

Moving CHIPLUN towards ODF+ through FSSM

Prepared for
Chipun Municipal Council

March 2018

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1. Introduction

Introduction



- Chiplun is a Class 'B' town located 90 km north-east of the city of Ratnagiri in Ratnagiri district of Maharashtra
- It is situated on a **latitude of 17.53°N and longitude of 73.52°E.**
- The Chiplun Municipal Council is the established town committee for the town.
- The Chiplun Municipal Council has **current population of 72261 (till 2017) and area is 14.6 sq km.**(Source-CMC Data)
- The economy of the city depends on **commerce, kokam and jackfruit production, tourism and industries.**
- Chiplun has been declared as **ODF** by GOI in **October 2015.**

Demographics & Topography

Demographic Details

	2011	2017
Population	55139	72261
No. of HHs	12925	15776
Literacy Rate	84%	-
Slum Population	NA	NA

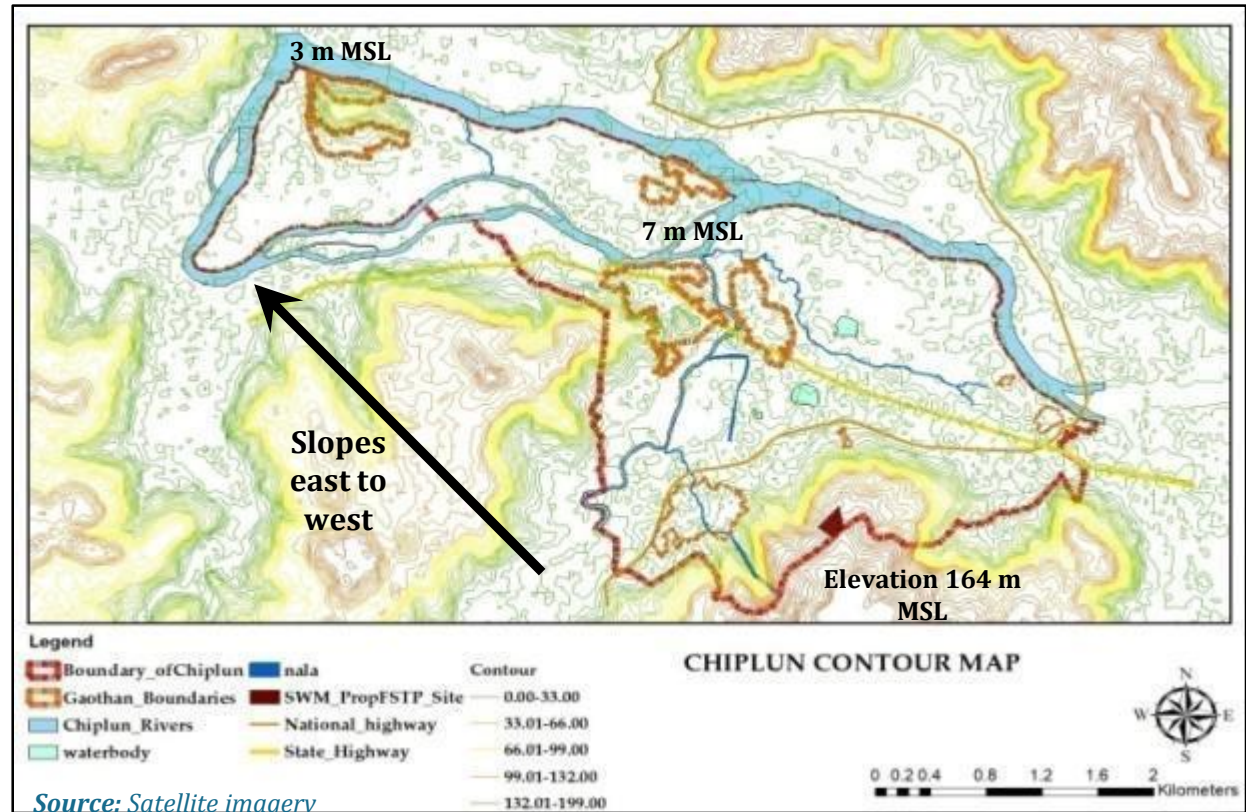
Source: Census 2011, SLB 2016-17

Literacy level of the town is slightly lower than the state literacy rate of 88.69% for urban areas.

Population Growth Rate

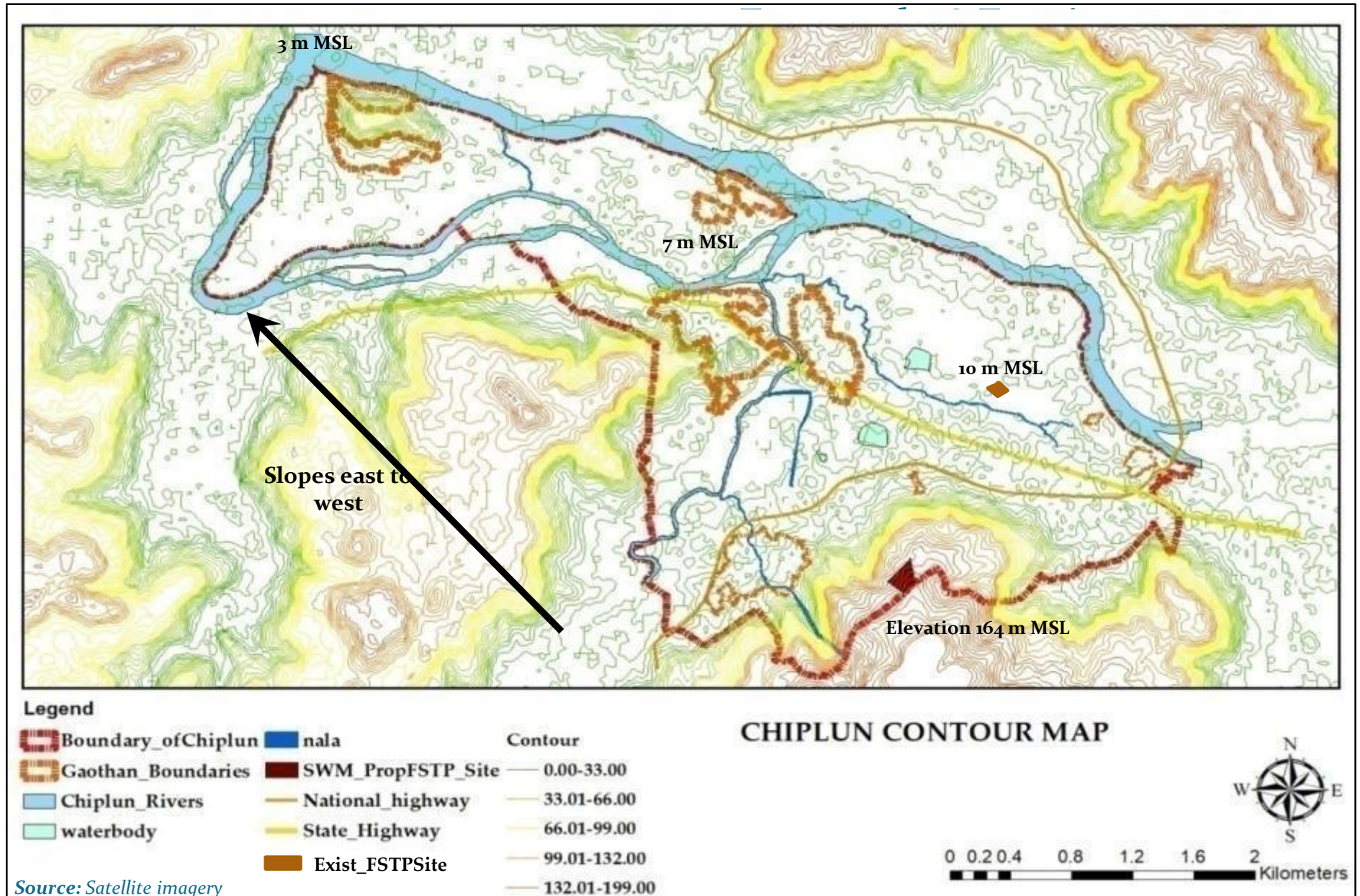
2001-2011	19.27%
2011-2017	31.05%

Topography & Terrain



- Chiplun town is situated on the banks of the rivers Vashishti and Shiv.
- River **Vashishti** flows **east to west** along the northern edge of the town, and the **Shiv** flows **south to north and meets Vashishti** at the **north**.
- The **average altitude of Chiplun is 7 m MSL**.
- The town topography is uneven, and slopes in the **western direction**. Chiplun lies at the foothills of the Sahyadri ranges and therefore has a hilly to flat topography.
- Soil type is lateritic and soft murrum.
- Average Ground Water level 5 ft. i.e. 1.7 m.
- Waterlogging is observed in the city during the monsoon.

Contour Map



Slum Details

- There are **no slums** in Chiplun.
- **1 temporary settlement** at Bahadurshah Naka, Admin. Ward 5, close to eastern end of town



Close set kaccha structures set up by the settlement dwellers..



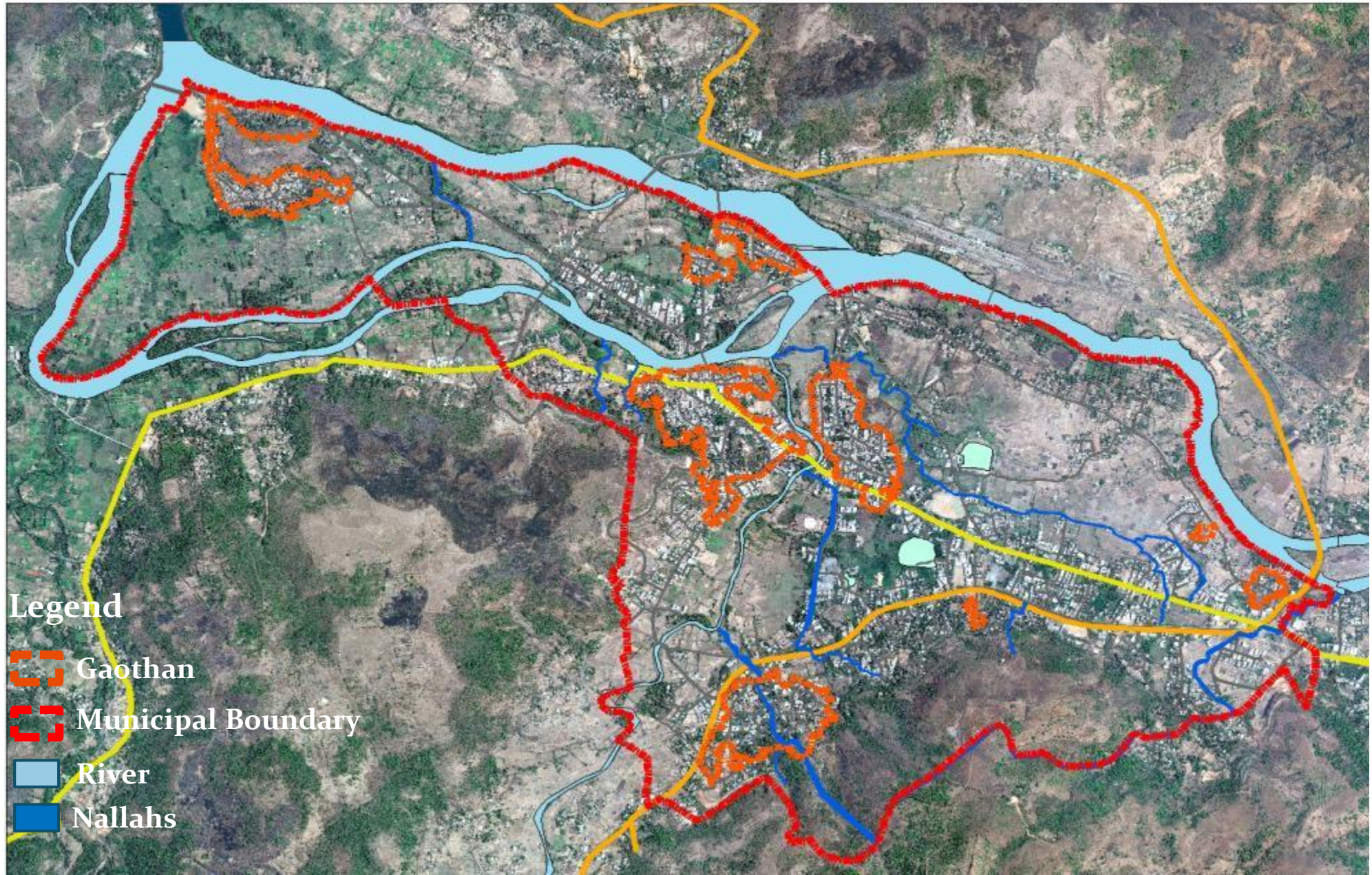
Mobile toilet at temporary settlement in Chiplun

Location of Temporary Settlement in Chiplun

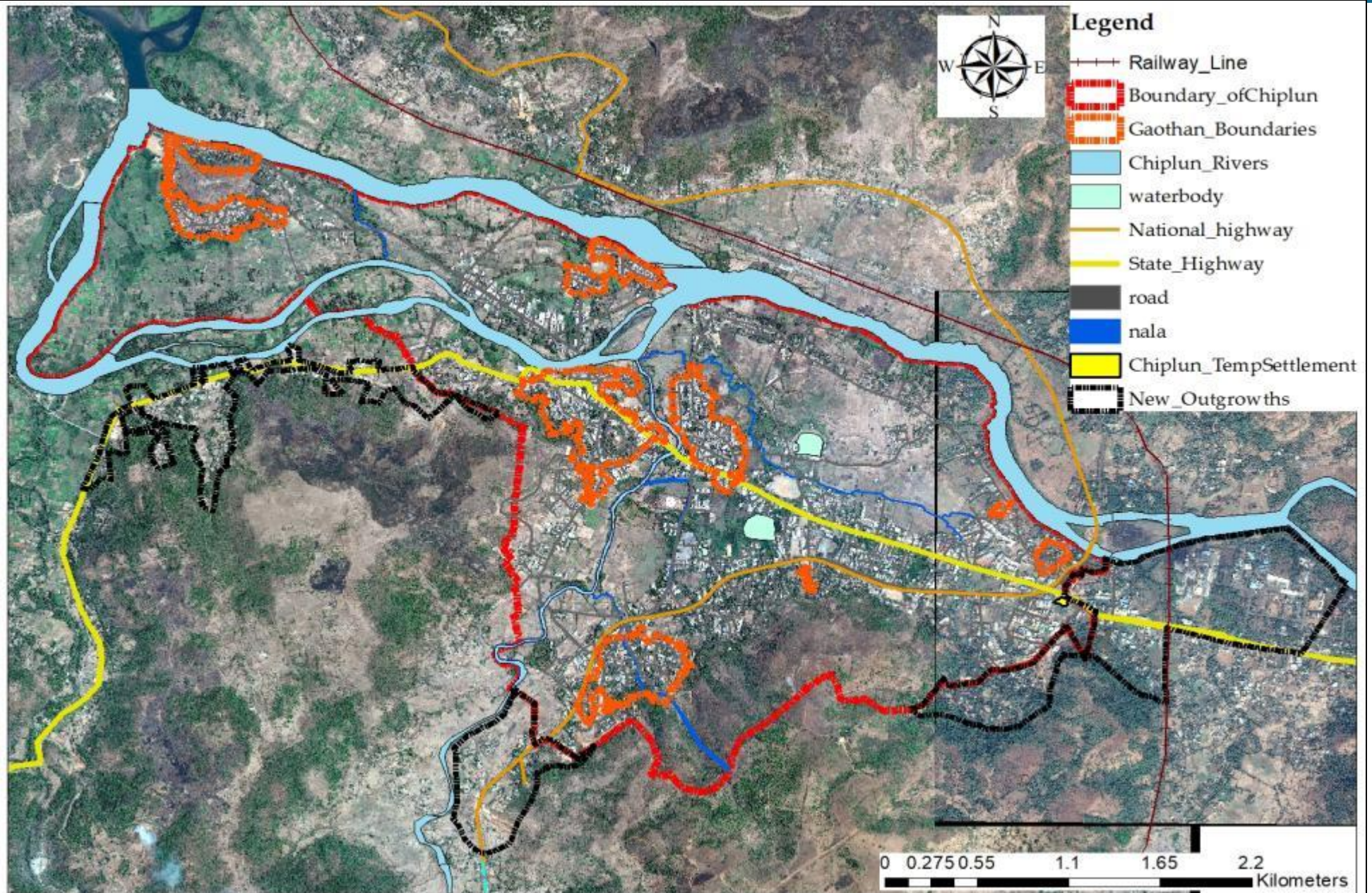


- 25- 150 HHs varying as per seasonal migration for occupations, from villages of Chiplun taluka itself
- No slum schemes implemented so far
- PMAY to be implemented from this year; applications invited

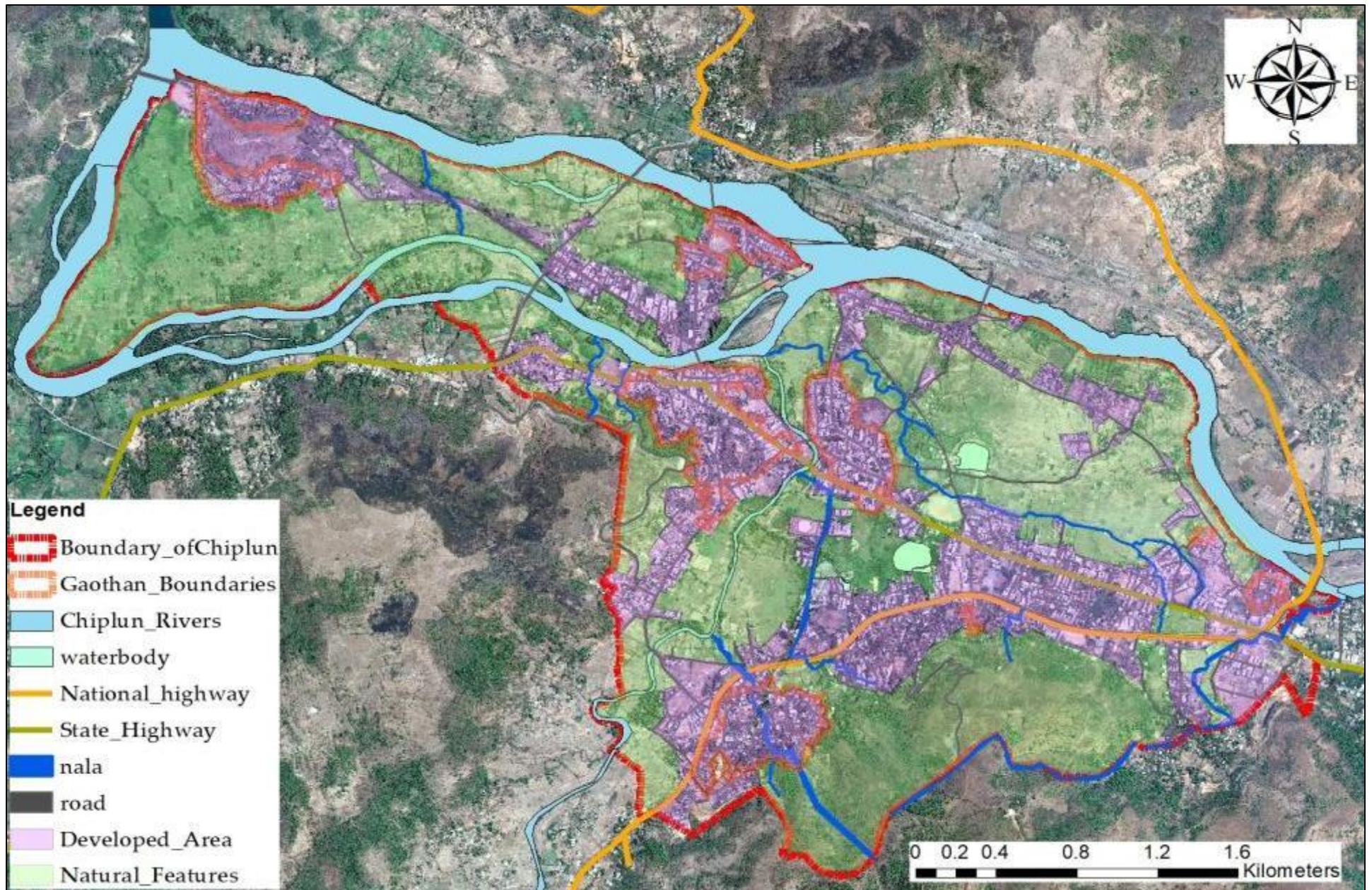
Chiplun Municipal Limit- Satellite Imagery



Chiplun Municipal Limit and Outgrowth Areas



Settlement Pattern and Natural Features



Growth and Gaothan Areas

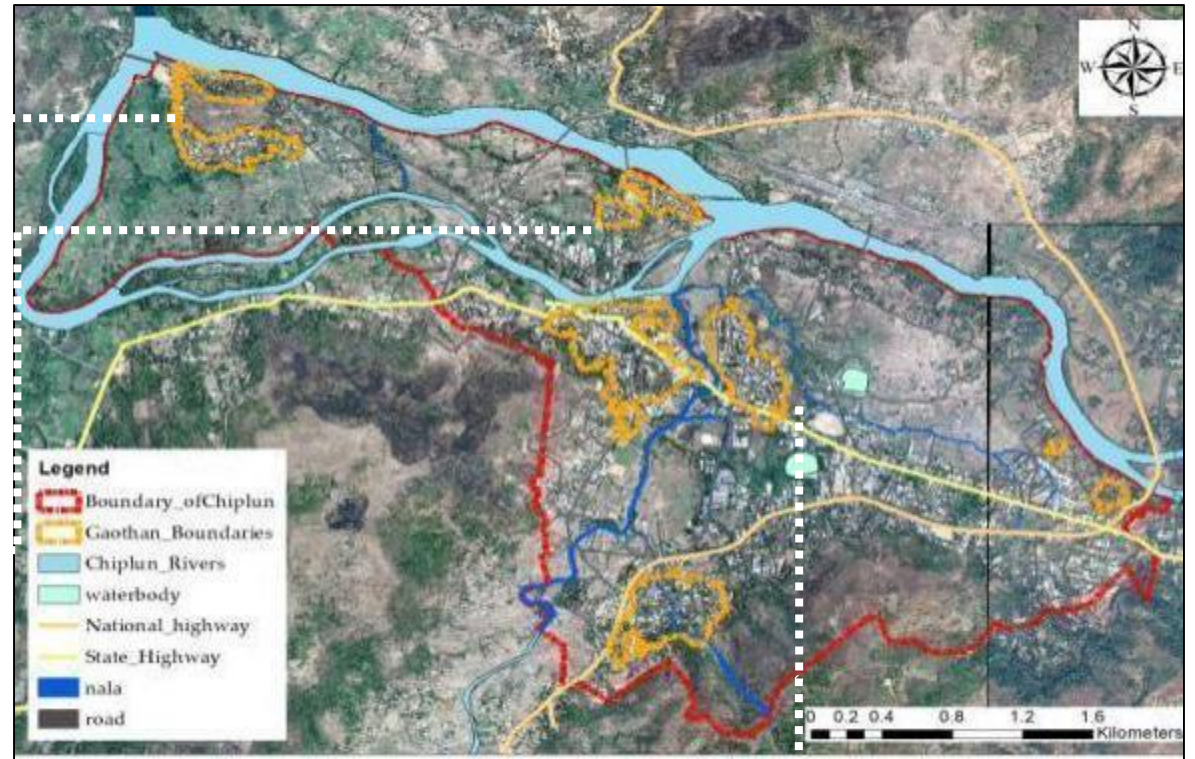


Gowalkot Fort Area



Gaothan area in the north along river

A look at the growth of the town reveals that growth has mainly taken place along the river or roads, specifically the gaothan areas. Non-built up lands in between built-up areas can be observed.



