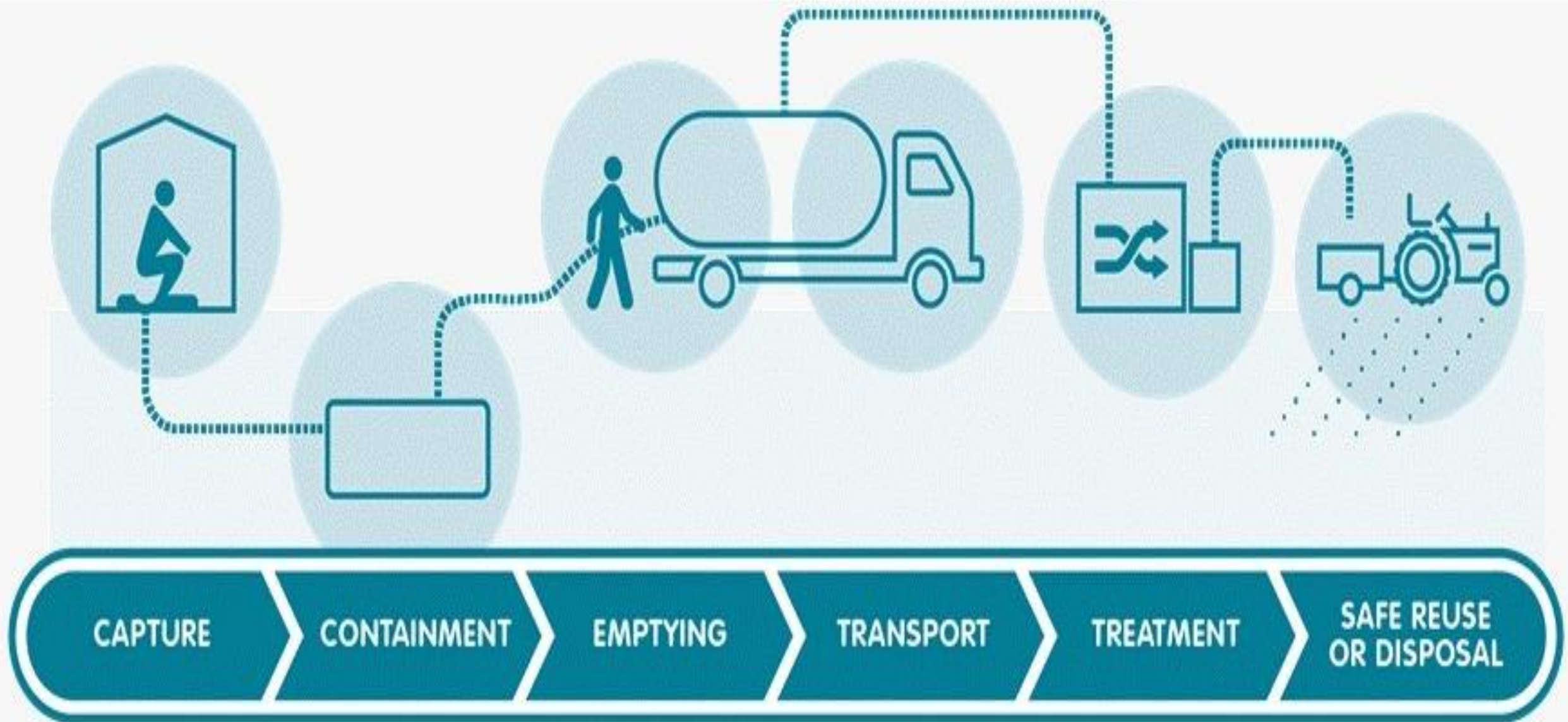


# STEPS TAKEN



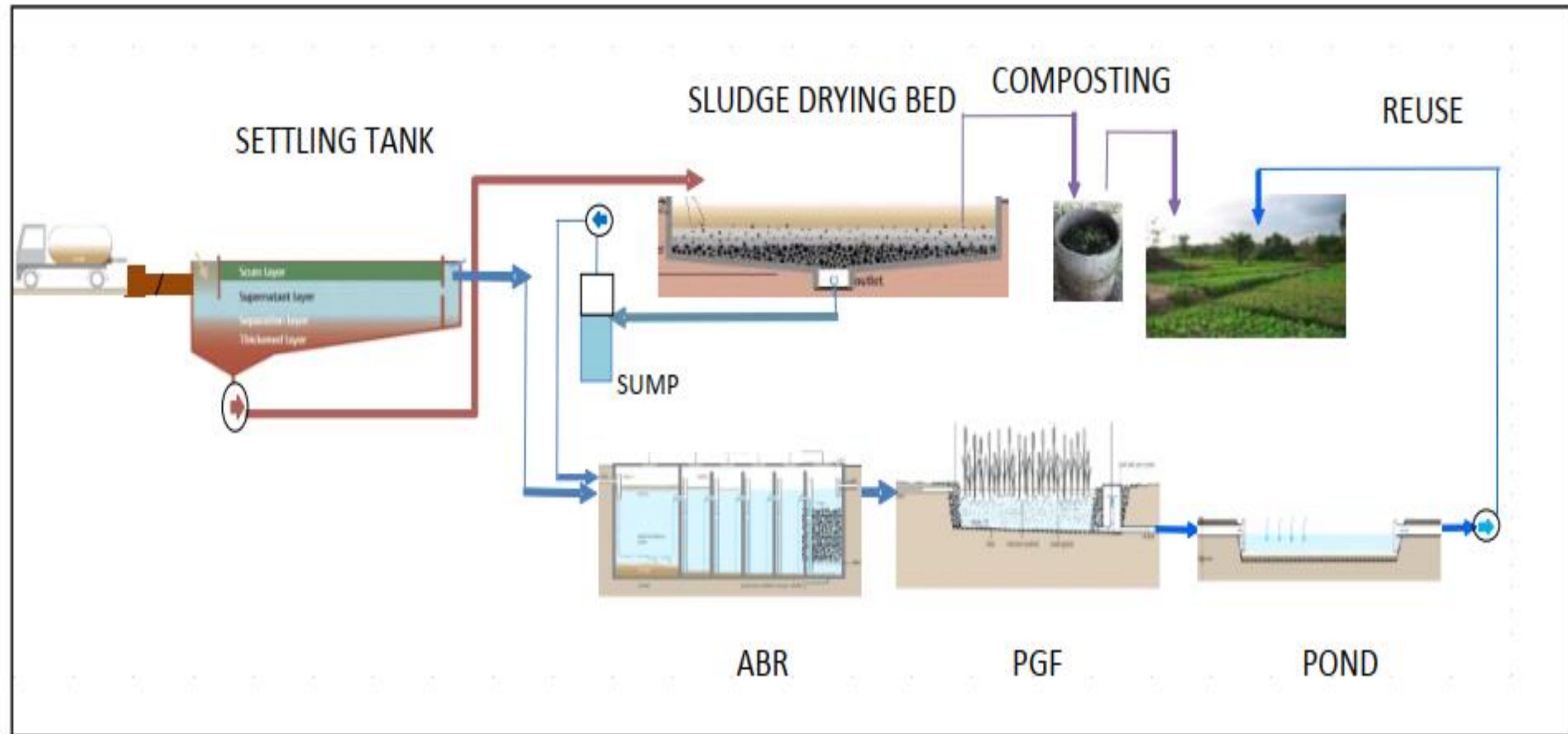
- **Two plants** were started supported by Bill and Melinda Gates Foundation and CPR. Soon under AMRUT nine cities were taken up.
- Process was understood and **design was made in-house**, technical vetting carried out by **team from IIT Kharagpur and experts from Malaysia**
- **Odisha Water Supply and Sewerage Board** has driven this initiative
- Local civil contractors were mobilized for construction; local agencies co-opted and trained for O&M
- **Six plants were commissioned in one go**
- At 1<sup>st</sup> National Seminar in Bhubaneswar **honorable CM approved scale up to entire state.**