MAPS NOT TO SCALE
Sources: Chiplun Satellite imagery, Google Earth, Chiplun DP



Gaothan area east of Shiv river along NH-66

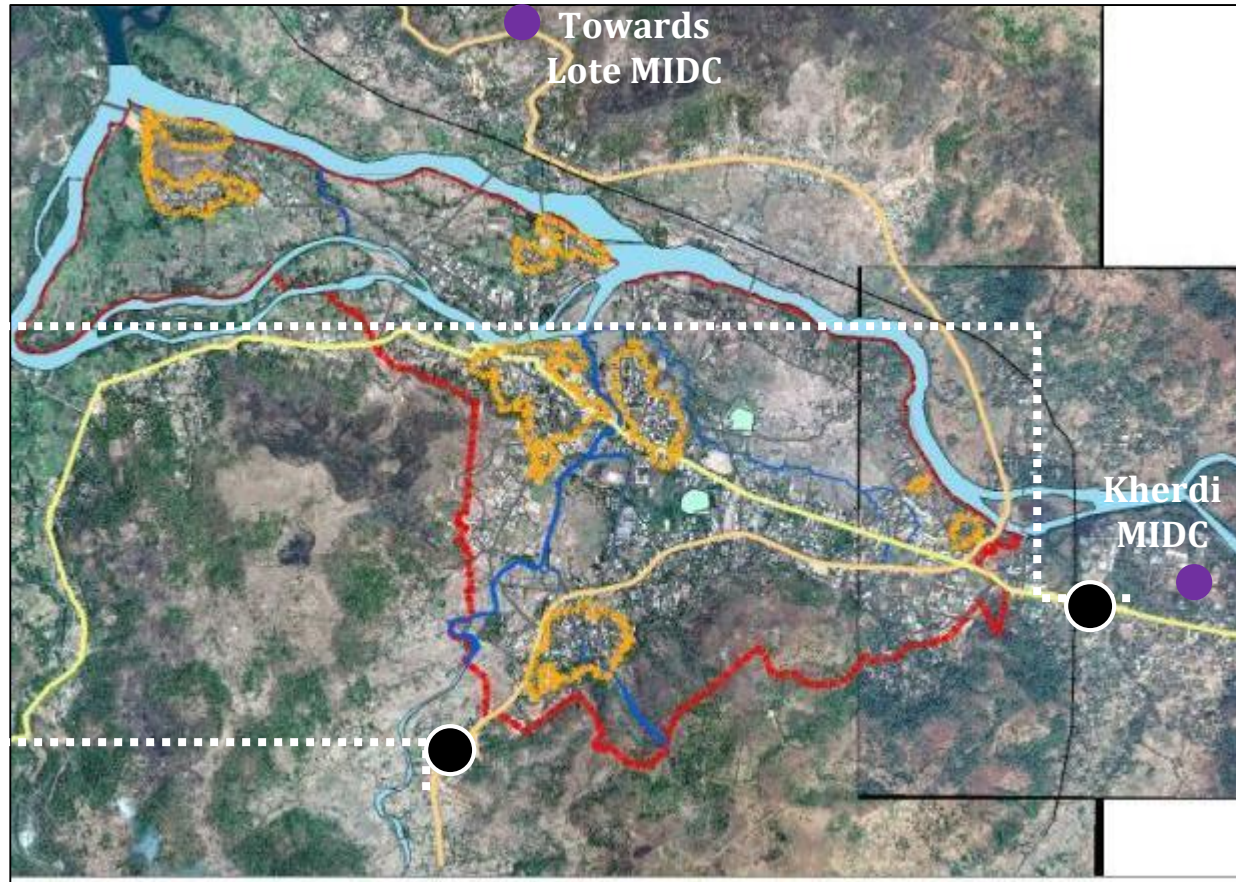
Outgrowth areas



Kherdi, a census town has grown considerably alongside Chiplun



Growth in the south along NH-66



MAPS NOT TO SCALE Sources: Chiplun Satellite imager, Google Earth, Chiplun DP

Beyond the Boundary

2 upcoming MIDCs in surrounding villages- Kherdi: 4 km and Lote: 15 km; growth in those directions, along the NH and SH- north, east and south.

Source: Google Earth imagery, MIDC Information from M.C.I.

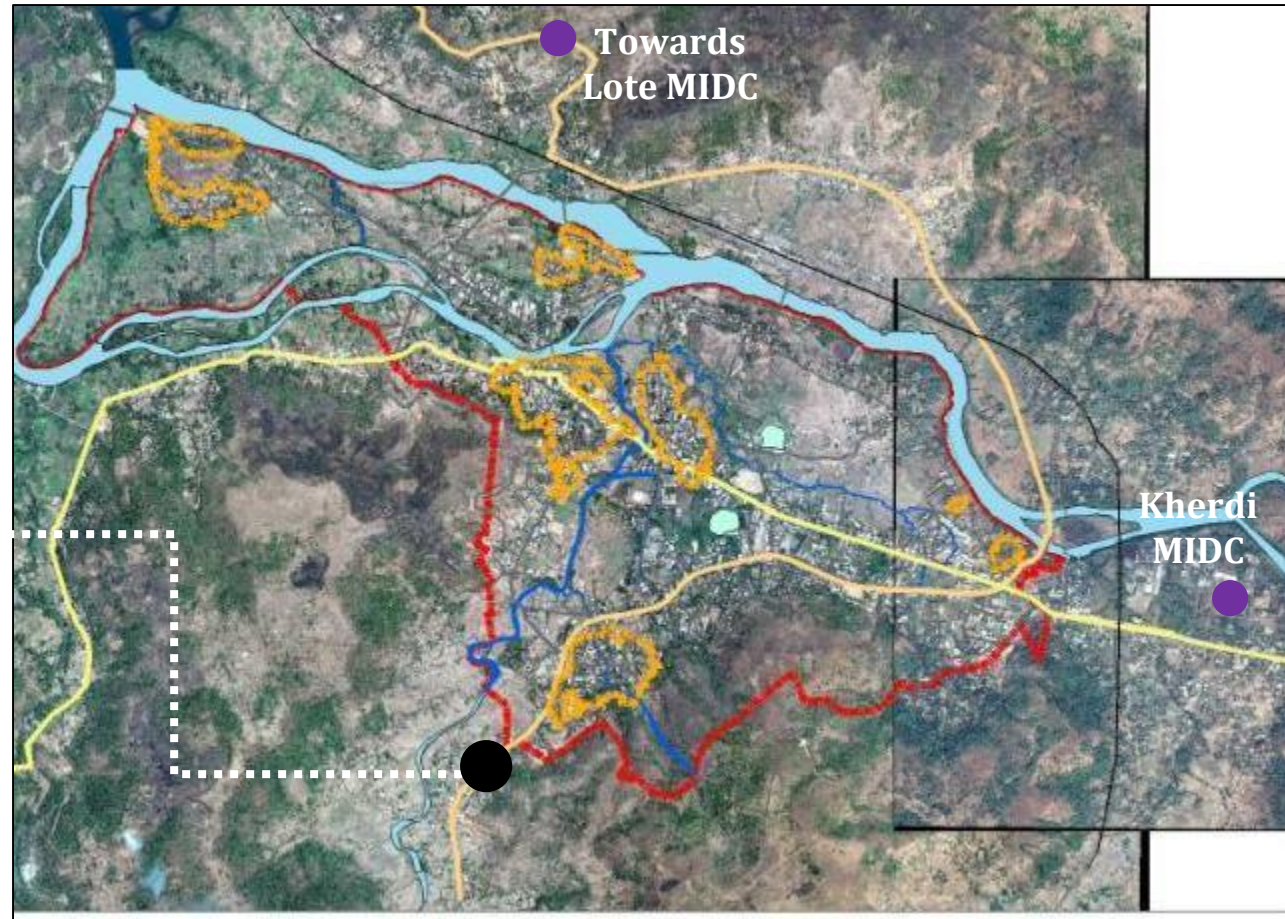
Outgrowth areas



Growth in the south along NH-66, Kapsal



Agricultural land along NH 66



MAPS NOT TO SCALE

Sources: Chiplun Satellite imager, Google Earth, Chiplun DP

Beyond the Boundary

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Outgrowth areas



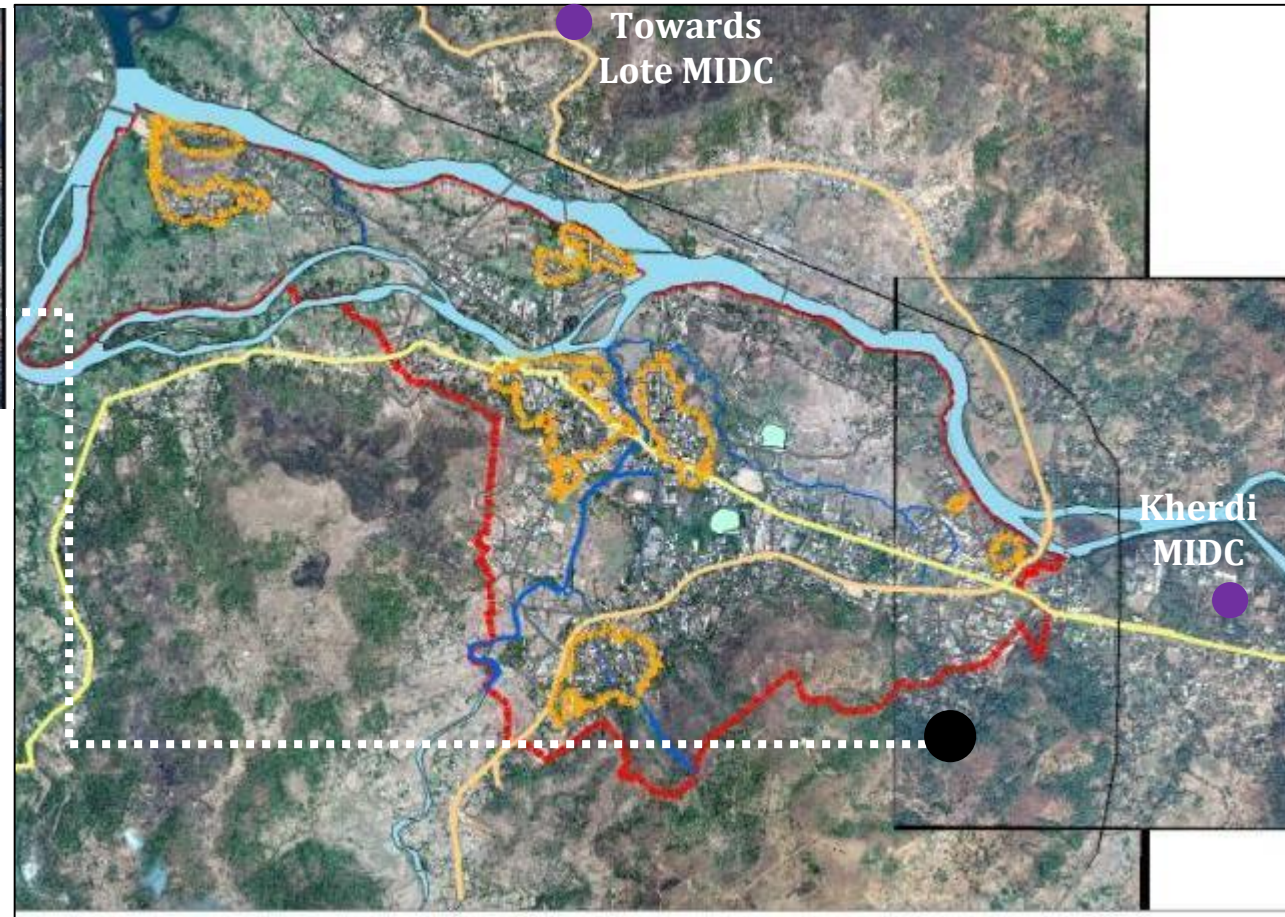
Kherdi, a census town has grown considerably alongside Chiplun



Kherdi, along NH-66, mix use apartments



Deokar's industry of Kherdi MIDC



MAPS NOT TO SCALE

Sources: Chiplun Satellite imager, Google Earth, Chiplun DP

Beyond the Boundary

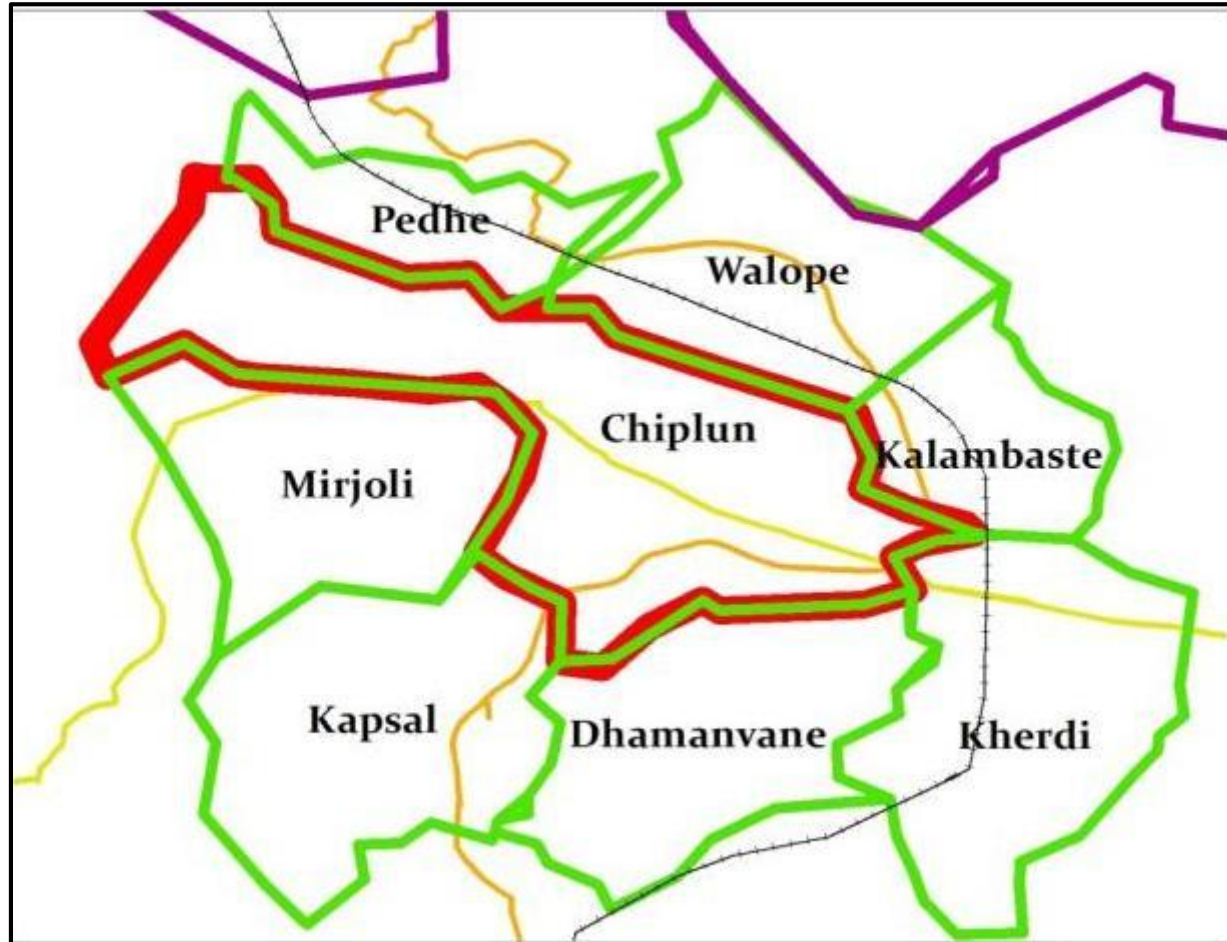
2 upcoming MIDCs in surrounding villages- Kherdi: 4 km and Lote: 15 km; growth in those directions, along the NH and SH- north, east and south.

Source: Google Earth imagery, MIDC Information from M.C.I.

Outgrowth Areas- Surrounding Villages

Surrounding Villages Information

Gram Panchayat	2011 Population	Current (2017) no. of HH
Pedhe	3816	815
Walope	2646	512
Kalambaste	2882	1089
Kherdi	12397	3239
Dhamanvane	2041	441
Kapsal	3895	915
Mirjoli	2600	769
Total		7,780
Total Population 2017		33,112



Administrative and Electoral Boundary

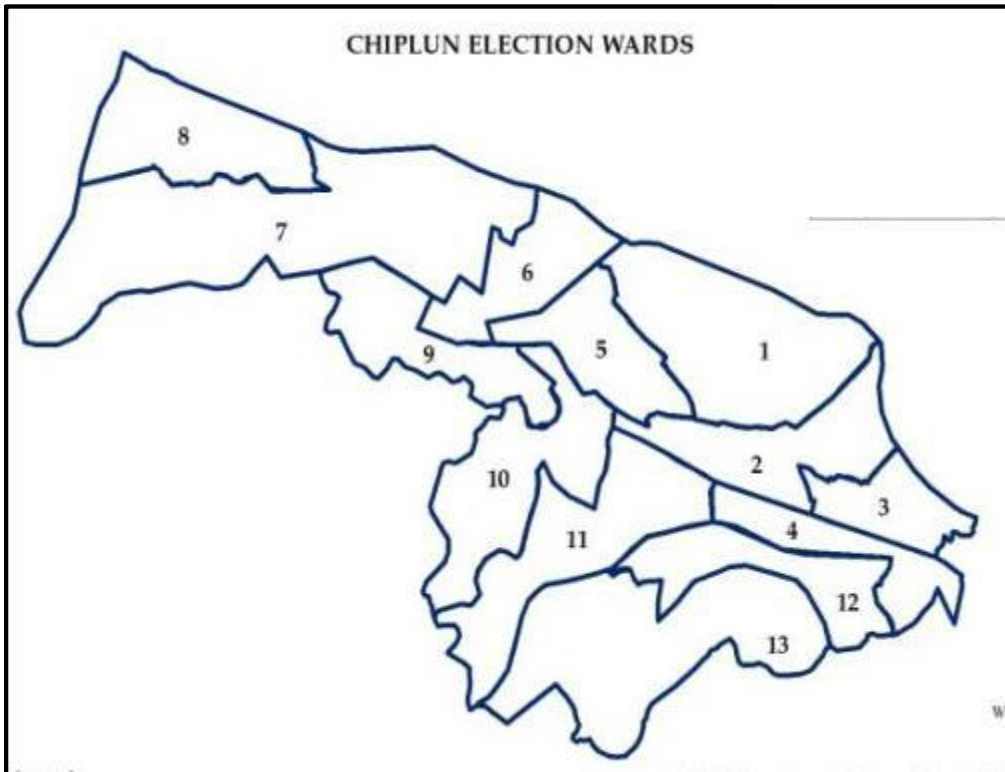
Number of Electoral Wards

13

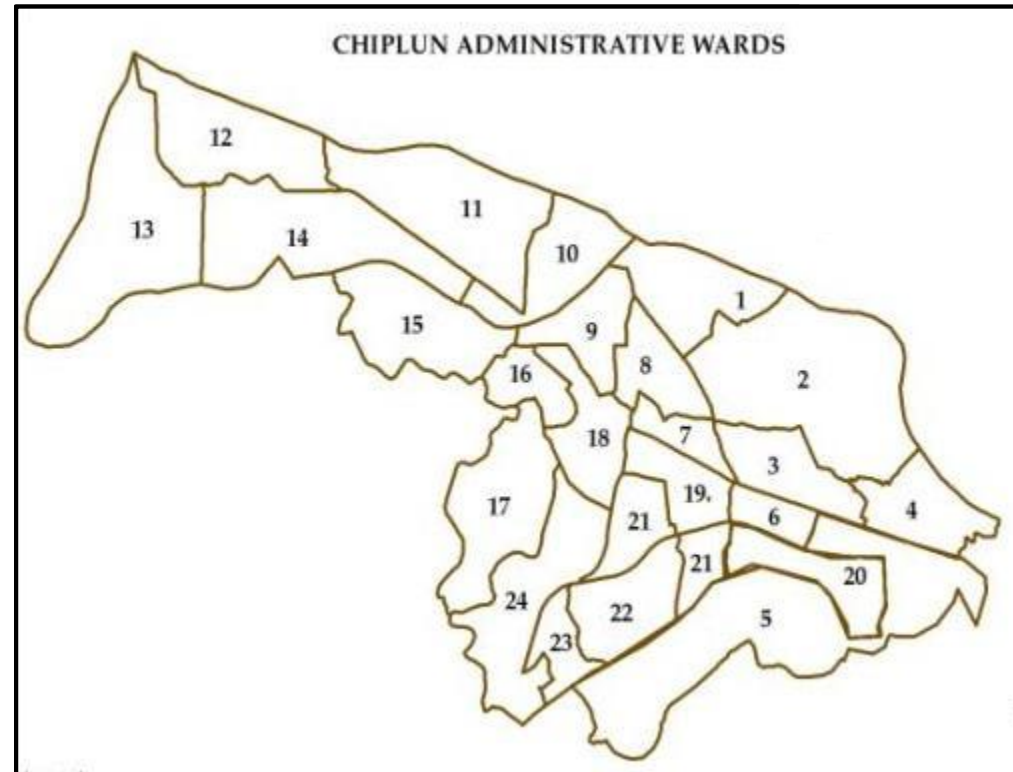
Number of Administrative Wards

24

Chiplun Electoral Wards



Chiplun Administrative Wards



Administrative Boundary

- The wards towards the east of the Vashishti and Shiv rivers are delineated along road and river boundaries and so have high densities along these.

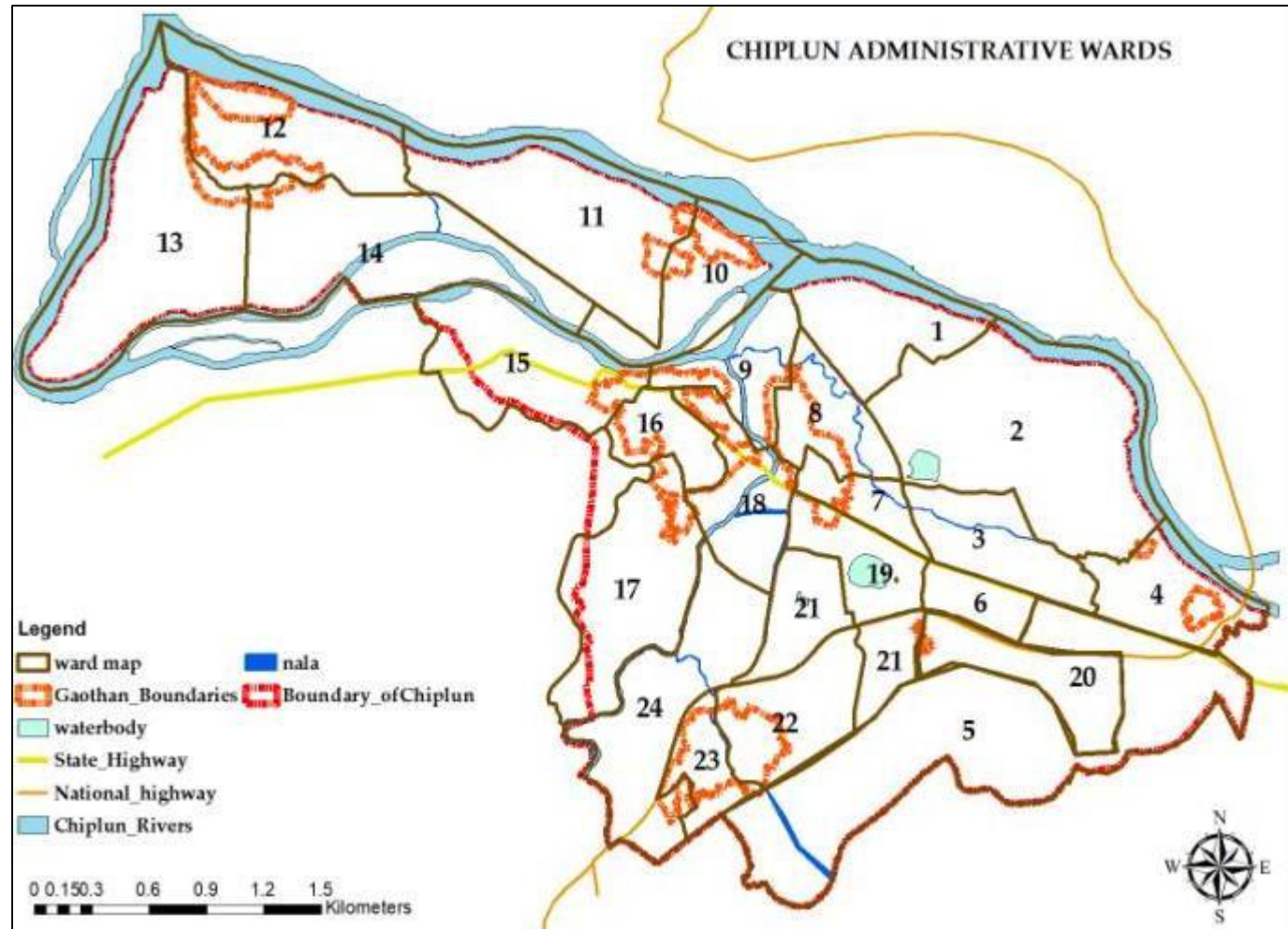
- The wards 7, 8, 9, 16 and 18 in the centre of the town contain the gaothan areas. They are the smallest wards in Chiplun and have high density.

- Ward 12 contains the Gowalkot Gaothan, which is a heritage area where houses are close set and roads are narrow.

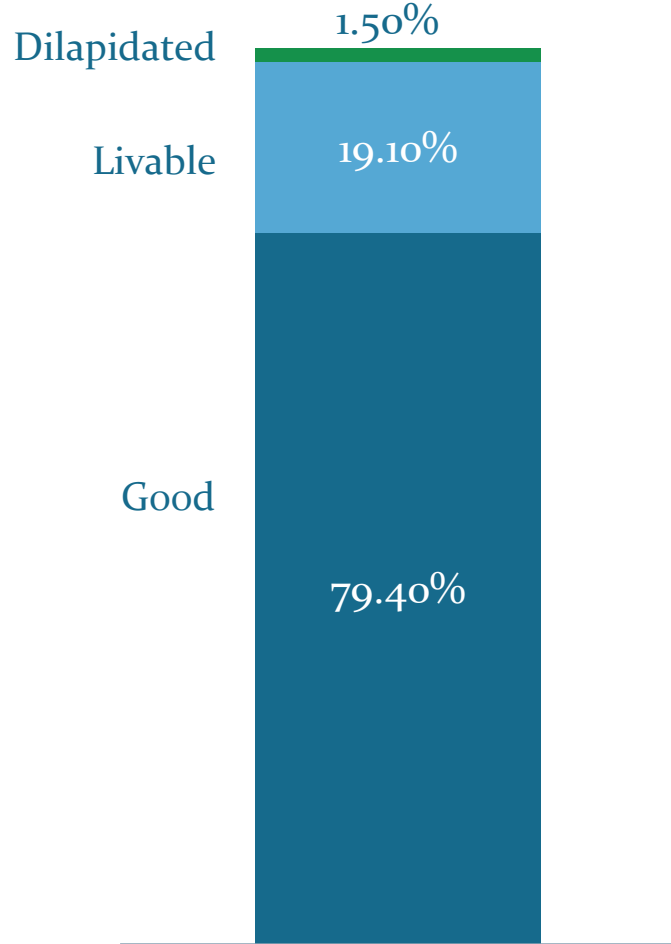
- The larger wards such 2,5, 11, 13 and 14 are mostly undeveloped, having either hills or agricultural land, thus these wards have lower densities.

- Ward 5 is the largest, but contains the Upnagar temporary settlement.

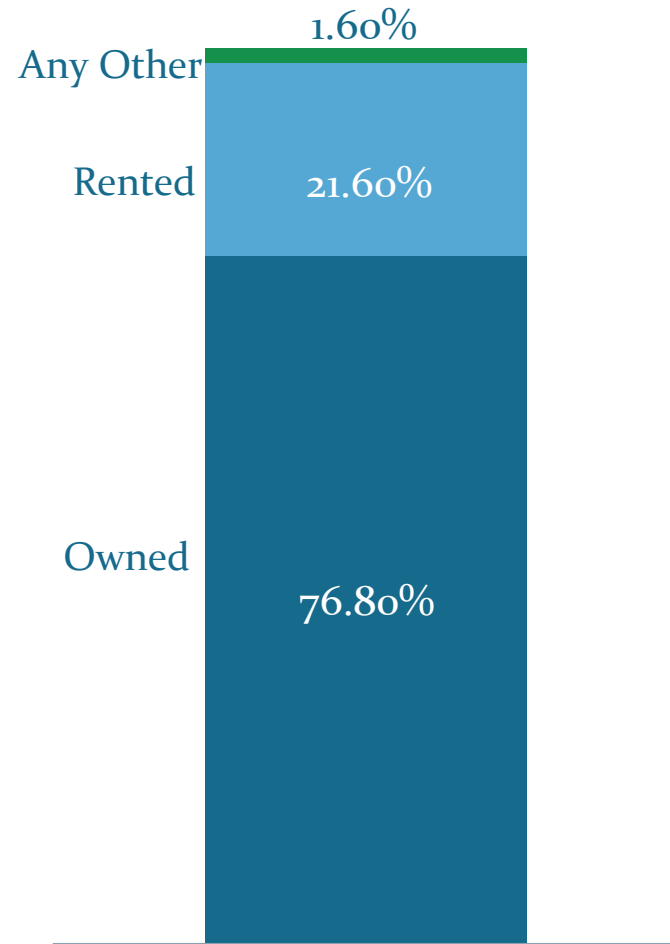
Chiplun is divided into 24 administrative wards



Housing Condition



Housing Condition



Ownership Status

- Good houses are those that do not require any repairs and are in good condition.
- Livable houses are those requiring minor repairs.
- Dilapidated houses are ones showing signs of decay and a need for key repairs.

Housing Typology: Gaothan Areas

Traditional bungalows, sloping roofs, close set, and dense mixed use buildings.



MAPS NOT TO SCALE

- A number of banks, shops, businesses can be observed, and also small stalls and thelas on the road. Crowded, especially in evenings.
- Narrow inner lanes, traffic jams.



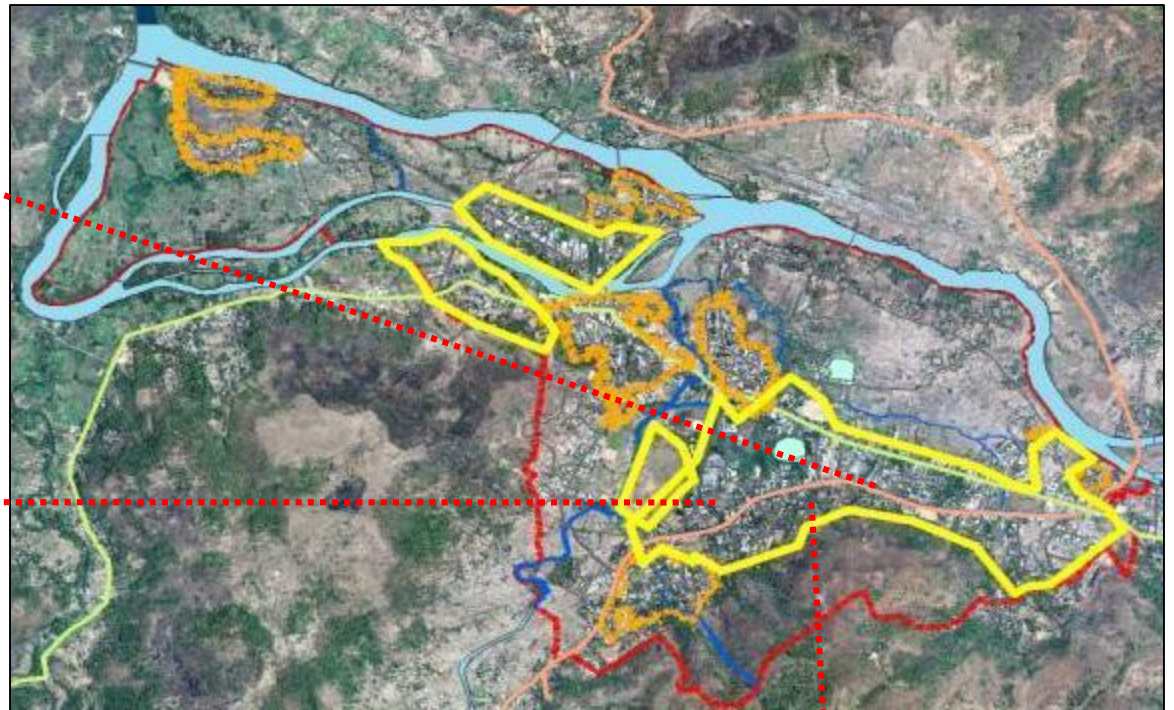
Housing Typology: Newer Areas



Along NH-66



The inner lanes are much wider



Sources: Chiplun Satellite imagery, Google Earth, Chiplun DP

MAPS NOT TO SCALE



There are a number of bungalows on spacious plots in Chiplun,



Unfinished semi-pucca structures are seen in a few areas



Large apartment buildings are a common sight.

Housing Typology: Outer Areas



North-East area of the town



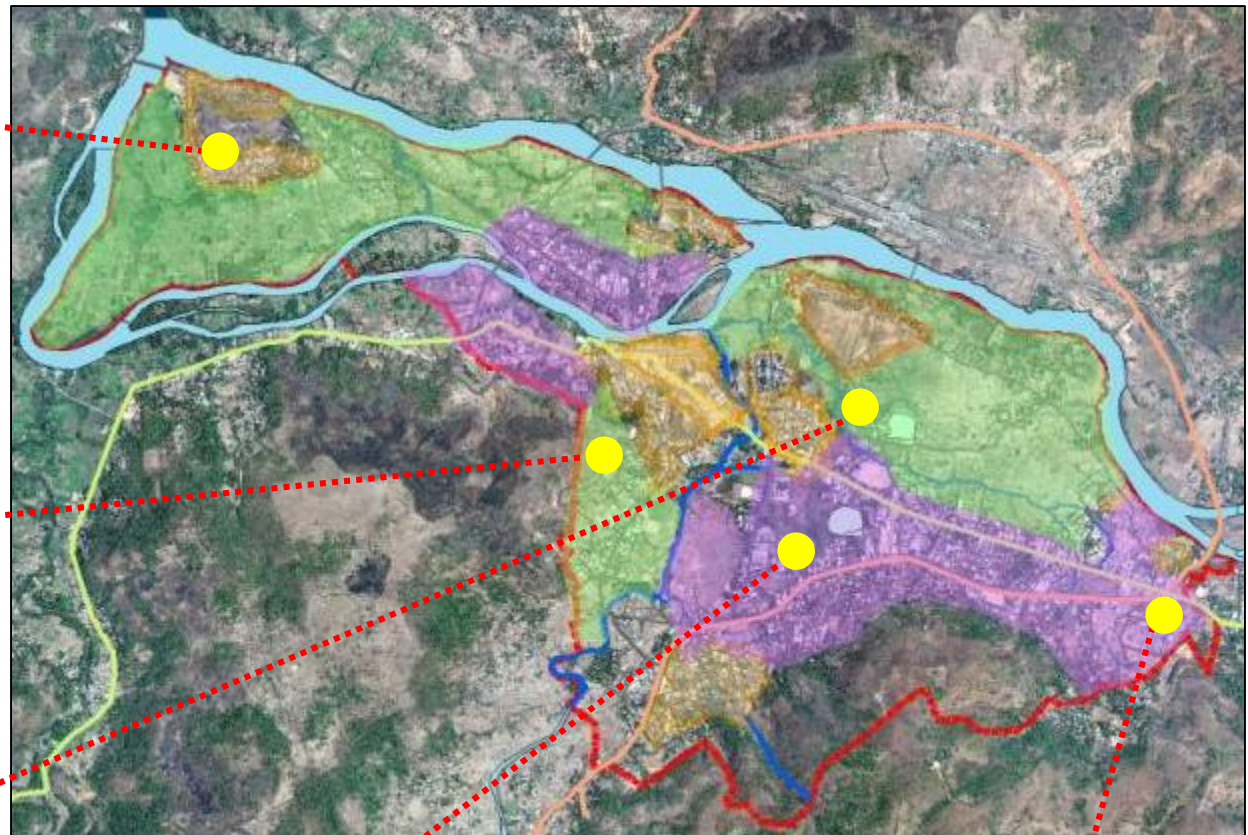
- These areas have mainly farmlands or open lands, lots of greenery where one can observe different birds.
- Occasional plots where new apartment buildings can be observed. Apartments have more than two storeys.

Sources: Chiplun Satellite imager, Google Earth, Chiplun DP

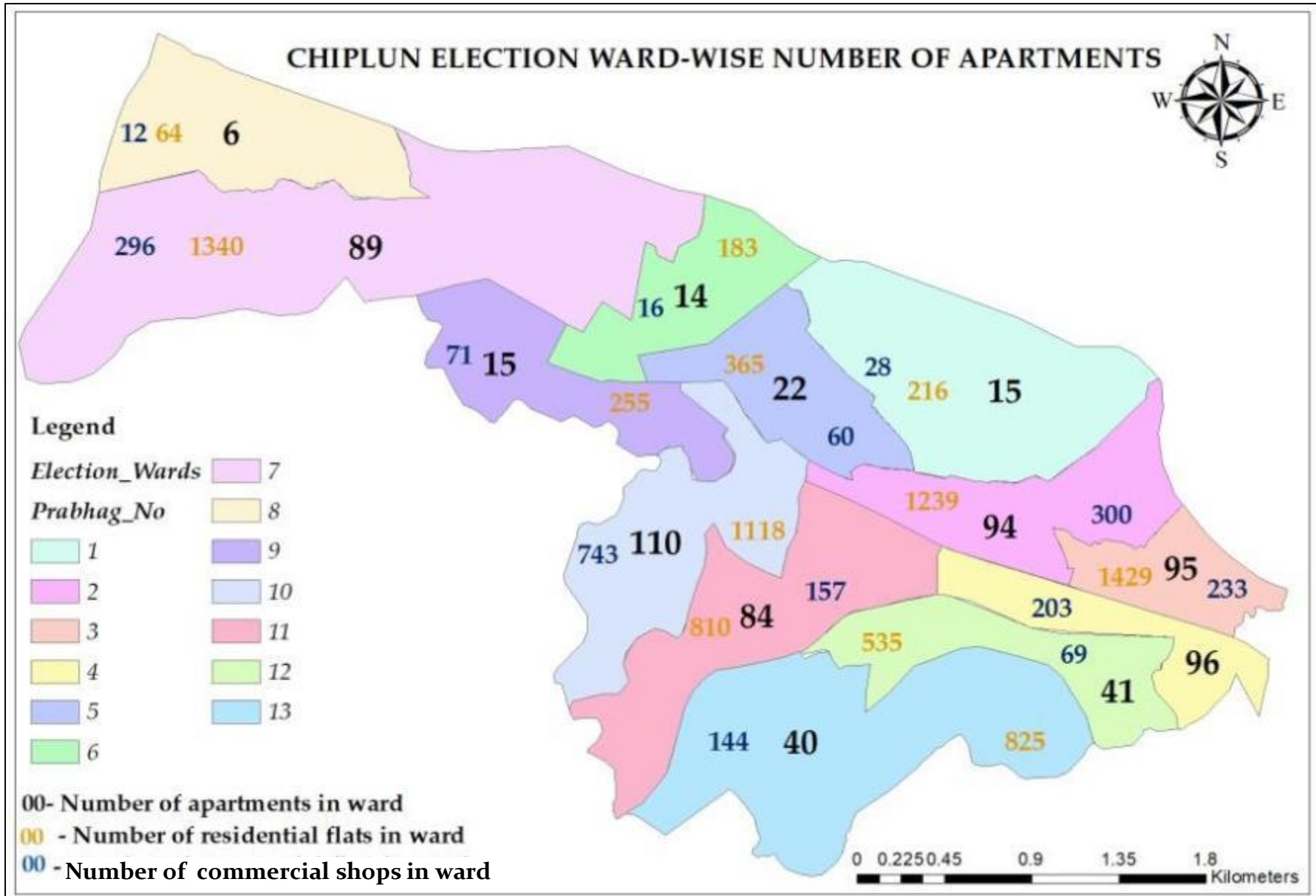


The Gowalkot Fort Hill

Overall Housing Typology in Chiplun



Overall Housing Typology in Chiplun



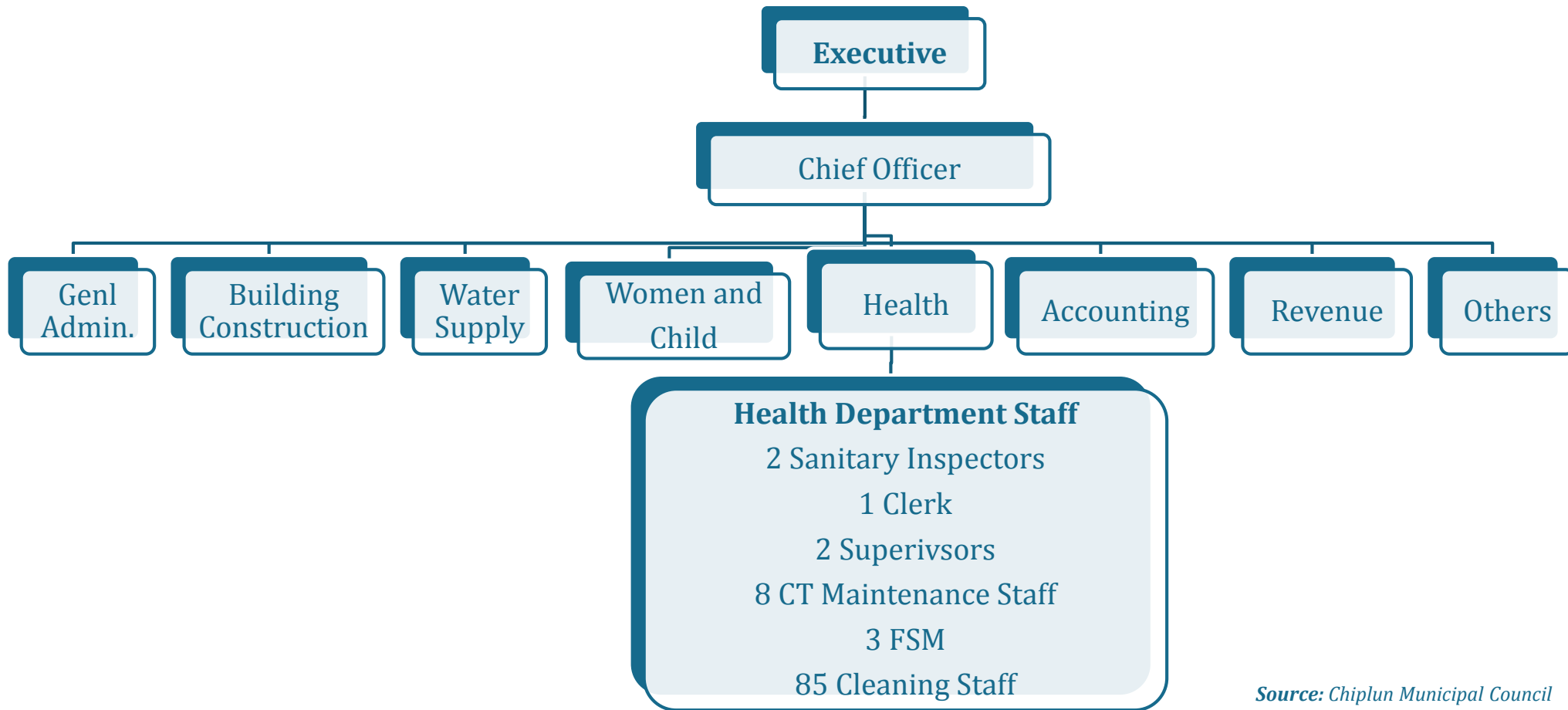
Organogram

Chiplun Municipal Council

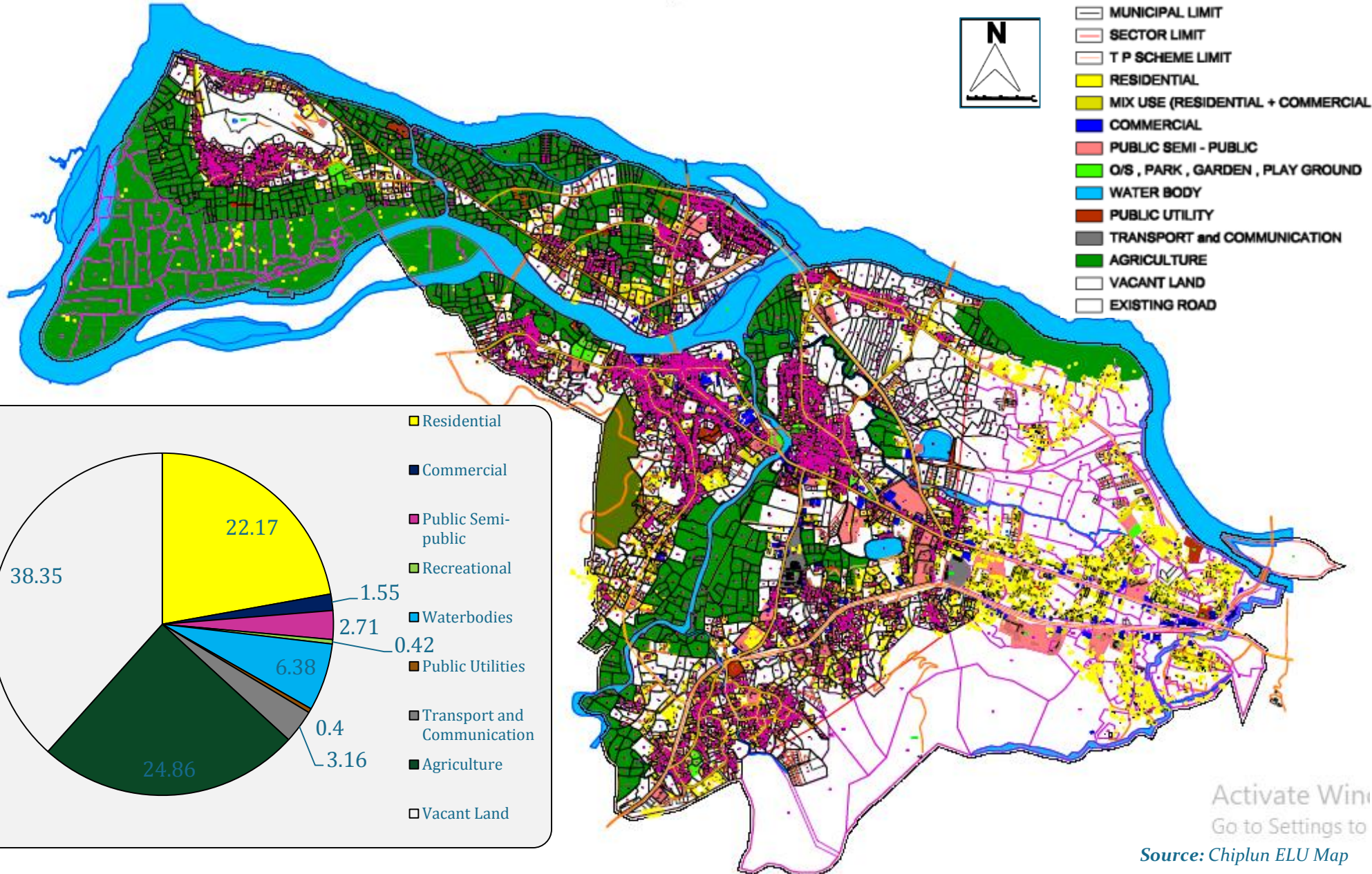


President	Ms. Surekha Nitin Kherade	Chief Officer	Mr. Pankaj Patil
Total Municipal Staff		186	