# PROCESS FLOW





# PROCESS FLOW IN SEPTAGE PLANT



# BHUBANESWAR SEPTAGE TREATMENT PLANT





# SEPTAGE TREATMENT PLANT COMPONENTS



**Anaerobic Baffle  
Reactor**



**Horizontal Planted  
Gravel Filter**



# FREEZING OF TECHNOLOGY OPTION



Chlorination is avoided and

Polishing pond with cascade aeration provided for controlling pathogens



# KEY DECISIONS TO INNOVATIVELY KEEP THE SLUDGE DRY

- **Cover above the sludge drying beds**
- **Wheeled covers** on the set of beds
- **Netted plastic mat** over sand layer to prevent loss of sand





# SOLID PRODUCT AS MANURE



Composting grass from  
lawn



Composting green  
waste and dried sludge



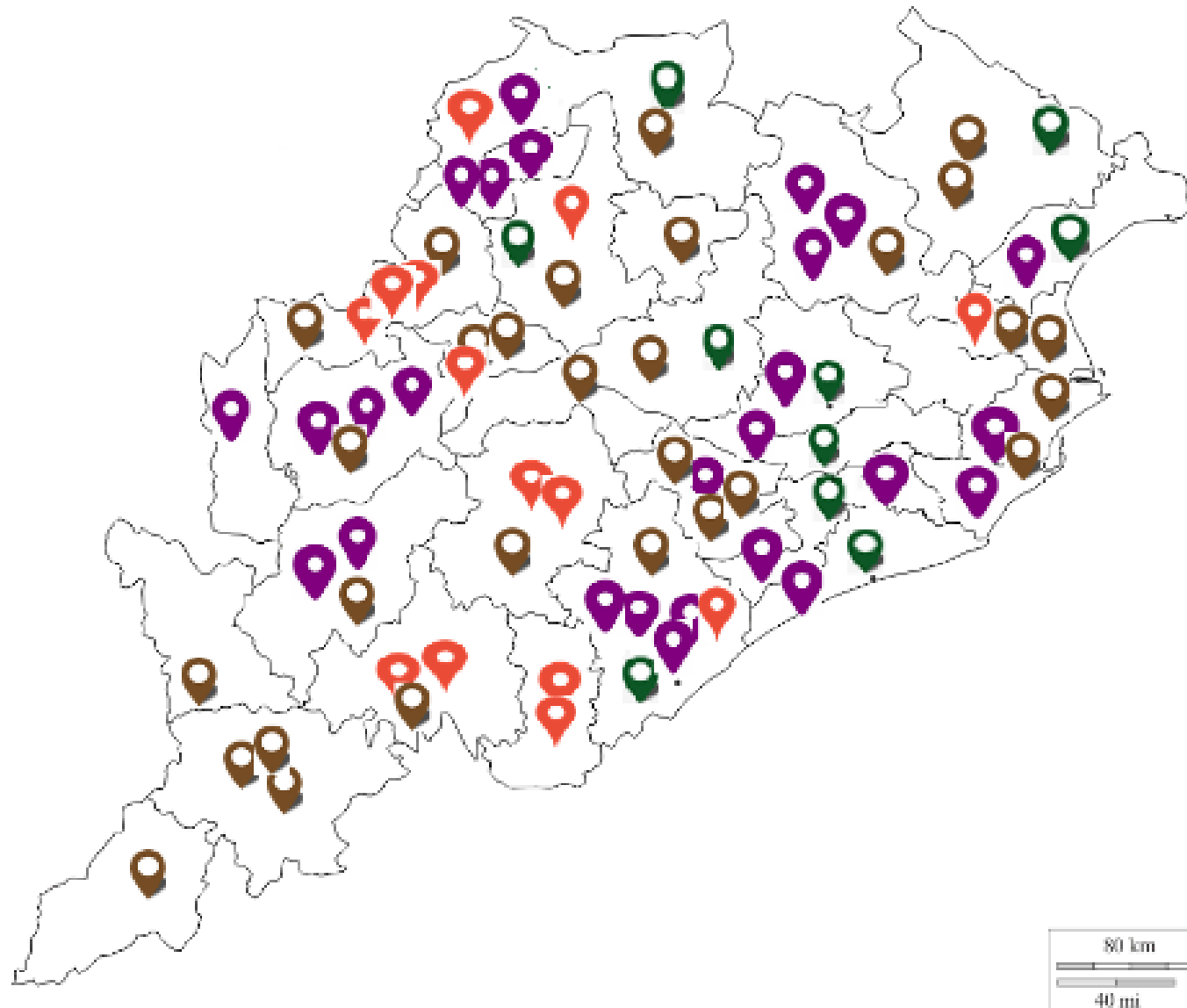
Cana harvest from  
PGF



# REUSE OF TREATED WATER IN LANDSCAPE AND PLANTATION



# GEOGRAPHICAL SPREAD OF EXISTING AND UPCOMING SETPS



## Legends

ULBs with operational SeTPs

10



ULBs with SeTP under construction

26



ULBs with tender evaluation under process-

31



ULBs under tendering process

15



**Total 104 SeTPs in the State**



# OPERATIONAL SETPs IN ODISHA





# OPERATIONAL SETPS IN ODISHA



CUTTACK SeTP



ROURKELA SeTP



DHENKANAL SeTP



PURI SeTP



SAMBALPUR SeTP



# ODISHA BECAME THE FIRST STATE TO CREATE A MODEL FSM REGULATIONS IN 2018 FOR 114 ULBS

## Key Components were :

Management & Disposal of Waste Water

Faecal Sludge emptying and Transport

Septage Treatment and Disposal

Administration and Enforcement

## The Odisha Gazette

EXTRAORDINARY  
PUBLISHED BY AUTHORITY

No. 236 CUTTACK, THURSDAY, JANUARY 31, 2019/MAGHA 11, 1940

FAECAL SLUDGE AND SEPTAGE MANAGEMENT REGULATIONS, 2018  
BHUBANESWAR MUNICIPAL CORPORATION, BHUBANESWAR

### NOTIFICATION

No. 2139---XXXXX-II-SBAC.-589/2017,

Dated the 14th January 2019

In exercise of powers conferred by section 657 read with sections 518, 519, 658 and 659 of the Odisha Municipal Corporation Act, 2003 (Odisha Act 11 of 2003), Bhubaneswar Municipal Corporation hereby make the following Regulations having been approved and confirmed by the State Government for the purpose of giving effect to the said Act, to ensure Faecal Sludge and Septage Management within the city of Bhubaneswar Municipal Corporation, namely:-

### CHAPTER I

### GENERAL

- 1. Short title, extent and commencement.** – (1) These Regulations may be called as Bhubaneswar Municipal Corporation Faecal Sludge and Septage Management Regulations, 2018.
  - (2) These Regulations shall apply to the area under the jurisdiction of the Bhubaneswar Municipal Corporation
  - (3) They shall come into force on the date of their publication in the *Odisha Gazette*.
- 2. Definitions.** – (1) In these Regulations, unless the context otherwise requires:-
  - (a) “Act” means the Odisha Municipal Corporation Act, 2003 (Odisha Act 11 of 2003);

# DE-TECHNOLOGYFYING AND RE-ENGINEERING TO INCLUDE COMMUNITY



Identification  
and  
selection of  
SHGs

Technical  
support given  
by OWSSB

Training to  
SHG members  
on managerial  
financial &  
technical  
aspects

Process and design have been simplified to  
allow common man to function it with a little  
bit of competency based training.