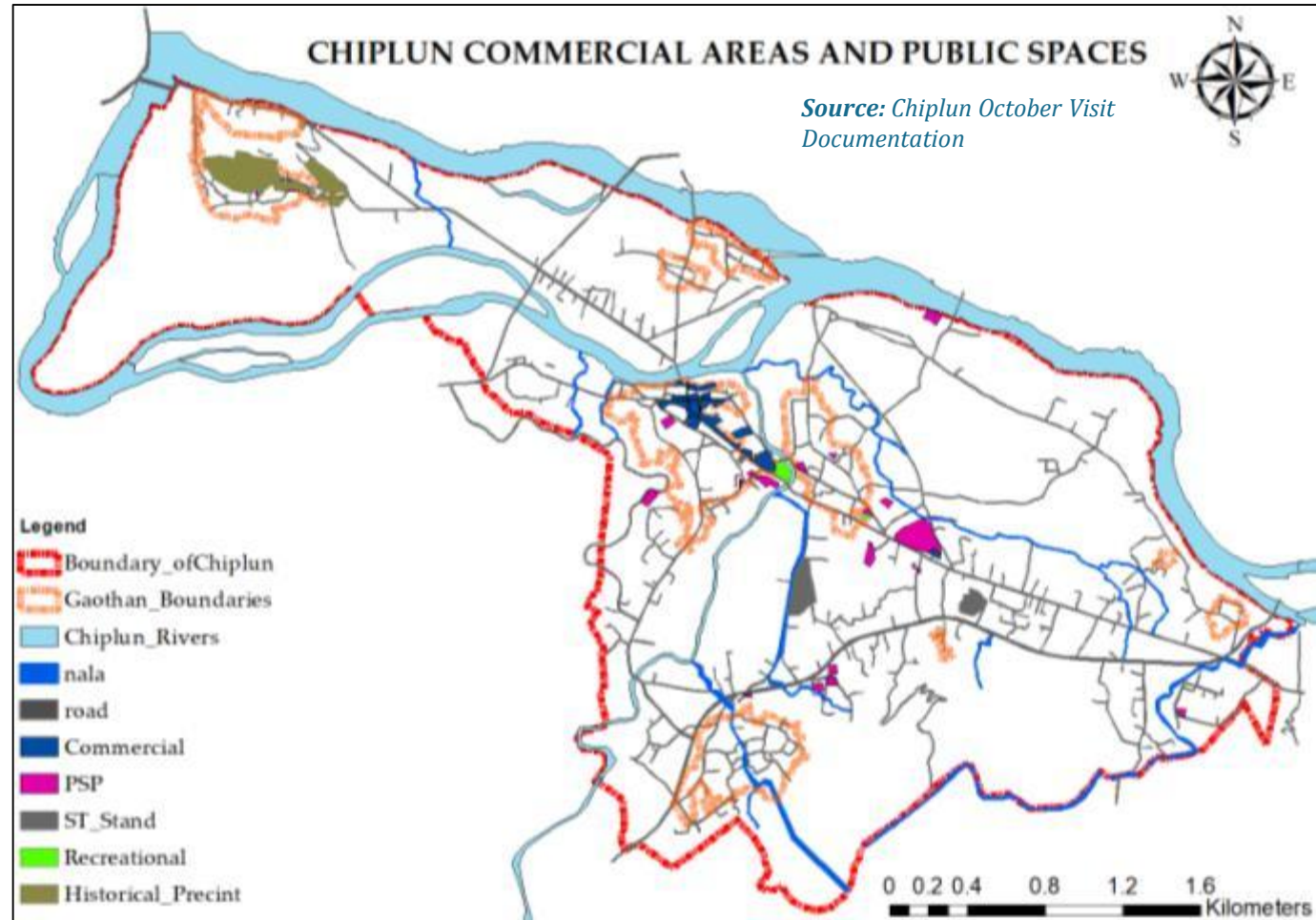
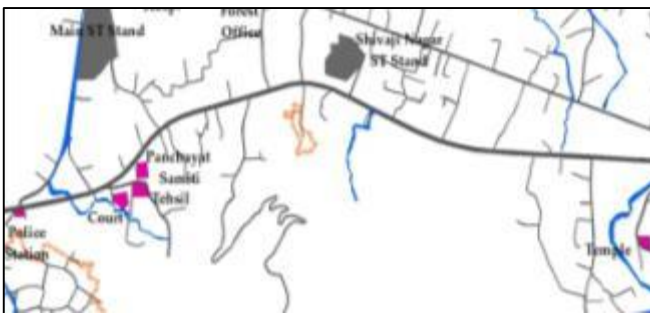
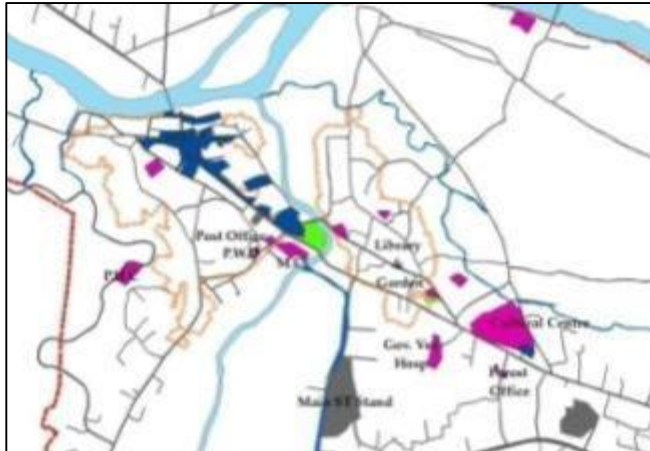
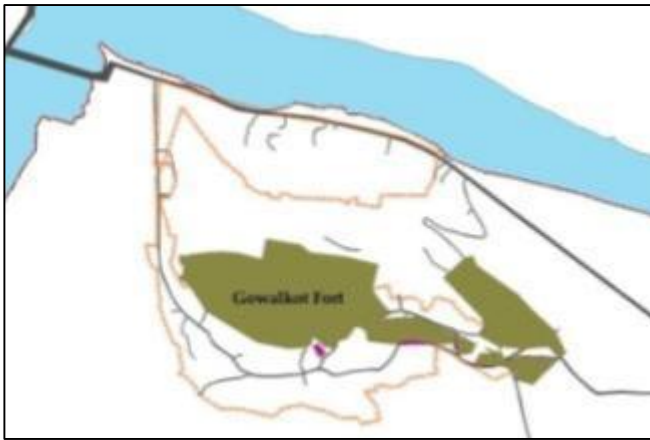
Organogram of Administrative Wing of Council and Departments Concerned with Sanitation



Existing Land Use



Commercial and Public Spaces

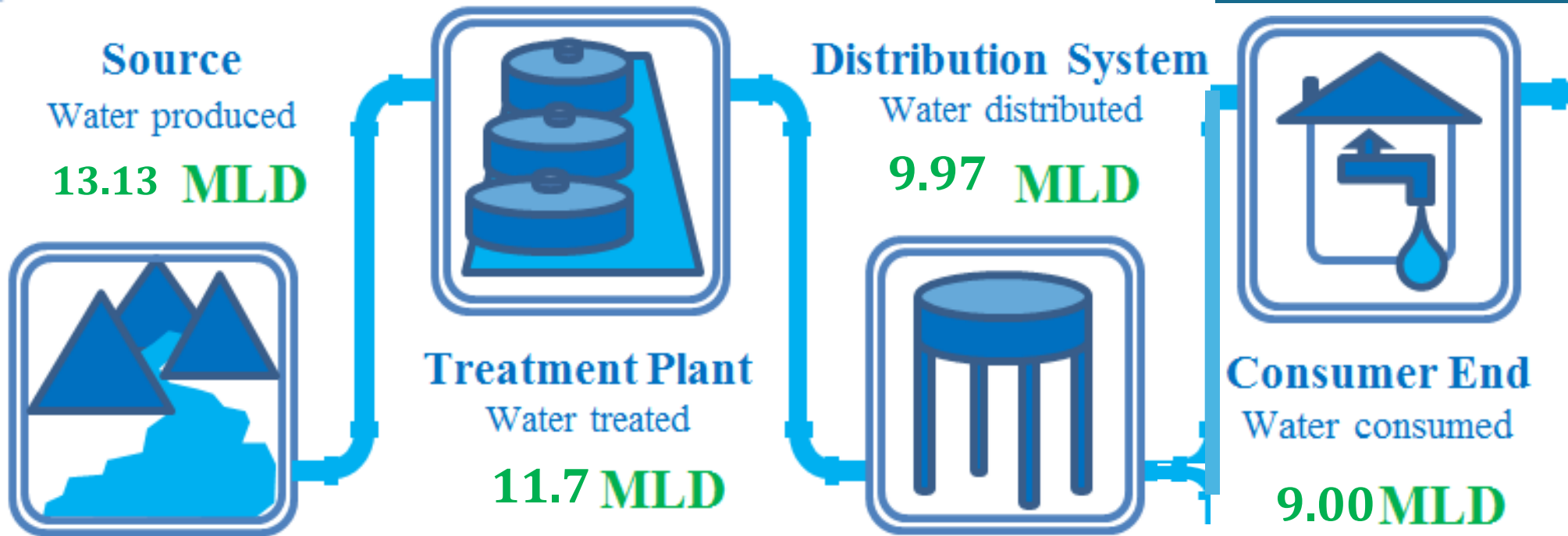


Main public places include:

- The Gowalkot Fort
- Various temples and mosques
- Cultural Centre
- Library
- Garden, Stadium
- Various government offices- Municipal Council, Tehsil Office, PWD, etc.
- 3 ST Stands in Chiplun
- 1 Primary Health Centre, 1 Gov. Veterinary Hospital
- Marketplace in town centre

Water Supply

Water Supply Status



2 Surface Water Sources:
Intake Wells on Vashishti River

2 Water Treatment
Plants at both sources

Water Supply : 135 LPCD

- The current coverage of water supply lines is 69.5% (SLB 2016-17). Council claims coverage is 99%.
- Water is supplied twice in a day.

- No metering as yet, flat charges levied.
- The water charge for residential properties is Rs. 1200 p.a., and commercial Rs. 2000 p.a.

- **Water Audit prepared in the year 2013**

Extent of non-revenue water in 2016-17 (SLB Data): 31.45%

Water Supply Coverage

2 Water Supply Zones in Chiplun

Zone 1 marked in orange have water supply from the Gowalkot intake and WTP.

Direct supply to these areas from Gowalkot..

Water pumped to GSRs in these areas from where water is supplied to houses.

Khend area: Water partly supplied from Gowalkot and partly from Kherdi. 1 ESR and 1 GSR here.

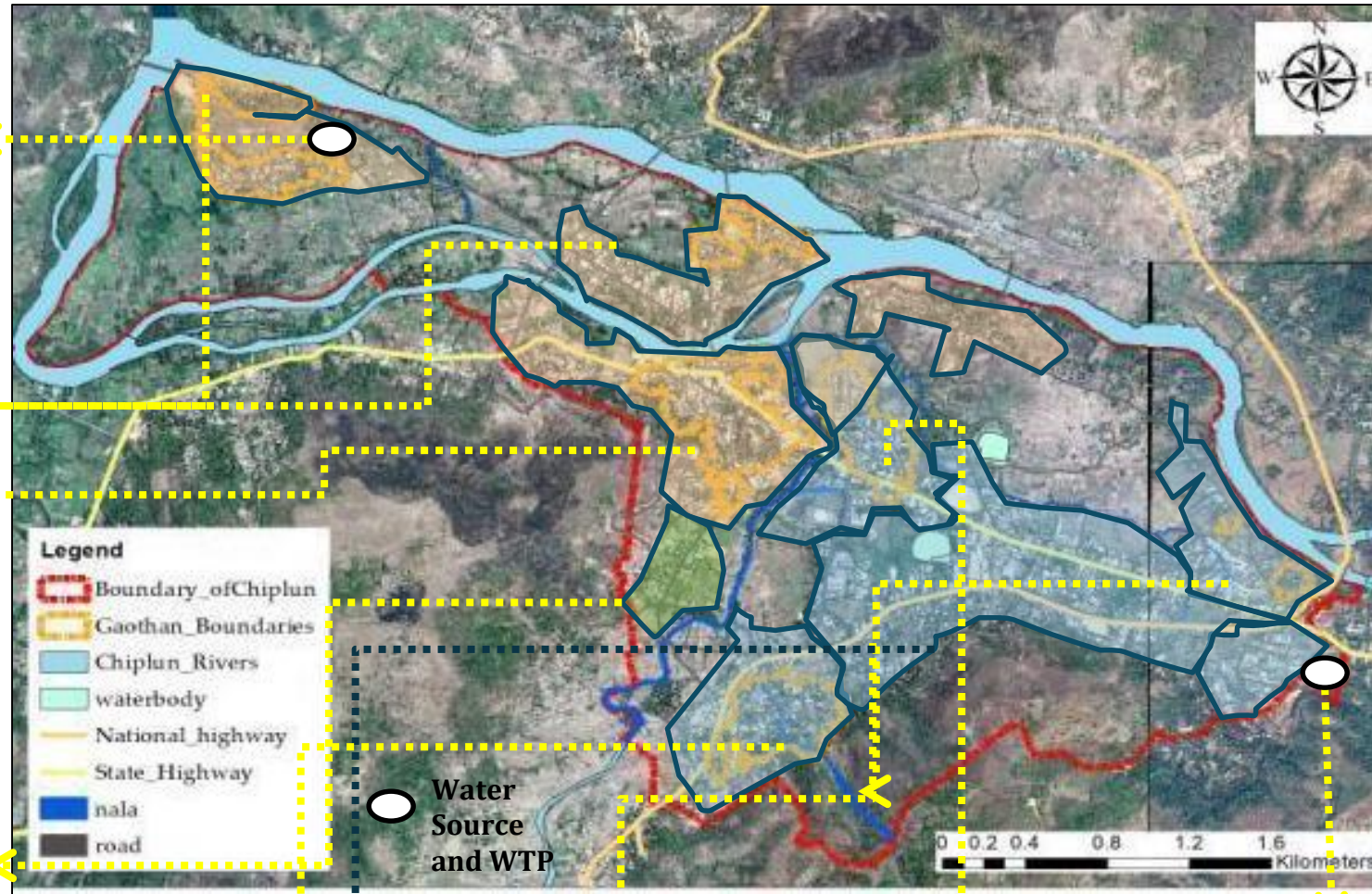
GSR and sump at Pag area

More public standposts in Bouddhawadi area

DBJ College, Gurukul and Upnagar through GSRs

Direct supply to these areas

Kherdi intake and WTP supply water to Zone 2 marked in blue.



2. Current Sanitation Situation: Access to Toilet

Access to Toilets



Cleaning & Maintenance



Collection & Storage



Treatment

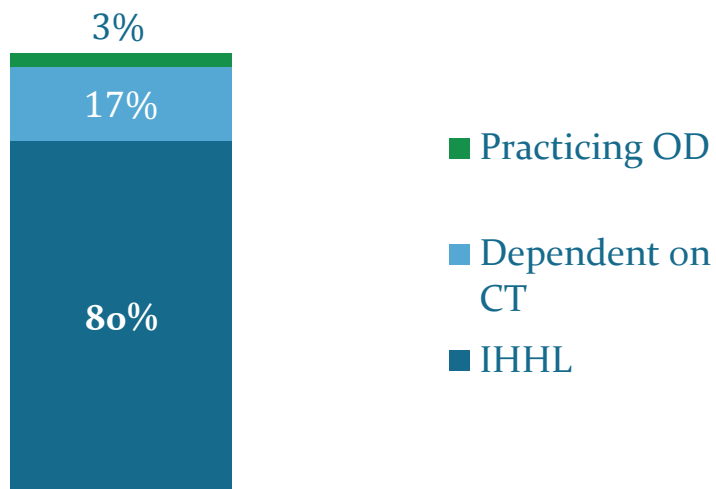


Disposal & Recovery

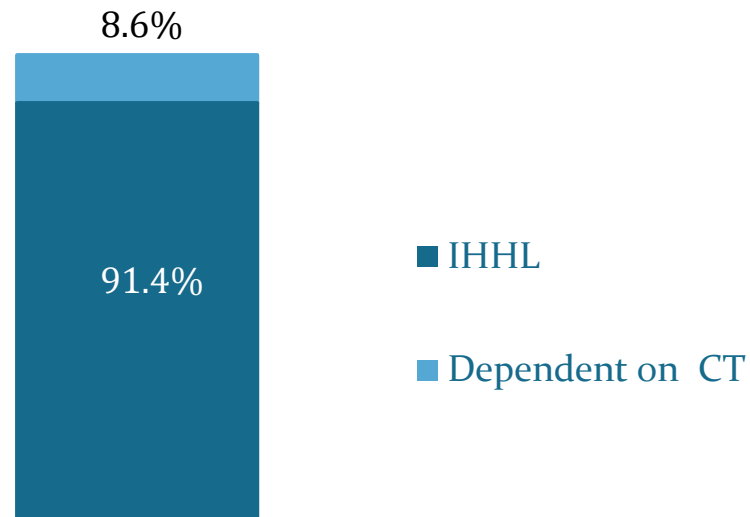


Access To Individual Toilets

Access to types of sanitation facility (2011)



Access to types of sanitation facility (2017)



	Total HH	HH with IHHL	Depend on CT	Practice OD
Overall	12,557	10,040	2,171	346

Total HH	HH with IHHL	Depend on CT	Practice OD
15,776	14,427	1,349	0

Current IHHL coverage in Chiplun- 91.4%

Access to Individual Toilets

**Subsidy for IHHL
Construction**

Rs. 22,000

Documents to be provided during application-

- Aadhaar Card
- Property 7/12 document copy
- Mobile Number
- 2 photographs
- Acceptance letter from property owner if applicable



Photos above and to the right are of precast and in-situ IHHLs.

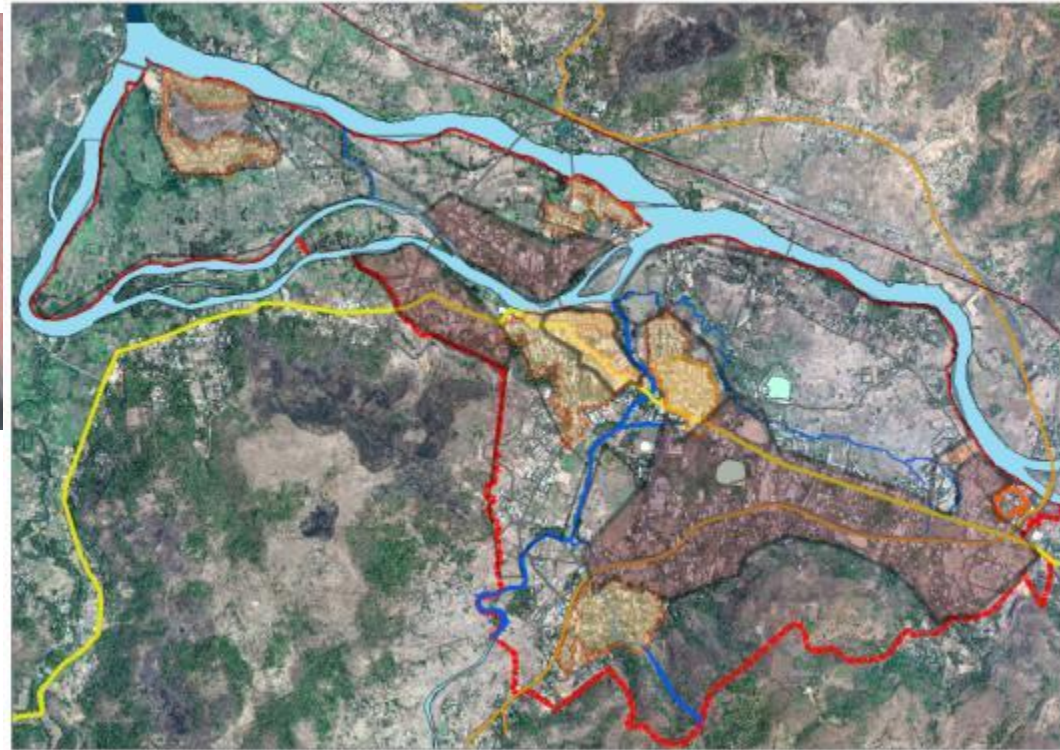
**Precast Toilets
Cost- Rs. 25,000**



**In-situ Toilets
Cost- Rs. 35,000 (upto Rs.40,000
if bath area included)**



Individual Toilets Observed in Chiplun



Source: SBM regulations, Municipal Council Budget, Chiplun field visit August 2017 documentation

Swachh Bharat Mission (SBM) Status

SBM Status for IHHL- 18th March 2018

Target – 346

	Application received	Verified	Approved	Rejected	Constructed toilet	Commenced toilet
Offline	595	3	357	235	346	342
Online						

- 100% of the target set has been constructed.
- Of 595 applicants, only 58% (346) have IHHLs, the remaining (249) require to build toilets.
- Most rejections were because applicants have been unable to produce required documents, especially documents related to land, or are not owners of the land they are living on.

New Round to Provide 220+ toilets for ODF++ as per Council Resolution

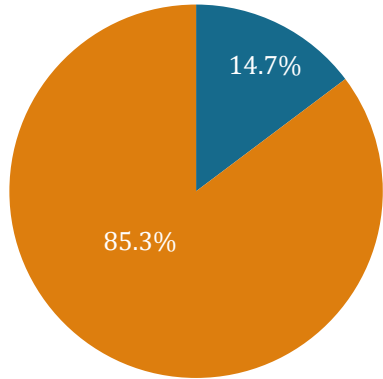
- The Council has started a new round of toilet provision under SBM.
- Toilets will be provided to previously rejected applicants and applications are invited from HH not having IHHL.
- The aim is to increase IHHL coverage for securing the ODF++ status.
- As of 29th November 2017, the Health Department has received 90 applications, and are still receiving more.

ODF+ and ODF++ Status

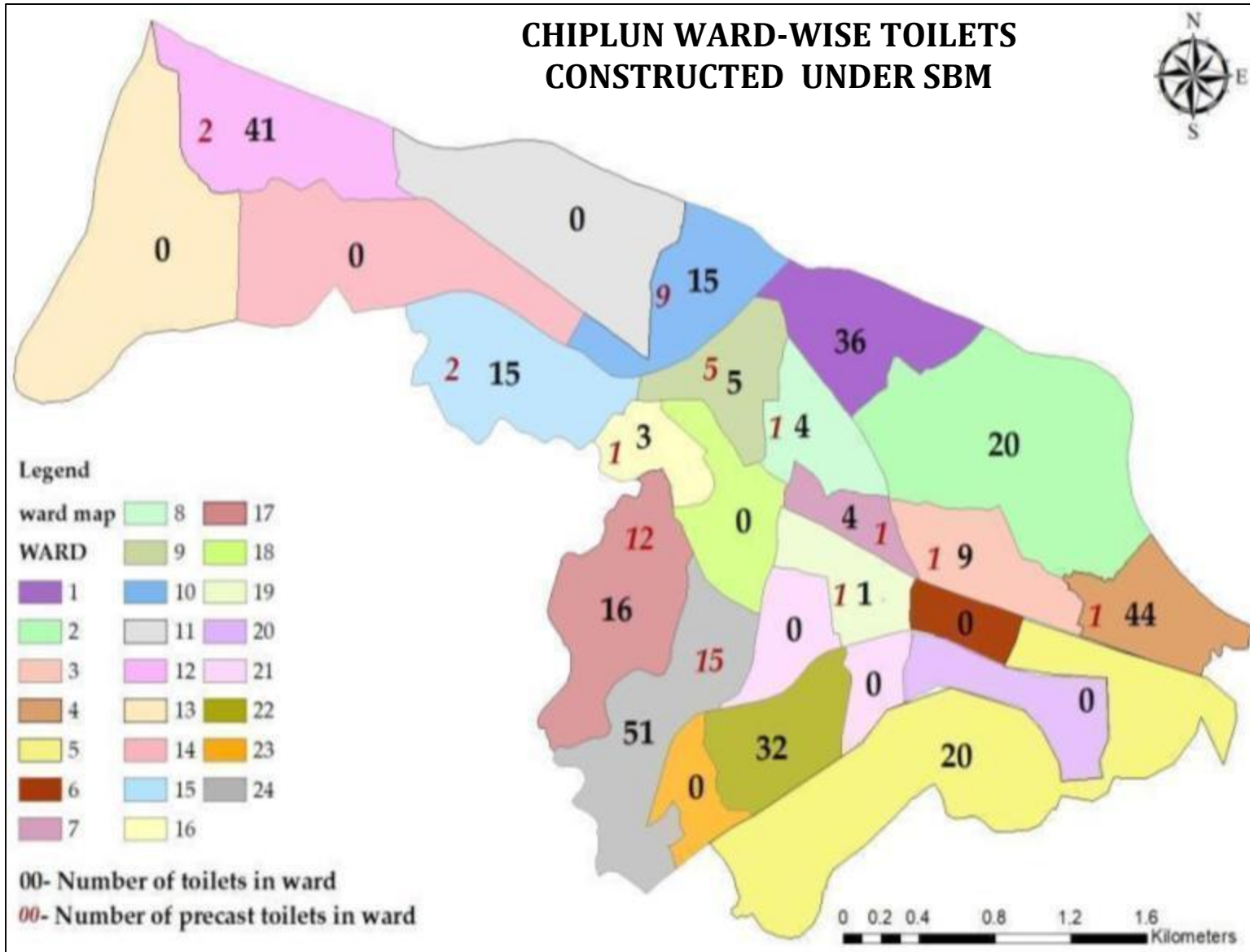
- As the coverage of IHHL in Chiplun is already 91.4%, Chiplun meets the criteria for ODF+ status in terms of IHHL coverage.
- Thus, the Council now needs to work towards achieving the ODF++ status, i.e. IHHL coverage 95%.
- About 561 more toilets need to be constructed to achieve 95% coverage.
- Hence apart from the previously rejected applicants, 312 more applications need to be mobilized.

Access to Individual Toilets

Type of Toilet Constructed



- Precast Toilets
- In-Situ Toilets



Community Toilets

Community Toilet Status

No of CT Blocks	72
Total number of seats	273
% of functional seats	100
Dependency per seat	5 HHs

Public Toilet Status

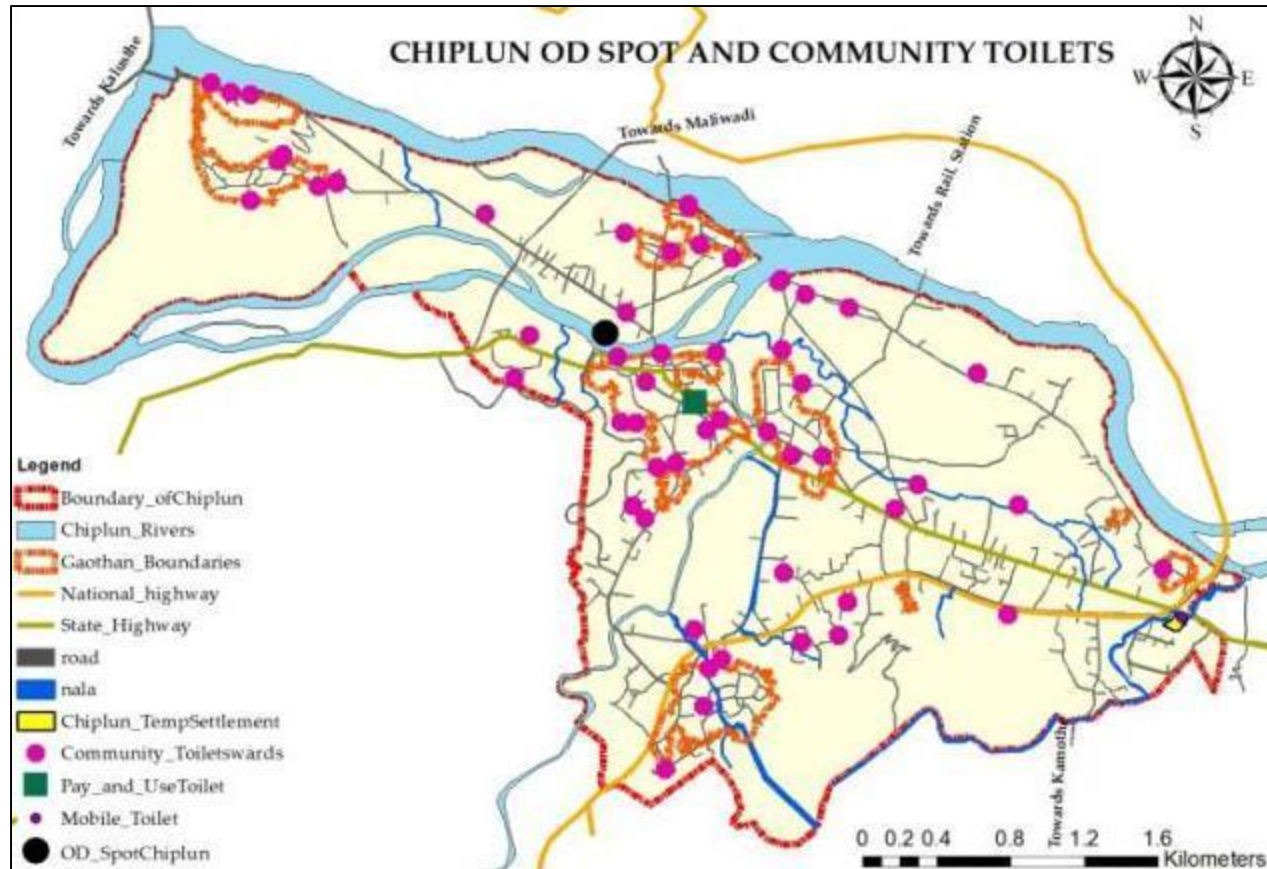
No of PT Blocks	1
Total number of seats	7

O & M of all CTs carried out by M.Cl

Private (Nirmal Foundation) on BOT basis	1 Pay-and-use Toilet, near M.Cl. For 30 years
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For the future: The Municipal Council intends to distribute CTs to HHs with space issues, or break down some CTs , provided IHHL coverage increases.

Sources: Health Department records, QCI validation documentation, SLB Data 2015-16



The M.Cl. is responsible for providing water supply, cleanliness, lighting and septic tank desludging. CT conditions have been assessed.

Toilet Provision at OD Spot and Temporary Settlement



One OD spot identified in Chiplun at the Visarjan Ghat.

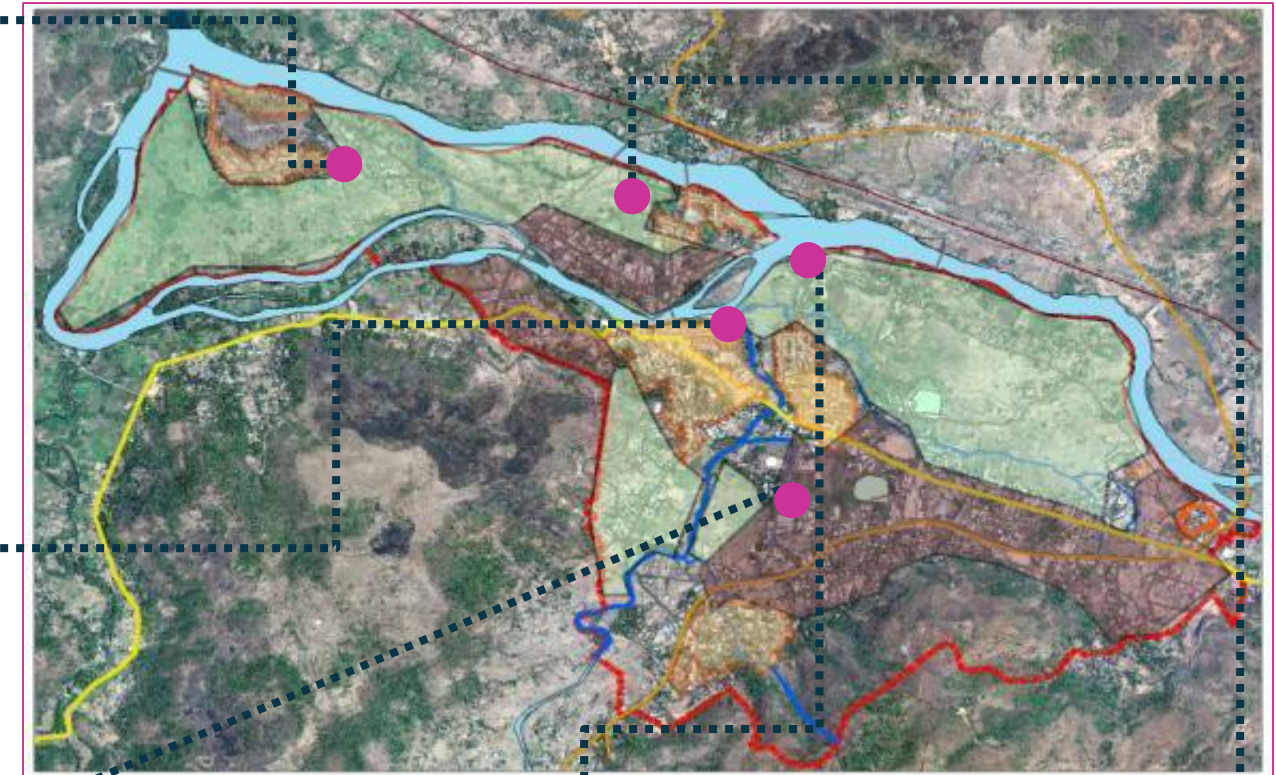


- Settlement of about 7 households, of which only 2 houses have been provided with IHHL but the remaining due to lack of space have to rely on the CT close by.
.Nearest CT- About 350 m away.



Temporary Settlement
Number of HH- Varies between 25 and 120.
Mobile toilet provided- 2 seats, one each for males and females.
Citizens say they utilize the mobile toilet and the CT located nearby.

Community Toilet Assessment



Source: Chiplun October Visit Documentation



Pay-and-Use Toilet



7 seats- 5 male, 2 female, all functional
Timings- 6 am to 9 pm
Common wash basins on both sides
Lighting on the inside
Cleaned everyday, maintenance by Nirmal Foundation
Septic Tank size- 13' x 10' x 5'
Desludging required every 7 years
Desludging done by the Council

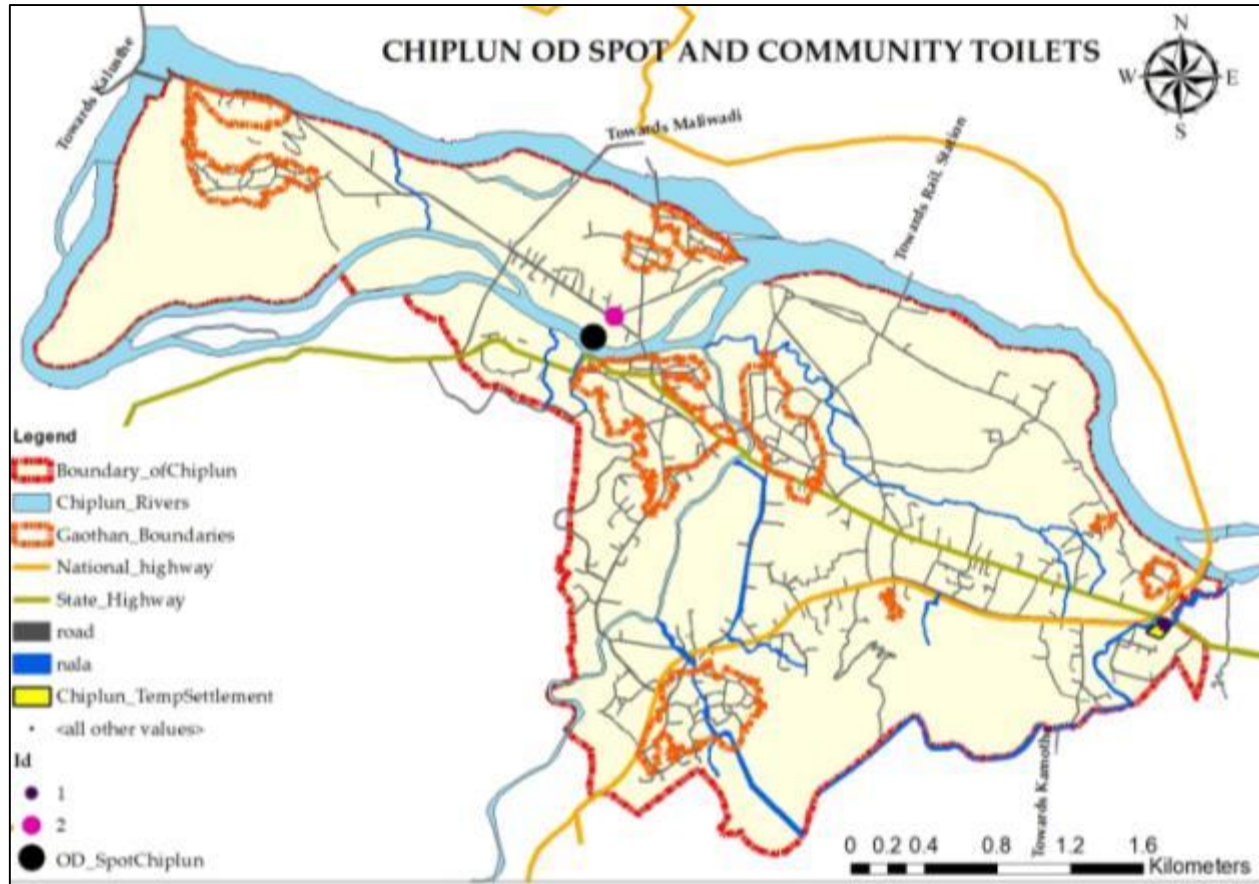
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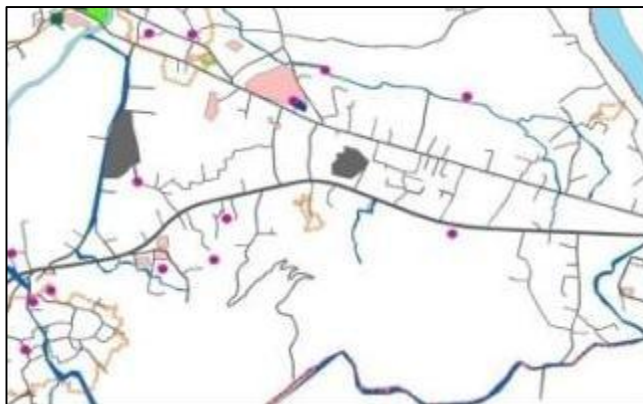
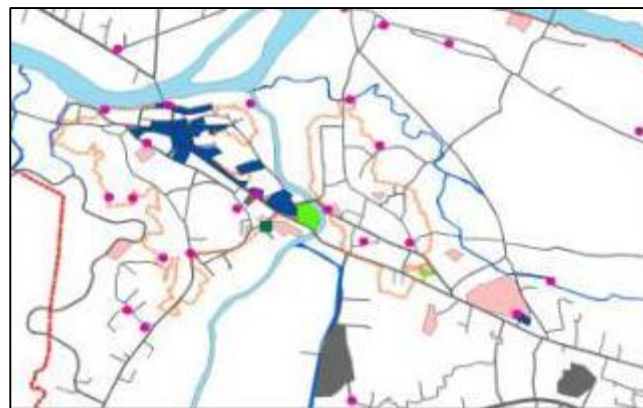
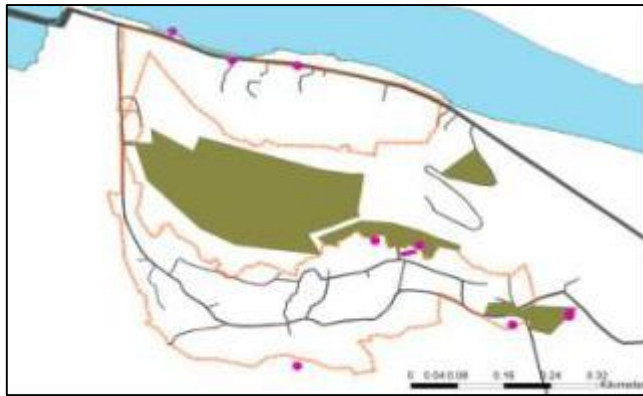


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- Temporary Settlement**
- Number of HH- Varies between 25 and 120
 - Mobile toilet provided
 - Citizens say they utilize the mobile toilet and the CT located nearby.

Toilets at Commercial and Public Spaces



Gowalkot

Gowalkot Fort has toilet for visitors, 1 CT near Karanjeshwari temple

City Centre

5 CTs, 1 PT in city centre

ST Stands

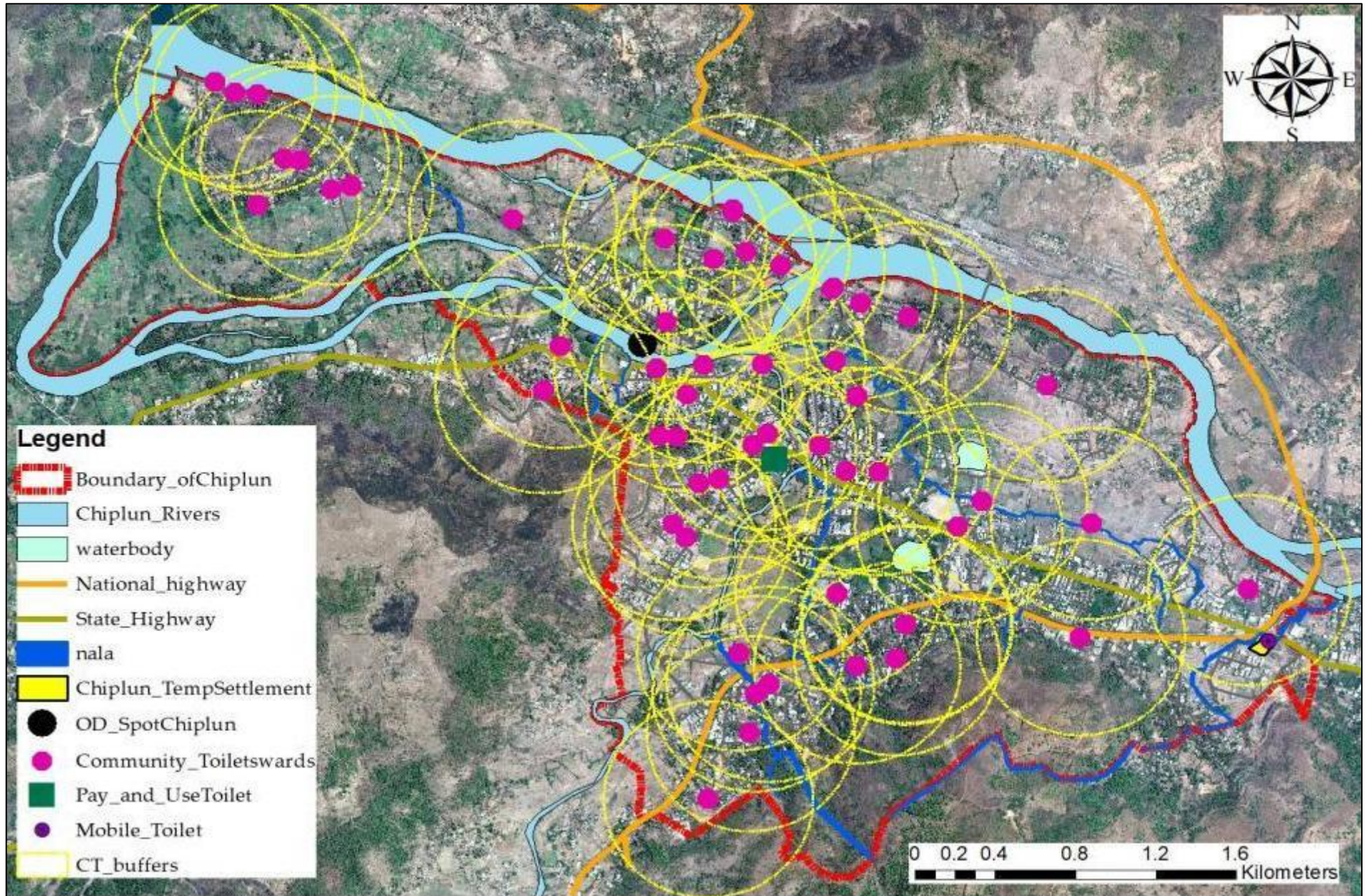
All ST Stands have toilets

Public Offices in the South

Although all public offices should have toilets, there are CTs near all offices.

Source: Chiplun October Visit Documentation

Coverage and Adequacy of Community Toilets

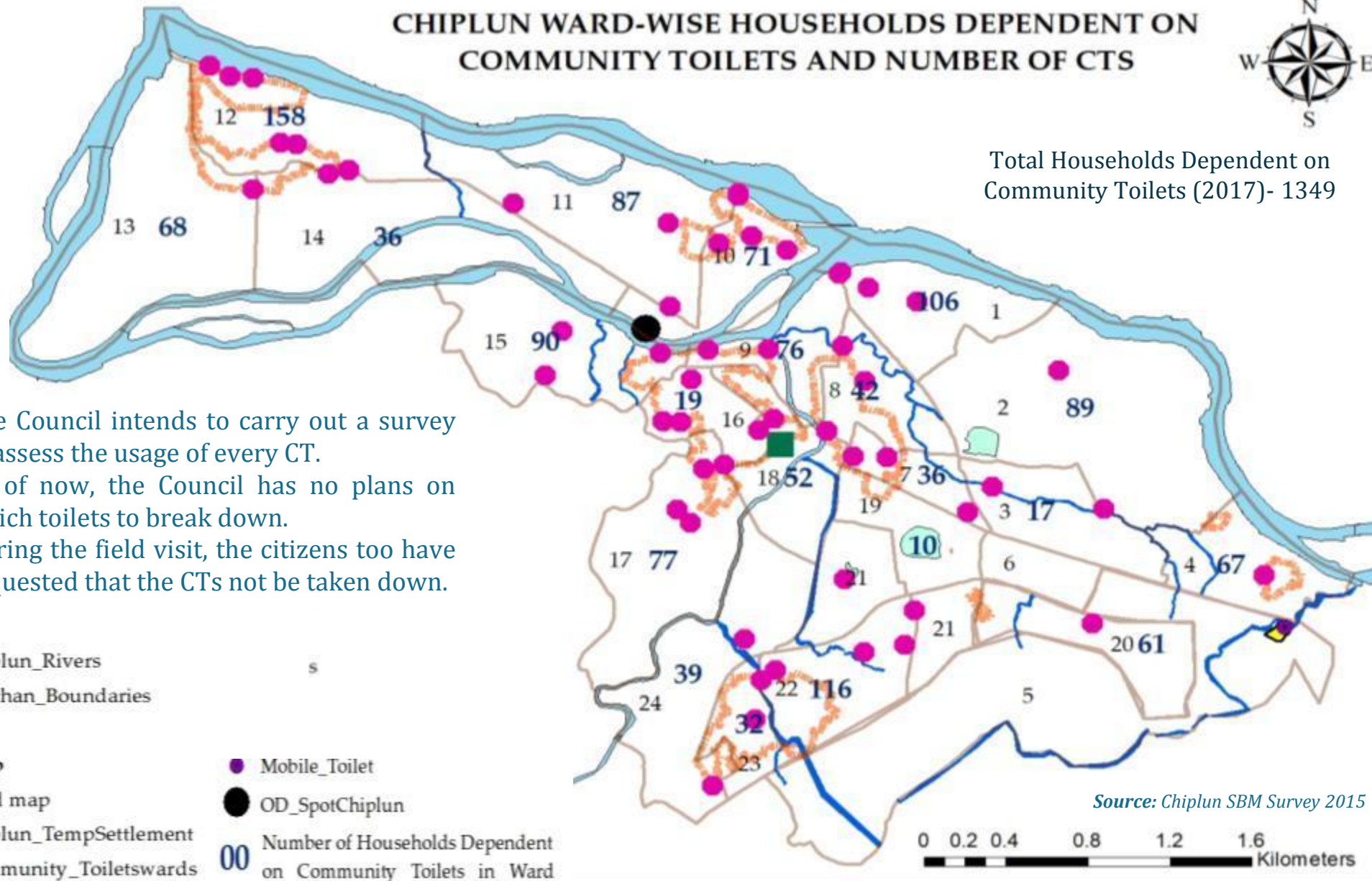


Dependency on Community Toilets

CHIPLUN WARD-WISE HOUSEHOLDS DEPENDENT ON COMMUNITY TOILETS AND NUMBER OF CTS



Total Households Dependent on Community Toilets (2017)- 1349



- The Council intends to carry out a survey to assess the usage of every CT.
- As of now, the Council has no plans on which toilets to break down.
- During the field visit, the citizens too have requested that the CTs not be taken down.