# VIRTUAL HANDOVER OF THE SETP PLANTS

- **Cuttack Municipal Corporation-  
Bahucharmata Transgender SHG**
- **Berhampur Municipal Corporation-  
Agrata City Level Federation**
- **Sambalpur Municipal Corporation-  
Patneswar SHG**
- **Baripada Municipality- Sradha  
Saburi Area Level Federation**



# TRANSFER OF O&M OF SETPS ON 5<sup>TH</sup> JUNE, 2020



Bahucharamata TG Group-  
Cuttack Municipal Corporation



- Empowering vulnerable communities and improving their socio-economic status
- Instilling entrepreneurial skills and ensuring clean and safe sanitation for all



Patneswar SHG- Sambalpur Municipal  
Corporation





# SHGS IN ACTION AT THE SEPTAGE TREATMENT

Women SHGs removing dried sludge cakes from the Sludge Drying Bed

Women SHGs desludging at the sludge receiving chamber at Sambalpur SeTP



Women SHGs desludging at the sludge receiving chamber at Berhampur SeTP

Women SHGs cleaning the dried twigs from Planted Gravel Filter



# APPRECIATION RECEIVED FOR EMPOWERING COMMUNITIES

Pratap Jena retweeted



FSSM Odisha | #StayHomeSt... · 11h ✓  
@HUDDepOdisha had included woman and transgender collectives in Urban Services earlier in form of #SwachhSathi #JalSaathi. However, empowering SHGs to manage technical plants like SeTP; is the next big thing we are aiming at with plans for scaling up to 114ULBs ~  
@jenapratap66



Ministry of Housing and Urban Affairs and 8 others



Housing & Urban Development  
Department, Govt. of Odisha

39 mins · 🌐



THE FINANCIAL EXPRESS • 2 MIN READ  
**Odisha takes pioneering step towards women empowerment**



Durga Shanker Mishra ✓  
@Secretary\_MoHUA

Heartiest congratulations to Govt of Odisha for handing over 4 Septage Treatment Plants (STPs) in Berhampur, Sambalpur, Cuttack & Baripada to Self Help Groups (SHGs) of women collectives & transgenders for Inclusive Sanitation & Empowering Communities.







Swachh Saathis in Bhadrak Municipality involved in the demand generation for cesspool services



Male SHGs in Bhadrak have been handed over the responsibility of the Operation and Maintenance of cesspool vehicles



# INCREASING ACCESS TO MECHANISED DESLUDGING SERVICES



- State has procured **1 lakh** cesspool vehicles
- 200000 Trips @ 5000 = 100,00,00,000 (**100Cr people defecating in open**)
- Total Individual Household level Construction is **10,90,32,684**



# DRES IMPLEMENTED AS INTERIM SOLUTION FOR SAFE DISPOSAL OF FAECAL SLUDGE



DREs are accepted by Ministry of Housing and Urban Affairs, for ODF++ certification for a population less than 20,000.

Odisha has 109 Deep Row Entrenchment which are safe and interim solution for disposal of sludge and Septage

## VIOLATIONS IN BOD AND TC VALUES IN RIVER WATER ALONG THE DOWNSTREAM OF MAJOR URBAN LOCAL BODIES

ULB (River)	No. of Violation in BOD out of 12 Observations in a year			No. of Violation in TC out of 12 Observations in a year	
	2015	2019		2015	2019
Sambalpur (Mahanadi)	2	0		10	2
Cuttack (Mahanadi)	0	0		6	2
Cuttack (Kathajodi)	10	2		11	8
Bhubaneswar (Daya)	4	7		12	10
Rourkela (Brahmani)	12	10		11	11
Dhenkanal (Brahmani)	11	0		4	0
Bhadrak (Salandi)	0	0		9	1
Baripada (Budhabalanga)	0	0		5	1
Balasore (Budhabalanga)	2	0		11	2