Legend

- Chiplun_Rivers
- Gathan_Boundaries
- nala
- ward map
- Chiplun_TempSettlement
- Community_Toiletswards
- Mobile_Toilet
- OD_SpotChiplun
- Number of Households Dependent on Community Toilets in Ward

Source: Chiplun SBM Survey 2015

Efforts for ODF Sustainability

Activities Undertaken

- Good Morning Pathaks by 4 M.Cl. members, 1 supervisor visit OD spot twice a day
- Assistance by NGOs such as Rotary Club and Lions Club.
- Support by SHGs in spreading awareness. Awareness meetings carried out by SHGs..
- Provision of mobile toilets in festivals and public gatherings.
- Awareness banners, newspaper ads. announcements, street plays
- Essay, drawing competitions for the public to create awareness
- Distribution of uniforms, cleaning equipment to cleaning staff



Municipal Council members taking Swacch City oath



Poster put up by Rotary Club of Chiplun

Cloth bags distributed by private companies creating awareness



Visit to the OD Spot with the Good Morning Pathak

2. Current Sanitation Situation: Collection

Access to Toilets



Collection



Collection & Storage



Treatment

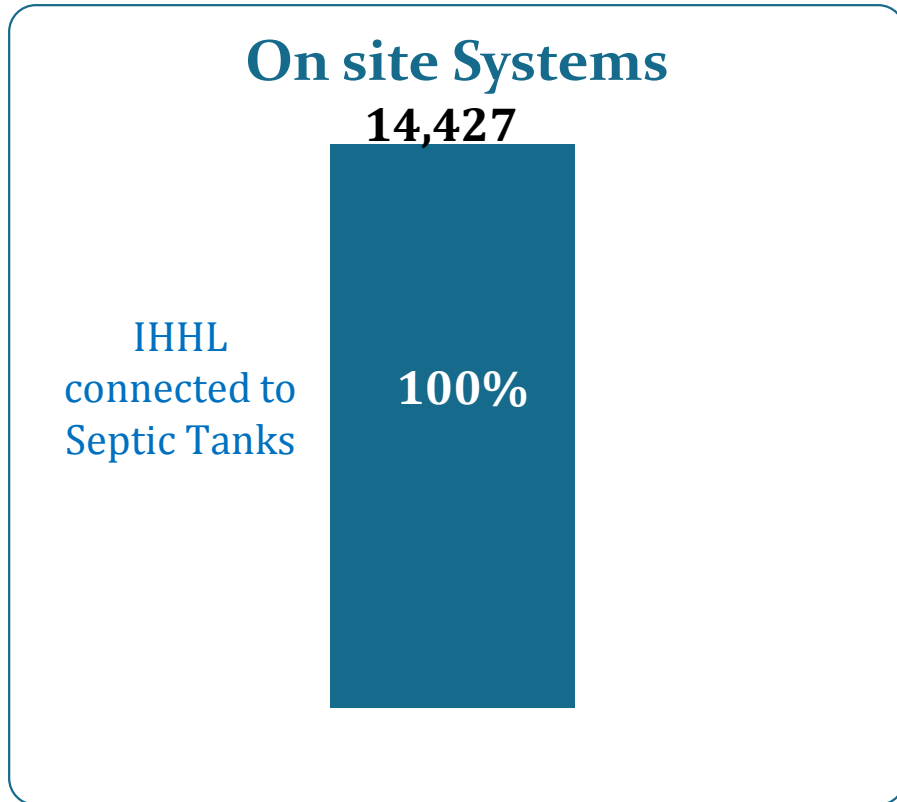


Disposal & Recovery



Collection of Septage

Method of collection of waste for all households



HHs with toilet connected to Septic Tanks	No. of Septic Tanks
14,427	4,305

Sample Assessment of Size of Septic Tanks

A few septic tanks in the town were observed to understand their sizes.

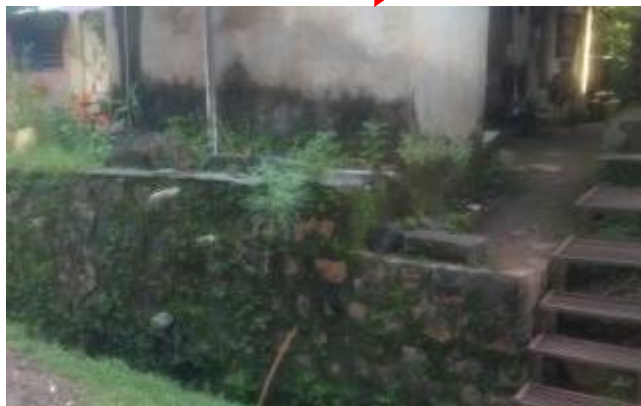
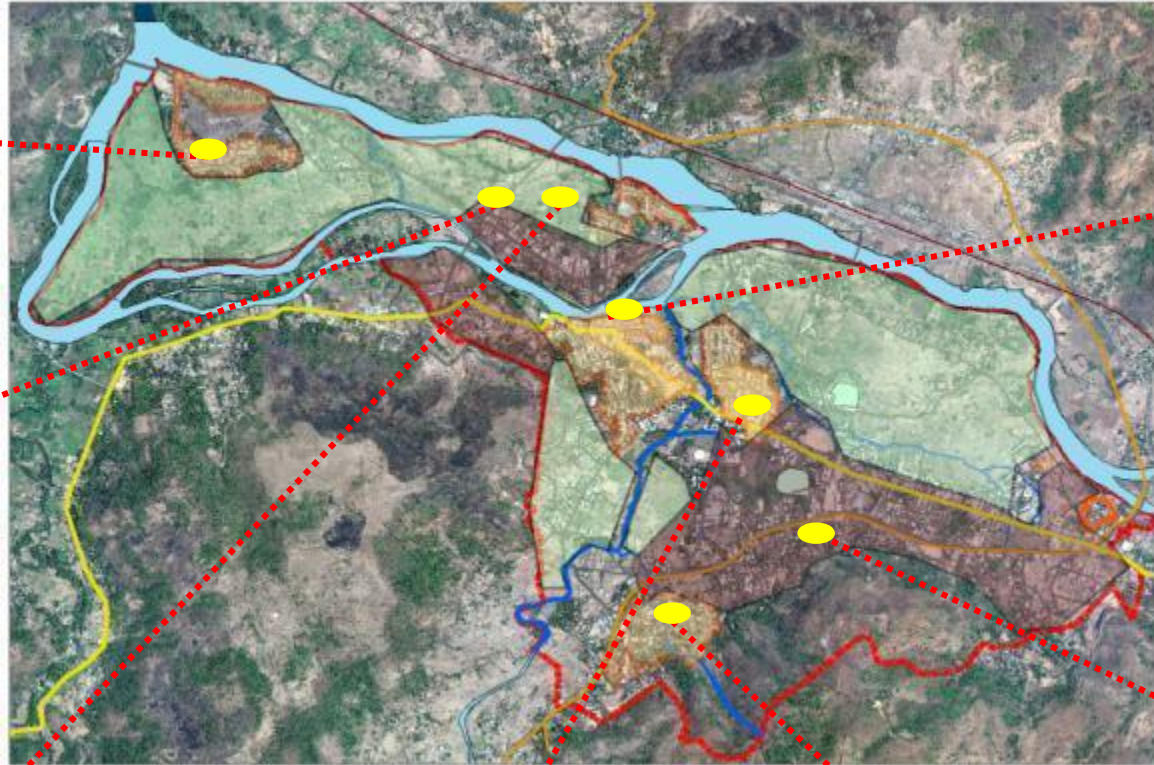
- On an average, 3- chambered septic tanks are constructed in the town.
- The average size of a septic tank is **6 ft x8 ft x6 ft.**
- The average size of septic tanks for **apartments is 12 ft x 8 ft x4-6 ft.**
- The average size of septic tanks of **precast IHHL is 3.2 ft x 3.2 ft x 8.2 ft.**

- The average **diameters** of circular septic tanks are **4 ft.**
- Most citizens have built Septic Tanks above standard sizes to avoid cleaning after long periods

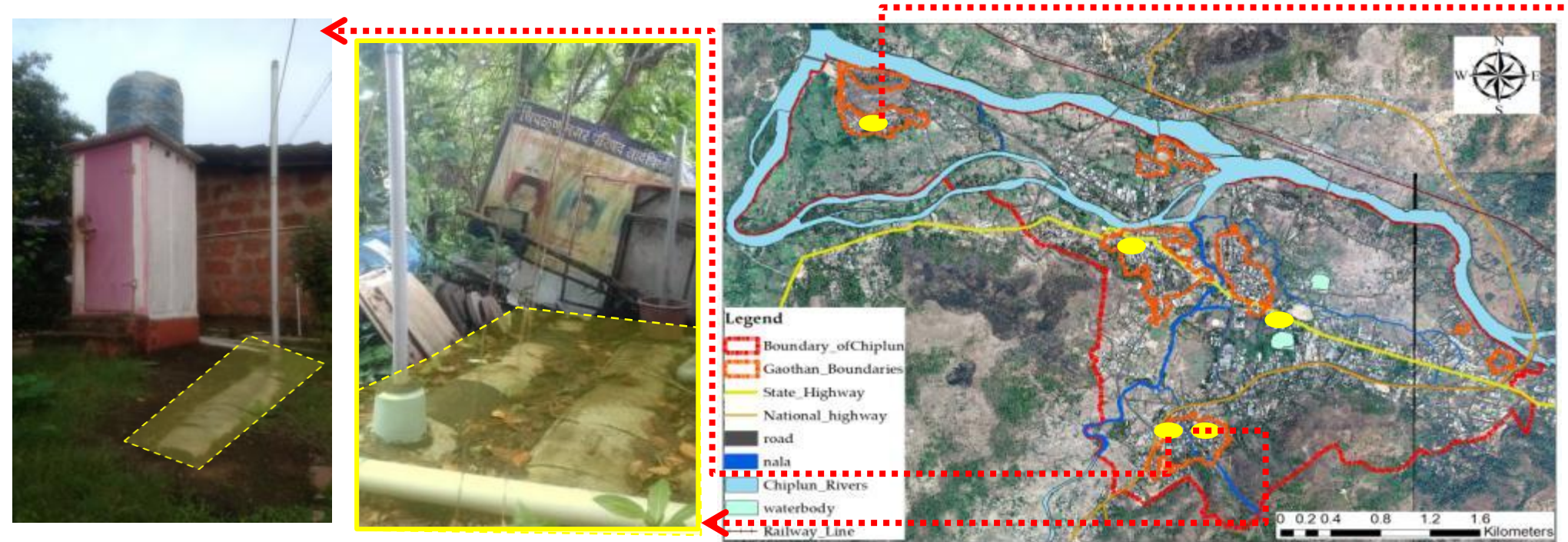
Source: SLB Data 2015-16, Health Department records, Chiplun visit October 2017 documentation

- All individual toilets are connected to septic tanks. There is no other on-site disposal method.
- There are only 4305 septic tanks in the town as there are more apartment buildings, the Council has stated.

Septic tanks in Different Areas of the Town



Septic tanks in Different Areas of the Town



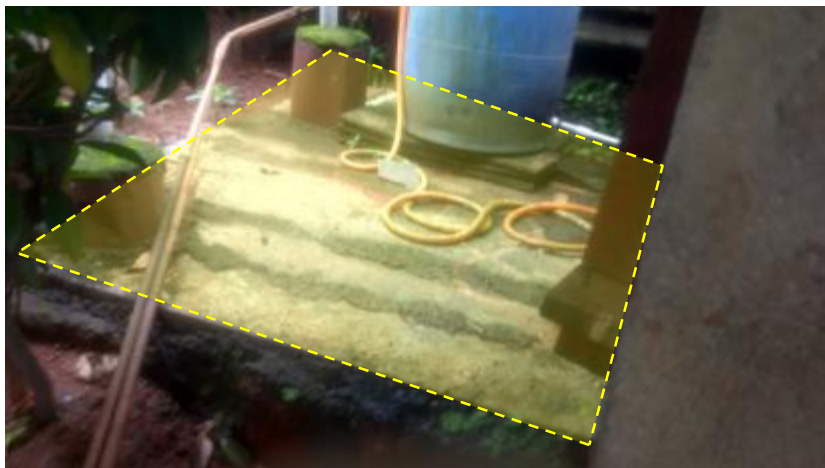
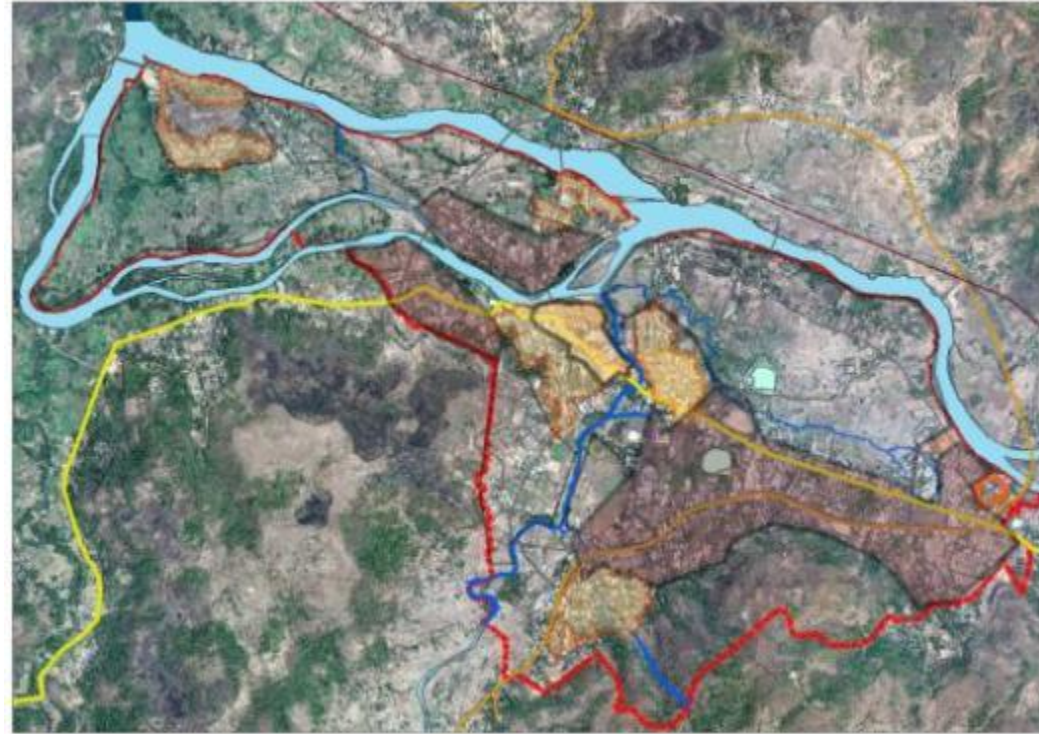
Pre-cast cylindrical septic tanks.

- Due to space constraint, pre-cast cylindrical septic tanks are installed at few places.
- This installation consists of a single toilet unit and the septic tank of size 1 m x 1 m x 2.5 m (3.2 ft x 3.2 ft x 8.2 ft)
- They have easy to open handles on the chambers for easy cleaning.
- They have high vent pipes for removal of odour.
- No specific areas where these are found, but houses having them had no place inside the house for the toilet.



Septic tanks in Different Areas of the Town

Septic tanks of the in-situ toilets



In-situ toilets all over the town.

- ❑ Septic tanks of the in-situ toilets constructed by many families were observed.
- ❑ They have varying sizes, and most are built next to the toilet, although a few are constructed below the toilet.
- ❑ The citizens call for cleaning the tanks only after they fill completely.
- ❑ All the septic tanks observed had access covers for cleaning.

Septic tanks in Different Areas of the Town

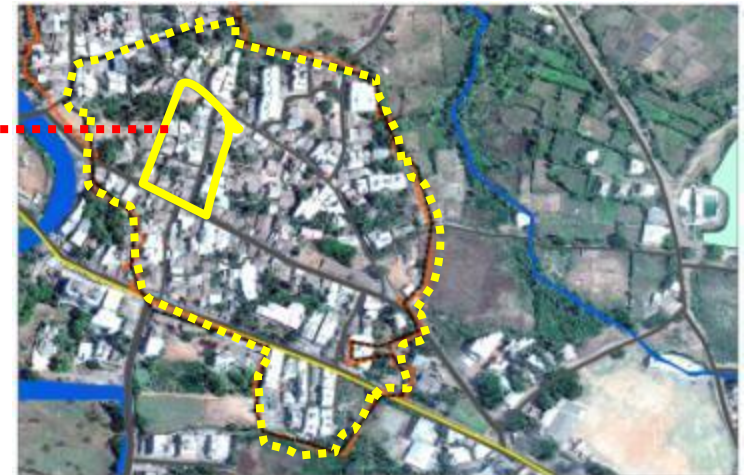
Septic tanks of the in-situ toilets



- ❑ A few houses have built their toilets above the septic tanks. Average 9 ft x 6 ft x 5 ft. There is also one such CT.
- ❑ These tanks have no access covers, a cylindrical chamber for the pipe to fit in to clean will have to be made,
- ❑ Some toilets are built partially above the tanks so cleaning them is easy.

Septic tanks in Different Areas of the Town

Septic tanks of the in-situ toilets



Gaothan Areas

- ❑ Septic tanks in the gaothan areas are deeper than average.
- ❑ For example, this septic tank was constructed 50 years ago.
- ❑ The size of the tank is 4' x 6' x 8.5'
- ❑ The tank is cleaned every 5 to 6 years.

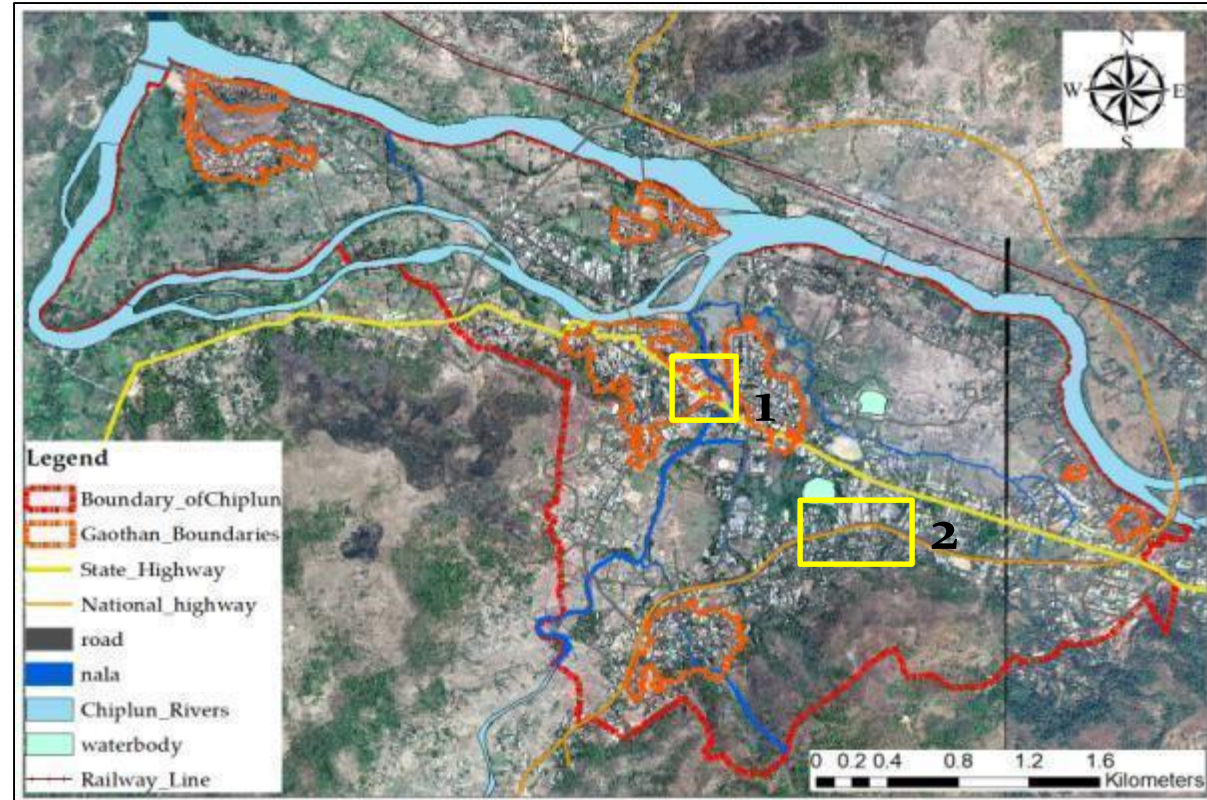
Septic tanks in Different Areas of the Town



1. An apartment of 4 flats has a circular septic tank, which needs to be cleaned every 6 months. It has not been cleaned as yet.



2. A 2-storied bungalow here has built a circular septic tank of 8 ft diameter 15 years ago. It is cleaned every 5-6 years.

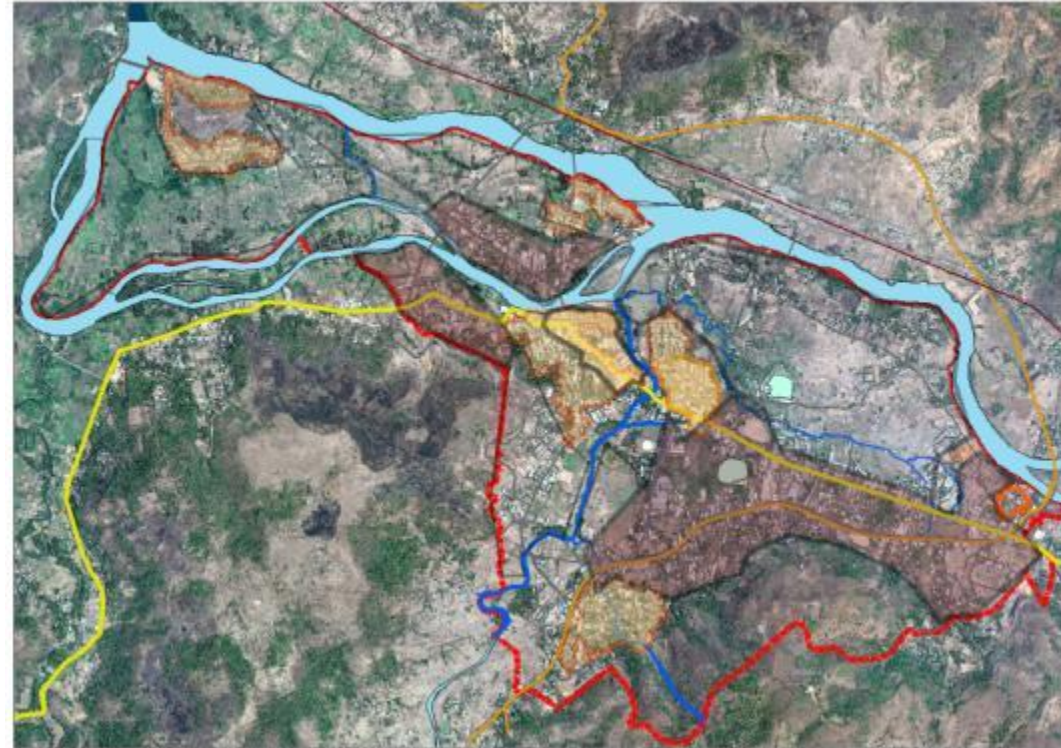


Some houses have opted for the cylindrical or circular septic tank toilets. Such tanks were observed at two locations.

Septic tanks in Different Areas of the Town



Apartments
have
varying
sizes



Apartment of 14 flats-
16 ft x 8 ft x 5 ft



Apartment of 27 flats- 18 ft x 13 ft x 4-6 ft



Apartment of 9 flats-
14 ft x 5 ft x 4-6 ft



Apartment
of 21 flats-
18 ft x 11 ft
x 4-6 ft



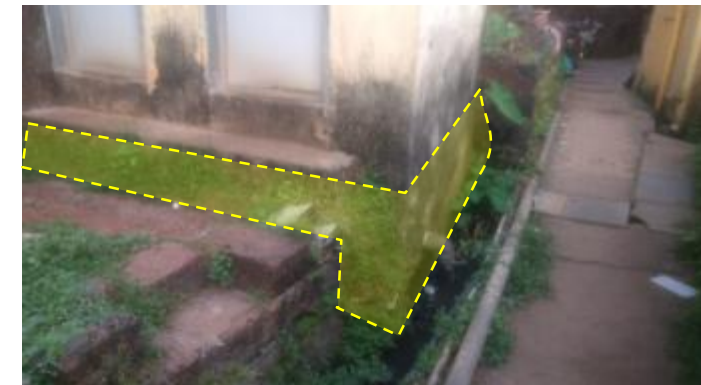
Apartment of 18 flats-15 ft x 10 ft x 4 ft

Septic tanks in Different Areas of the Town

Septic tanks of community toilets



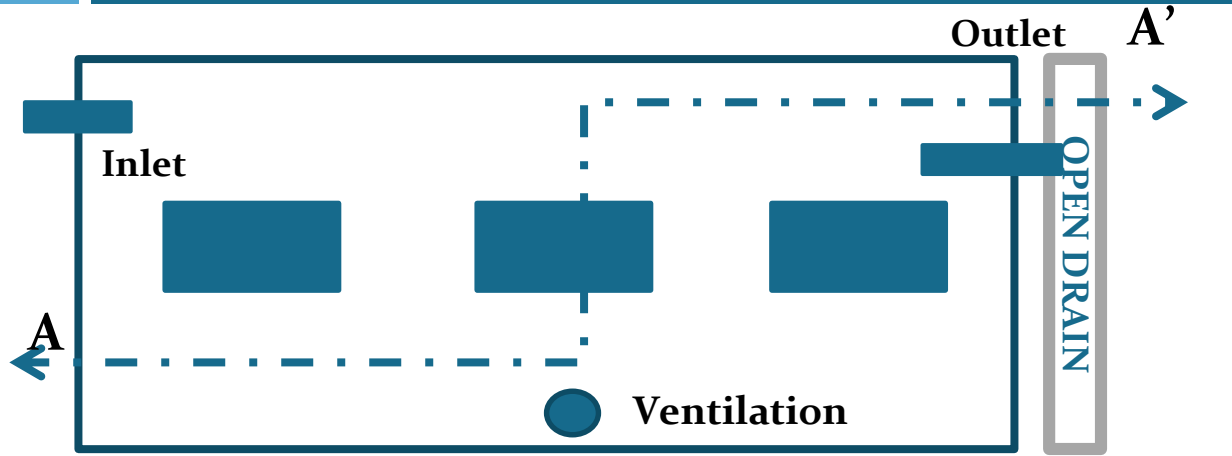
- ❑ The septic tanks of community toilets are constructed next to the toilet.
- ❑ The CT septic tanks are cleaned only after they fill, on an average 8 months.



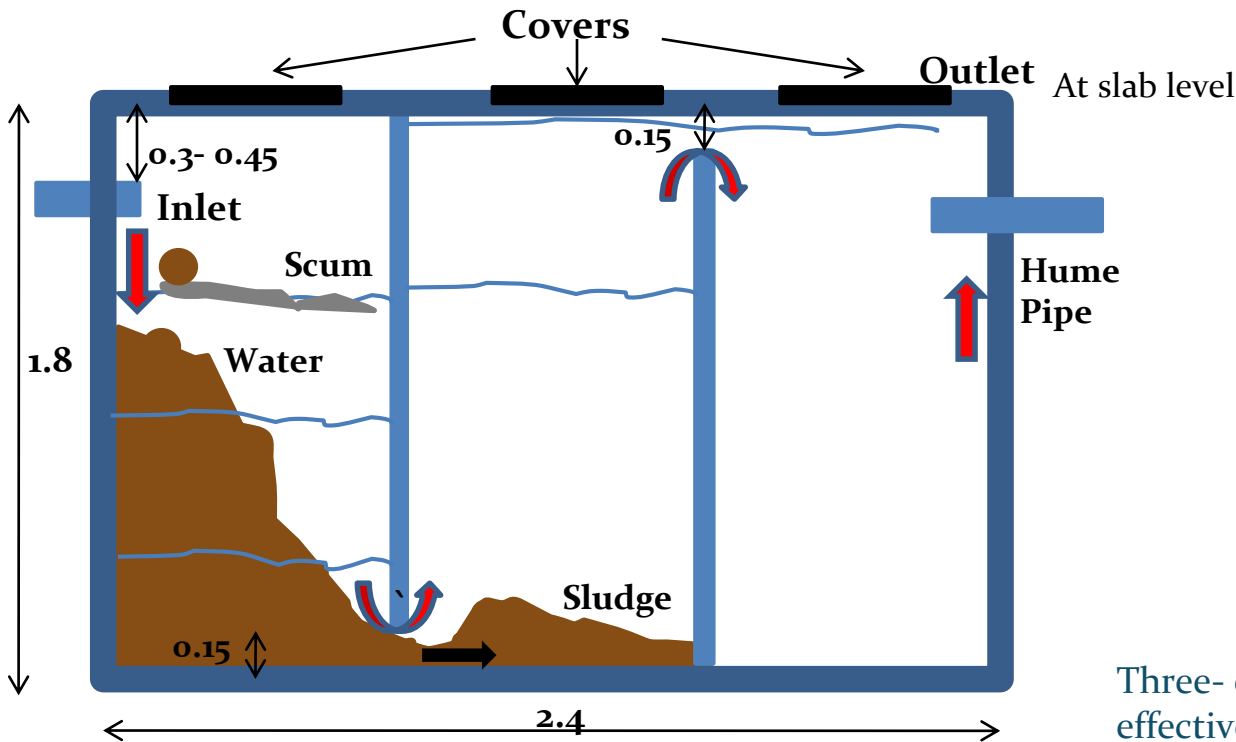
- ❑ The CT marked in brown was built 7 years ago, with the toilet structure constructed above the septic tank.
- ❑ There is a chamber for the pipe of the vacuum truck to clean tank.
- ❑ It has never been cleaned before.

Source: Chiplun Visit October 2017 documentation

Cross-Section of a Typical Septic Tank



Average Size of Septic Tank for a Single House in Chiplun- 1.8 * 2.4 * 1.8



Three- chambered septic tanks are said to be more effective than two-chambered tanks in this manner.

All dimensions are in 'm'

Not to Scale

Cross- Section A-A'

Inferences from Septic Tank Size Assessments

Recommended sizes of Septic Tanks in Chiplun

The table to the right shows the septic sizes recommended in Chiplun. It was observed that on an average, the septic tanks are much bigger in sizes, especially the depths.

Inferences on the Septic Tank Sizes in Chiplun

- Bigger sizes, hence are cleaned after a number of years, on an average about 6-7 years.
- Apartment septic tanks are cleaned more frequently, on an average in 2-3 years, which is adequate.
- No uniformity of sizes, even in buildings of the same neighbourhood in the town.
- Very few toilets having inaccessible septic tanks, and all new septic tanks being constructed separate from the toilet block. Advantageous for septic tank desludging.

Challenges for Septage Management

- Whether there is a need to maintain a different cycle for apartments and individual houses could be assessed.
- Assessment of what could be a suitable cleaning cycle for three-chambered septic tanks could be done.
- Creating awareness among citizens about cleaning septic tanks more often.

Number of Users	Length (m)	Width (m)	Liquid Depth (m)
Domestic Tanks			
5	1.5	0.75	1.0
10	2.0	0.90	1.0
15	2.0	0.90	1.3
20	2.3	1.10	1.3
50	4.0	1.40	1.3
Tanks for Housing Colonies			
100	8.0	2.6	1.0
150	10.6	2.7	1.0
200	12.4	3.1	1.0
300	14.6	3.9	1.0
Tanks for Hostels and Boarding Schools			
50	5.0	1.6	1.3
100	5.7	2.1	1.4
150	7.7	2.4	1.4
200	8.9	2.7	1.4
300	10.7	3.3	1.4

Source: SLB Data 2015-16, Health Department records, Chiplun visit October 2017 documentation

Current Sanitation Situation: Conveyance

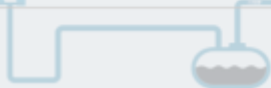
Access to Toilets

Cleaning & Maintenance

Conveyance

Treatment

Disposal & Recovery



Septage Conveyance

Desludging Capacity

- 1 ULB owned of capacity 4000 liters.



Septic Tank Desludging

- 175 average septic tanks cleaned annually on demand basis.

- 5% cleaned annually (Benchmark 33%)

- All CT tanks are cleaned and maintained by ULB.

User Charges

- Rs. 2,000/ trip within ULB Limit; Rs. 4,000/ trip outside upto 30 km, thereafter Rs. 15/km.

Number of Working Days in a Year- 259- 280

- The Council has stated that the desludging activities do not stop on flooding days in monsoon, although number of trips are less.
- Citizens generally call for desludging in the summer months, before the monsoon begins.
- Sundays are holidays
- Number of trips possible in a day: 4

Current Execution Mechanism:



Citizens have to report to Council and place order

They have to fill out a form, provide address and phone number and make payment. M.CL maintains a register.

Service is provided 1-4 days after order placed depending on number of orders. Priority given to citizens of Chiplun

Citizens given a call by Health Department official 1 day before, and time is decided

Workers report to place with vacuum truck at decided day and time for emptying



Septage Conveyance



The vacuum emptier truck has a pipe of 75 ft length, an additional pipeline of 50 ft length is joined to the current pipe, amounting to 125 ft, making it easy to clean in inaccessible areas of the gaathan.



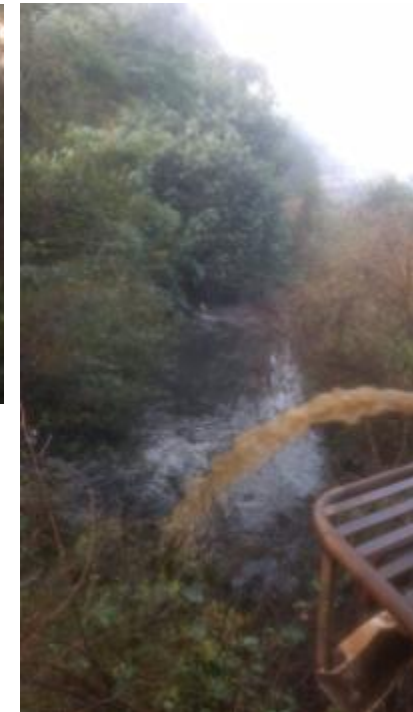
Workers require to mix water with the septage if it is too hard to remove.



The vacuum emptier truck has an indicator that tells how much septage has been collected in the truck.



Septage being emptied at the disposal site.



Septage Conveyance- Areas Inaccessible by Vacuum Truck

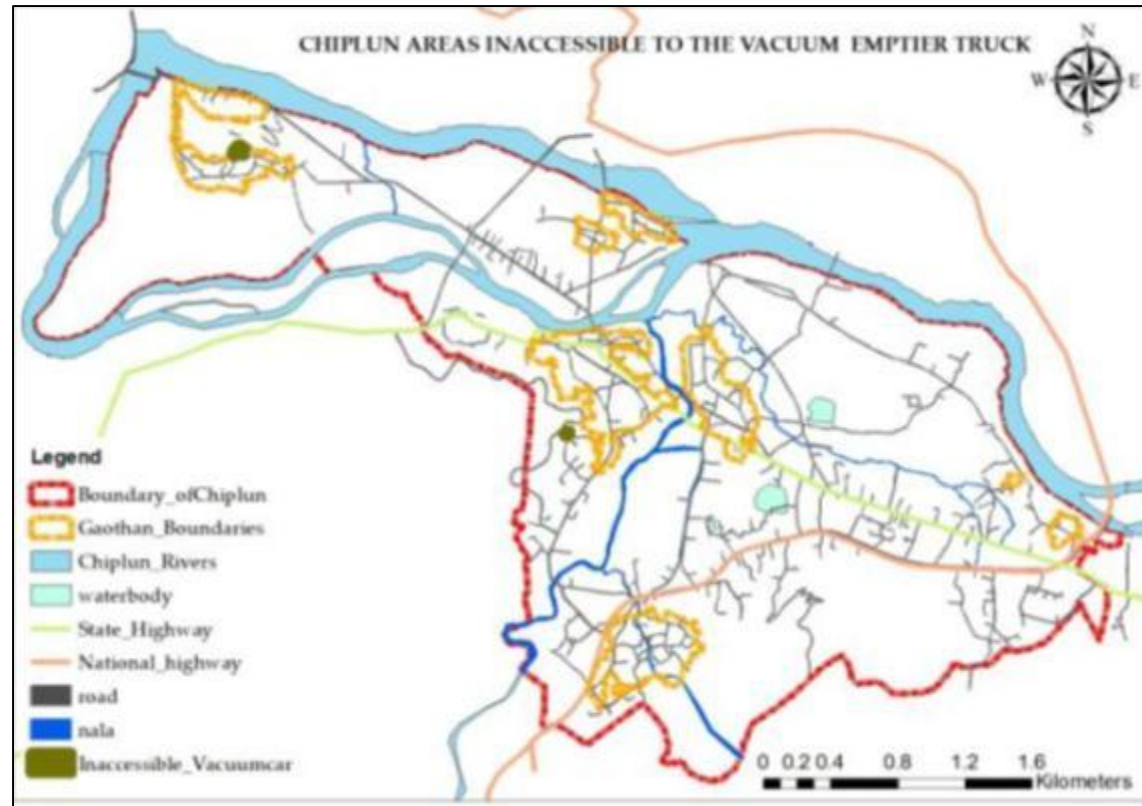
Area 1 in Gowalkot- 30 to 35 Households



The access road to this locality.



None of the houses in this locality have IHHLs, they rely on the community toilet here.



For both CTs- pit dug and septage set in pit, this is done every 5-6 years.

Area 2 in Kanganewadi – 20 to 25 Households



Houses are located at either higher or lower level.

Except 2-wheelers, no other vehicle can fit on road.

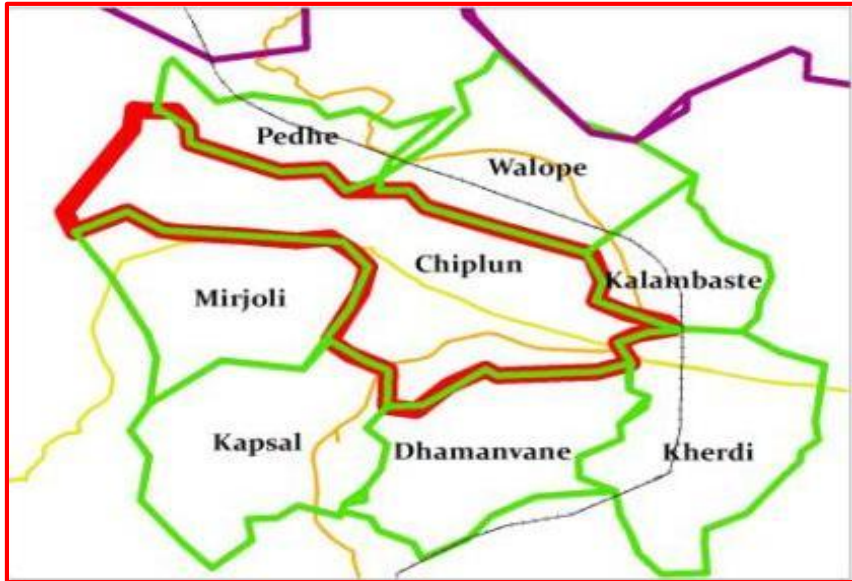


The HHs having IHHL here also dig pits

Septage Conveyance- Outgrowth Areas

Surrounding villages served:

Source: Chiplun Panchayat Samiti records, MRSAC Village Boundaries Map, Chiplun October 2017 Visit documentation

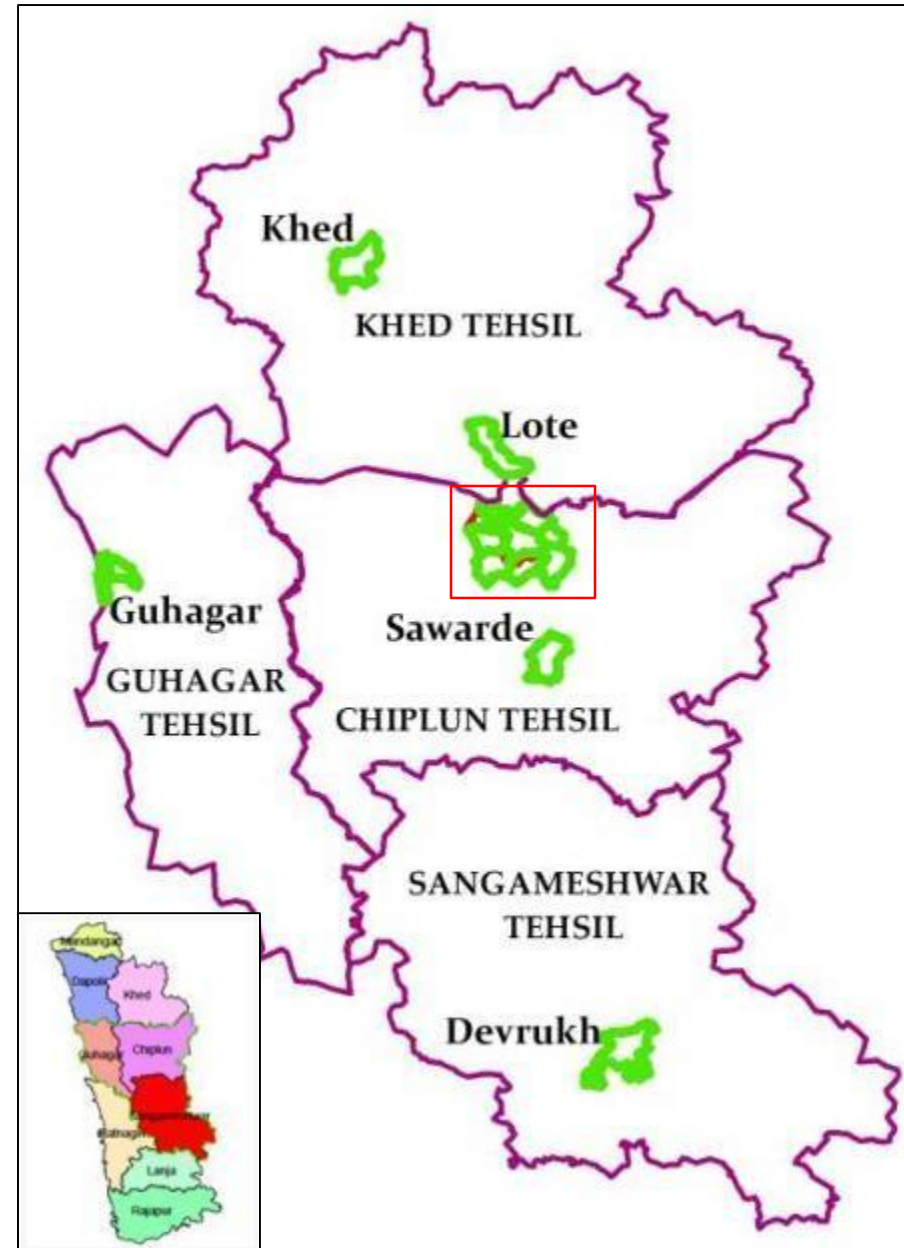


Pedhe- 10 km Kalambaste- 4 km Dhamanvane- 2 km
Walope- 8 km Kherdi- 4 km Kapsal- 4 km Mirjoli- 3 km

□ The following towns in other parts of Chiplun tehsil, and the Khed, Guhagar and Sangameshwar tehsils are served:

- Devrukh- 66 km, south
- Guhagar- 46 km, west
- Khed- 33 km, north
- Lote- 12 km, north
- Sawarde- 17 km, south

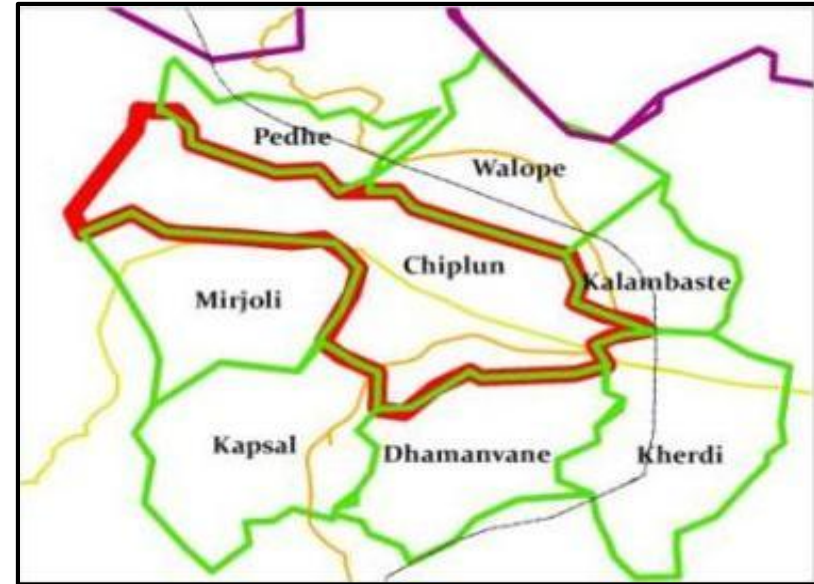
The Council intends to include only the surrounding villages when implementing fecal sludge management.



SBM Status of Surrounding Villages

The Council intends to include only the surrounding villages when implementing fecal sludge management.