**Tolerance limit for Class C Rivers**

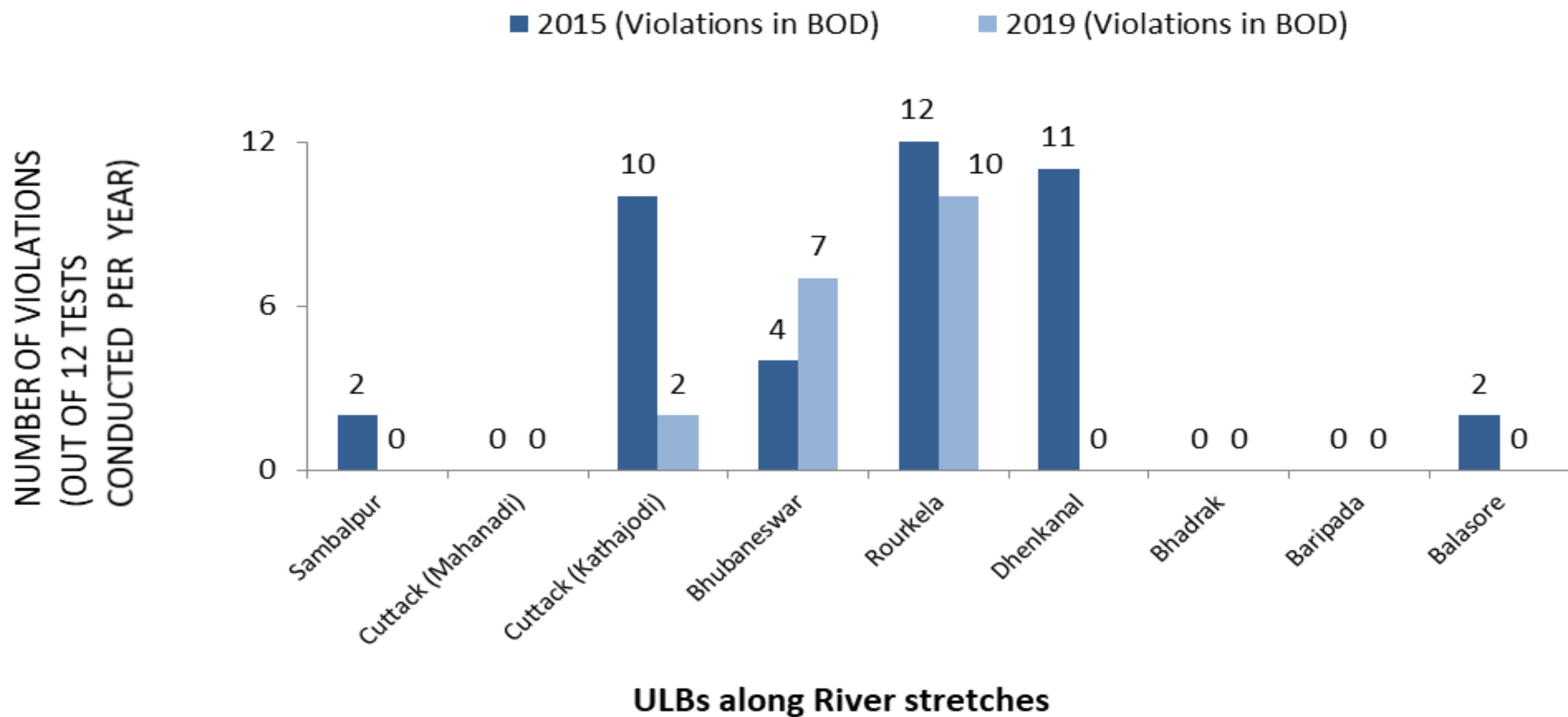
**BOD : 3 mg/l or less**

**Total Coliform : 5000 MPN/ 100 ml or less**

**Duration of all data : 2015 - 2019**

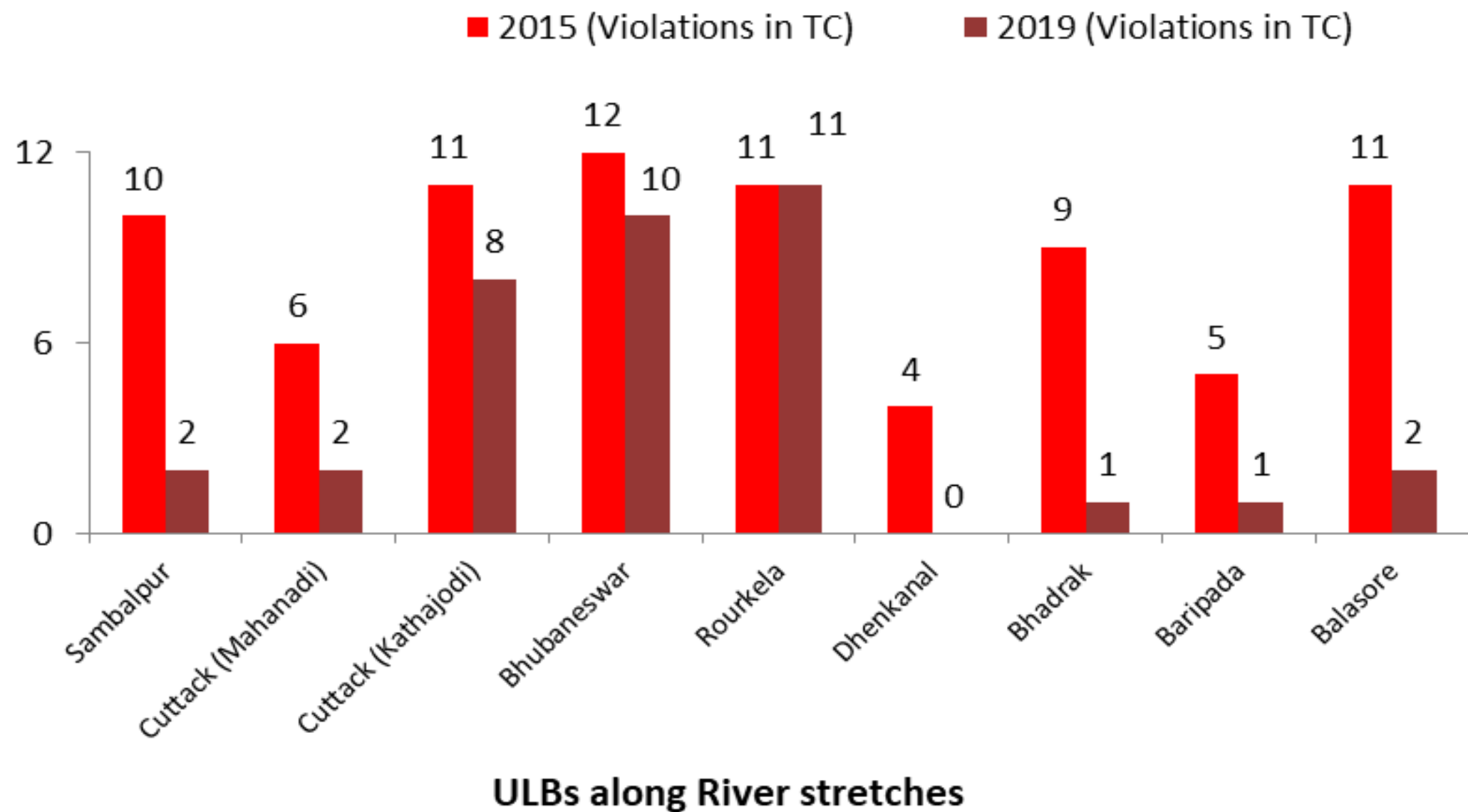


## Comparison of Water quality w.r.t. BOD during 2015 and 2019



## Comparison of Water quality w.r.t. TC during 2015 and 2019

NUMBER OF VIOLATIONS  
(OUT OF 12 TESTS  
CONDUCTED PER YEAR)





# ODISHA NATIONALLY ACKNOWLEDGED FOR ITS EFFORTS IN IMPROVING SANITATION



## ULB IN FOCUS : BERHAMPUR MUNICIPAL CORPORATION

- A. Best FSSM Model
- B. First and only SeTP in India to have ISO Certification
- C. ODF++ certificate
- D. Best Engagement Model in Sanitation by a Social Enterprise/Start-up --Agrata City Level Federation (CLF) of women SHGs, Berhampur



# THANK YOU

The FSM Army : Agrata CLF in Berhampur in their new uniforms provided by ULB on request from the CLF