Village	SBM Target	Number of Toilets Built Under SBM	% of Target Completed	ODF Status
Pedhe	243	103	42.3%	
Walope	72	57	79.1%	ODF
Kalambaste	97	34	35%	ODF
Kherdi	237	88	37.1%	ODF
Dhamanvane	196	181	92.3%	ODF
Kapsal	220	184	83.6%	ODF
Mirjoli	139	122	87.7%	ODF



Village	Number of HH 2017	Total Number of HH having IHHL	IHHL Coverage 2017	Number of CTs and Seats	On-site system	Drainage Coverage
Pedhe	815	667	81.8%	-	-	-
Walope	512	497	97%	-	Few septic tanks, twin pits	100% open drains
Kalambaste	1089	544	49.9%	2- 2 male, 3 females	Only 10-15 HH septic tanks, single pits, twin pits	About 5% open drains
Kherdi	3239	1803	55.6%	4- Total 9 seats	100% septic tanks	50% area- 5% closed
Dhamanvane	441	407	92.3%	9- Total 9 seats	100% septic tanks	30% open drains
Kapsal	915	759	80.7%	32- 94-95 seats	Few septic tanks, rural tanks, pits	10-20% open drains
Mirjoli	769	405	52.6%	4- Total 16 seats	90% Septic tanks	50% open drains
Total	7,780	5,082				

Septage Conveyance- Demand Based Cleaning Pattern

Cleaning Demand- FY 2016-17

Month	Local Demand	Outgrowth Demand
April	12	1
May	11	2
June	21	4
July	7	0
August	4	0
September	3	0
October	8	1
November	10	0
December	8	2
January	23	3
February	8	1
March	10	1
Total	125	15
Total for 2016-17		140
Earnings from local demand (x Rs. 2000)		2,50,000
Earnings from outgrowth demand(x Rs. 4000)		60,000
Total earnings		3,10,000

Cleaning Demand- FY 2017-18 (upto Nov'17)

Month	Local Demand	Outgrowth Demand
April	7	2
May	17	15
June	12	6
July	9	1
August	8	0
September	4	1
October	4	0
November	4	1
Total	65	26
Total for 2016-17		91
Earnings from local demand so far (x Rs. 2000)		1,30,000
Earnings from outgrowth demand (x Rs. 4000)		1,04,000
Total earnings		2,34,000

2. Current Sanitation Situation: Disposal

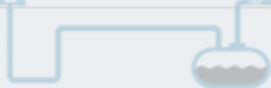
Access to Toilets

Cleaning & Maintenance

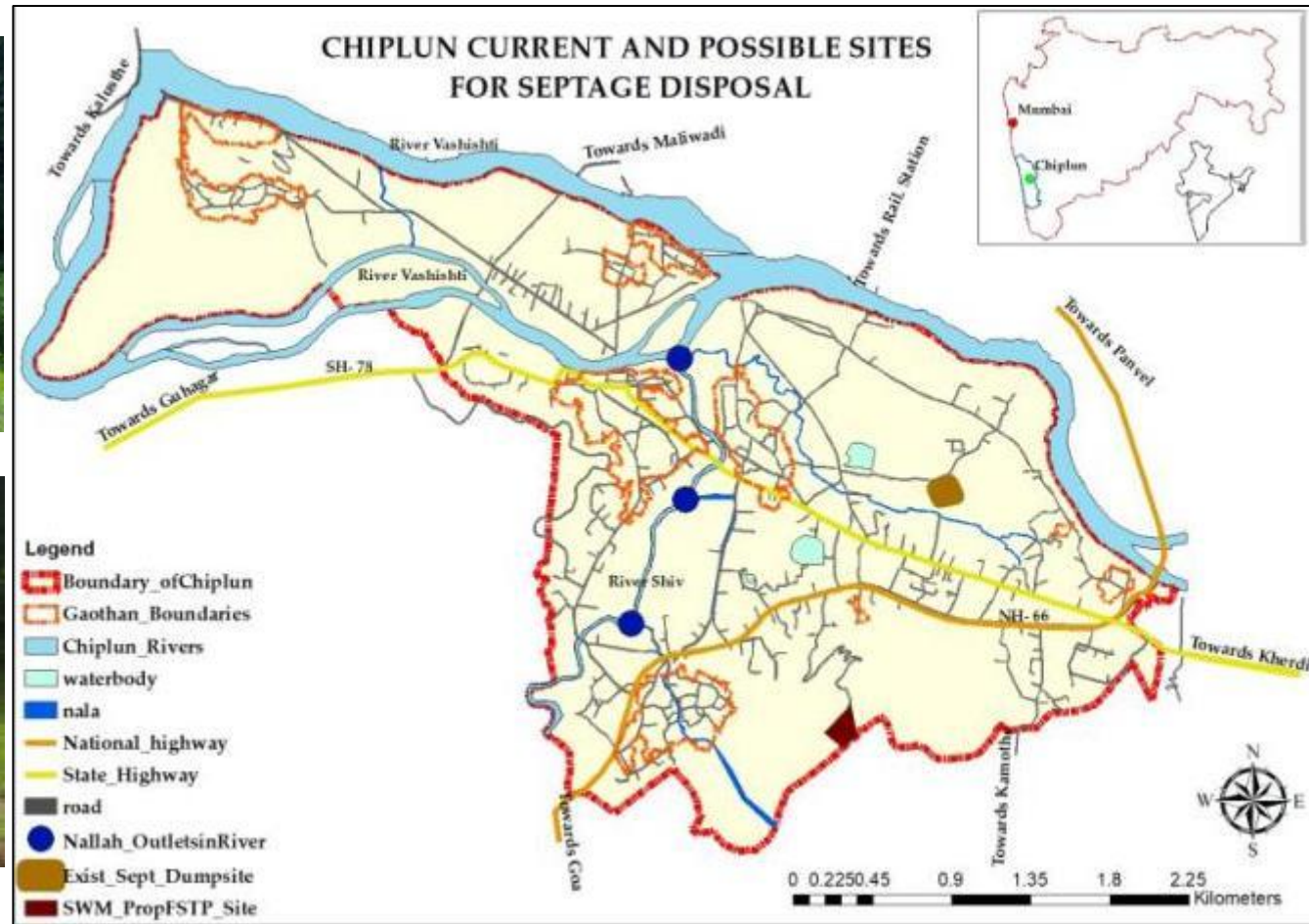
Conveyance

Treatment

Disposal & Recovery



Septage Disposal



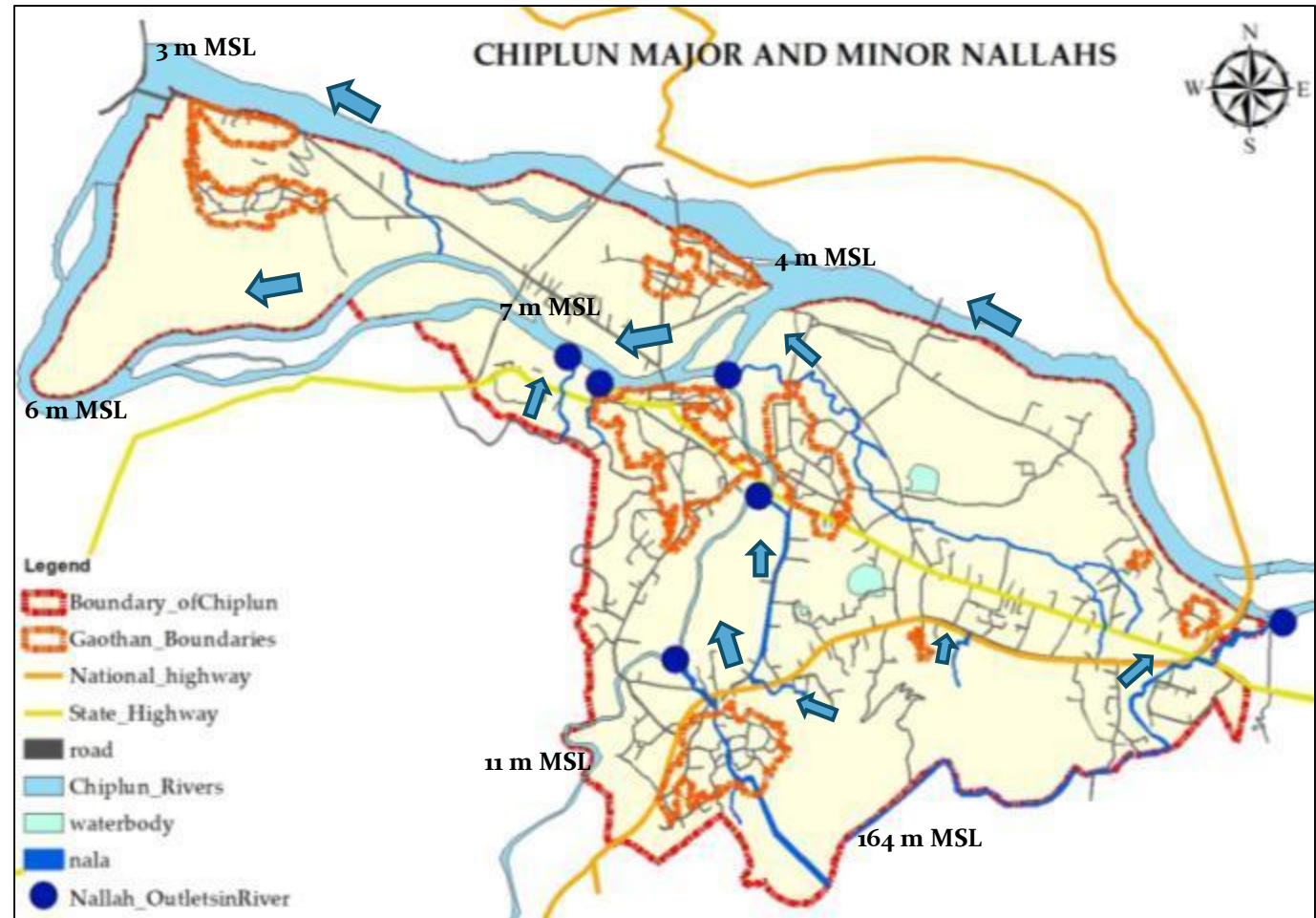
- ❑ Septage collected through the suction trucks is **disposed on the open ground** owned by municipal council (near Ram Teertha cremation ground)
- ❑ Water is left on the ground **without any treatment**.
- ❑ The area of the current disposal site is 20 gunthas i.e. 21782 sq.ft.

The Council is open to setting up FSTP at the existing disposal site, or the SWM disposal site.

3. Grey Water Management

Grey Water Disposal System and Outfalls

- The grey water and waste water from septic tanks are connected to roadside open drains.
- 100% open drains, 100% coverage in town
- These drains flow to nallahs, that flow into the Shiv Nadi, untreated.



HHs waste water into open drainage



open drains



Shiv River

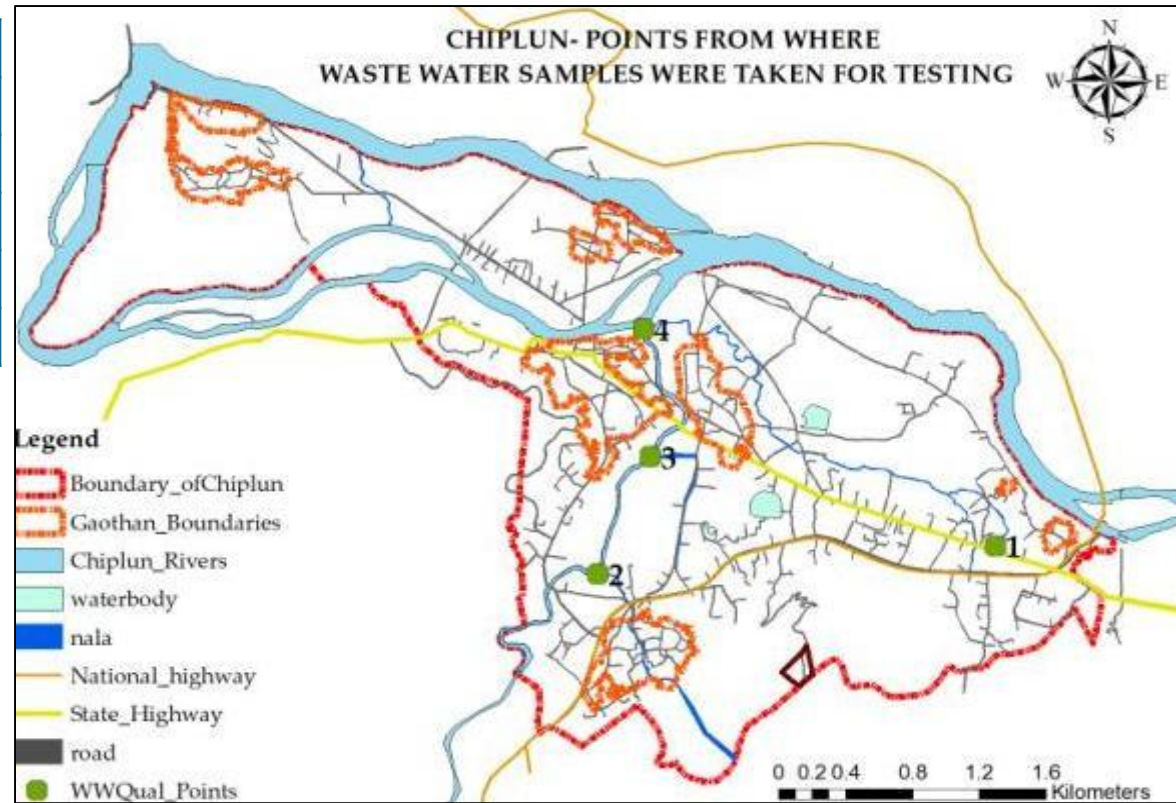
Sources: Health Department records, Google Earth imagery, Chiplun visit August 2017 documentation

Waste Water Quality in Chiplun

CPCB Standard for Inland Surface Water	Value
pH	5.5 to 9.0
BOD 3 Days 27 degree Celsius (mg/l)	30
COD (mg/l)	250
Suspended Solids (mg/l)	100
Oil and Grease (mg/l)	10

Parameter	Location 1	Location 2
pH	7.43	7.96
BOD 3 Days 27 degree Celsius(ppm)	57.5	5250.0
COD (ppm)	256.0	9280.0
Suspended Solids (ppm)	35.0	396.0
Oil and Grease (ppm)	Not Analyzed	14.8

Parameter	Location 3	Location 4
pH	7.87	6.97
BOD 3 Days 27 degree Celsius (ppm)	16.0	12.0
COD (ppm)	72.0	40.0
Suspended Solids (ppm)	38.0	20.0
Oil and Grease (ppm)	Not Analyzed	Not Analyzed



Waste water testing carried out by the Regional Laboratory, Chiplun of the MPCB in April and November 2011.

The sample for Location 2 was taken in the month of April, and the rest in November. High contamination levels at location 2 maybe due to septic tanks not being cleaned for years .Better results at locations 3 and 4 could be due to dilution of grey water with rain water.



Chiplun Underground Sewerage Scheme

DPR for Underground Sewerage Scheme for Chiplun under the Maharashtra Suvarna Jayanti Nagarotthan Yojana prepared by M/s Sandip Gurav and Associates, Wai this year.

Cost of Project- INR 98.8 crore
85% funding : State Govt funds
15% funding : ULB contribution

The Nagar Palika Fund in which 25% of ULB budget has to be allocated for the STP. will be used.

Financial Schedule

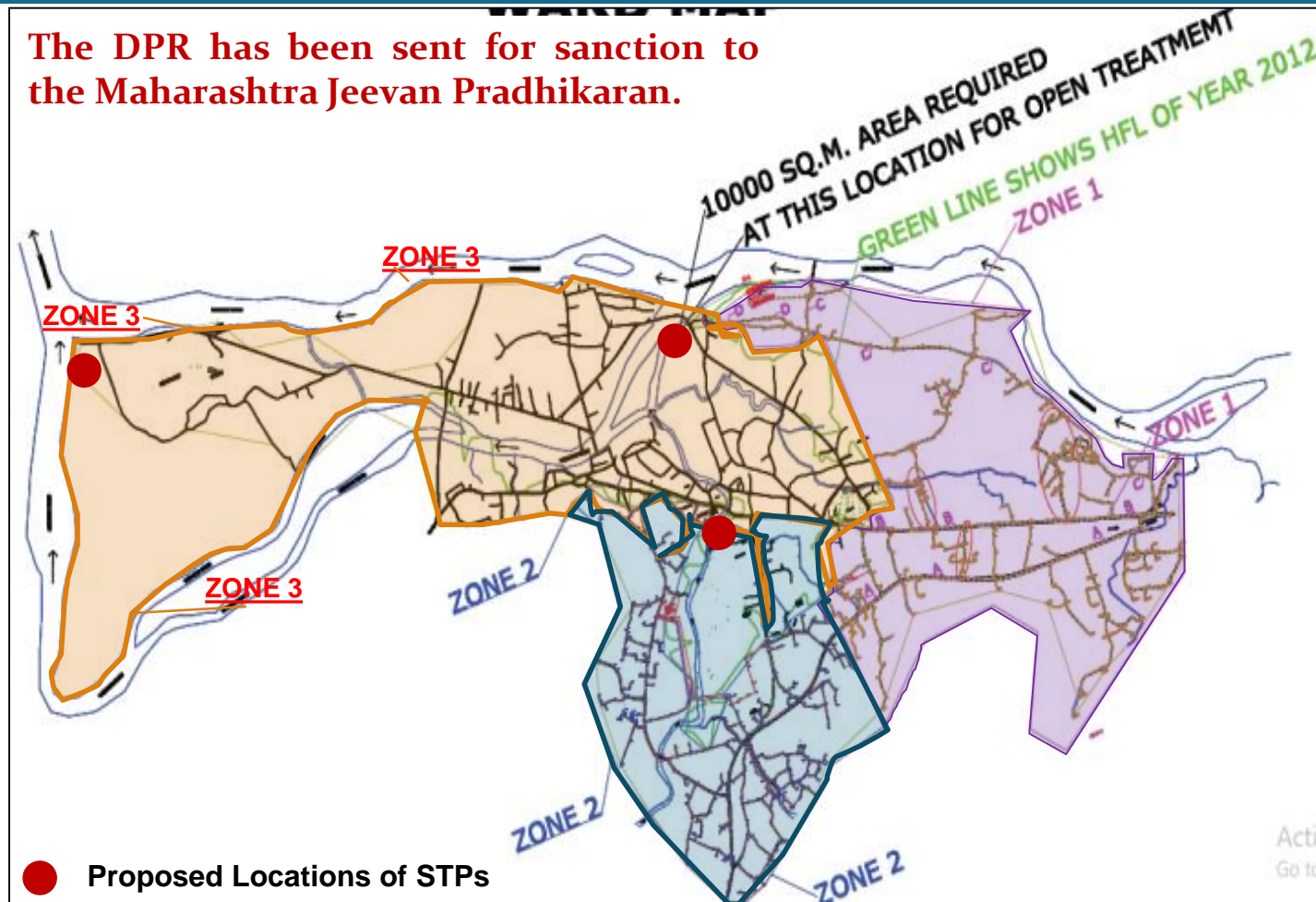
Operating staff cost- 0.462 crore
Electrical Consumption- 0.42 crore
Maintenance & Repair- 1.67 crore
Annual Burden /House- Rs. 2011/-

Proposals

- DPR for sewerage treatment, i.e. solid and liquid parts.
- Gravity sewer network of total length 8.84 km.
- Diameter of sewer lines- between 150 mm and 700 mm.

Source: Chiplun Sewerage DPR

The DPR has been sent for sanction to the Maharashtra Jeevan Pradhikaran.



- 3 Zones- Zone 1- 3 MLD, Zone 2- 2 MLD, Zone 3- 4MLD

Recommended technology for STP- Cyclic treatment process.

Treated sewage and agricultural sludge to be used for agriculture and industrial purpose.

Summary: Current Sanitation Service Chain in Chiplun



Pour flush latrines and CTs

Septic Tanks

Liquid

Open Drains

Empty into the Shiv River

Solid

Vacuum Emptier Truck

No treatment of fecal sludge

Dumping on land at allocated disposal site

- 91.4% coverage of IHHLs
- 72 CTs, 273 seats
- Spatial coverage of CTs more or less adequate,
- No open defecation

- 100% IHHLs connected to septic tanks.
- Large sized, 3-chambered tanks, most have access covers. Cleaned only when fully filled

- 100% coverage of open drains
- Municipal Council provides service, owns 1 truck of capacity 4 cum

- Both solid and liquid parts untreated for now.
- DPR prepared for sewage treatment

- Poor quality of water in nallahs.
- Lack of scientific disposal of waste water and septage at the moment.



4. Solid Waste Management

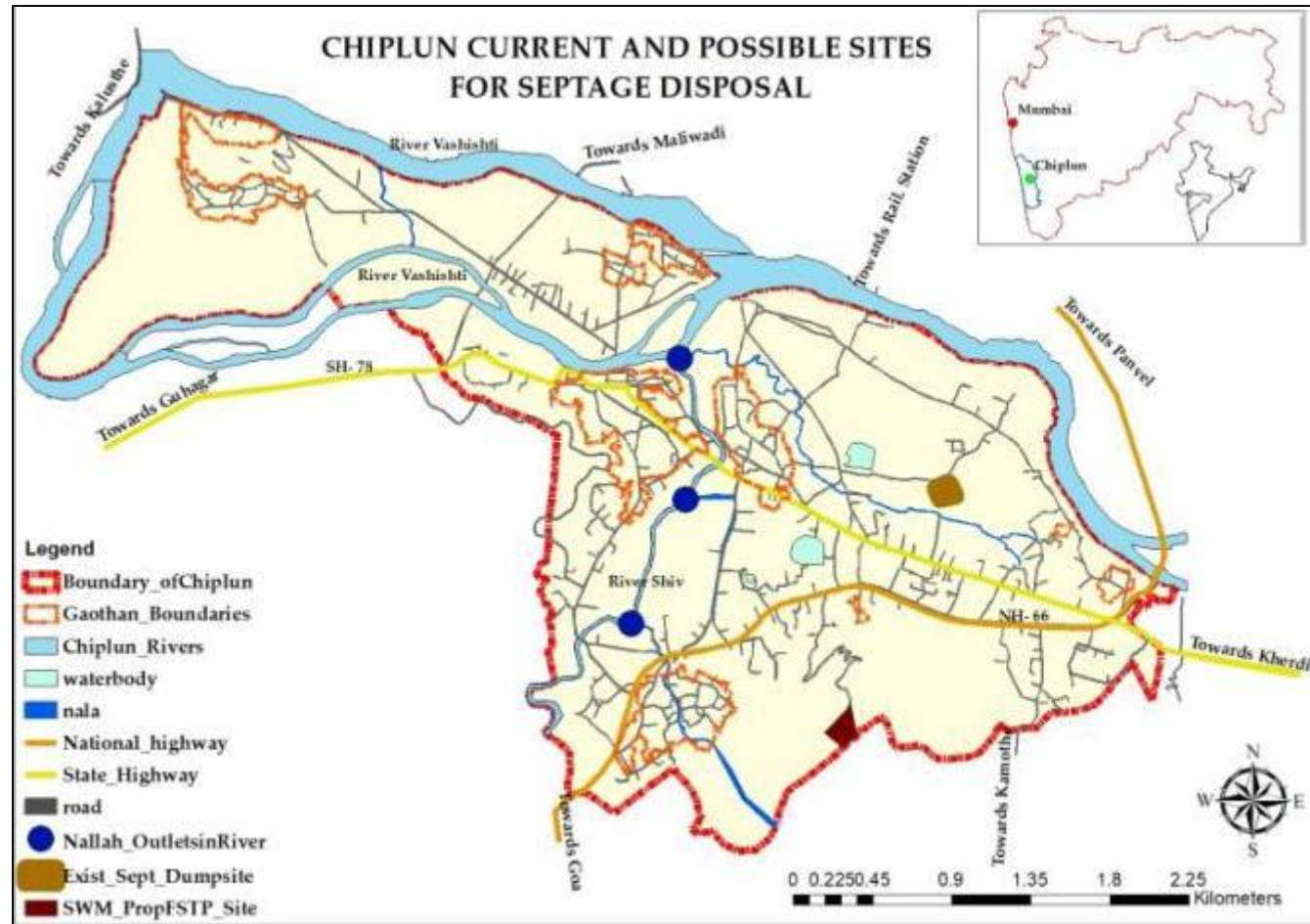
Proposal for SWM and IFSM in Chiplun

Current SWM Site at Shivajinagar
Area: 6 acres

DPR to Achieve Zero Waste in Chiplun under SBM

Proposals for SWM Site

- Proposals to improve efficiency in collection, conveyance, treatment and disposal of solid waste by the M.C.I.
- Waste Processing Facility- Composting centre, 7 TPD material recovery in next 10 years on site.
- Plan to contain spread of waste over land by scientific landfilling of waste and closure of 0.5 acre of land to reclaim for this purpose.
- Revival of the 5TPD bio-methanation plant and expansion to 10 TPD capacity.



M.C.I is open to constructing FSTP at the existing SWM site as well.

If it is decided that FSTP site be set up on SWM site, then proposal would have to be integrated with the DPR proposals.

The DPR has been sent for sanction to the Maharashtra Jeevan Pradhikaran.

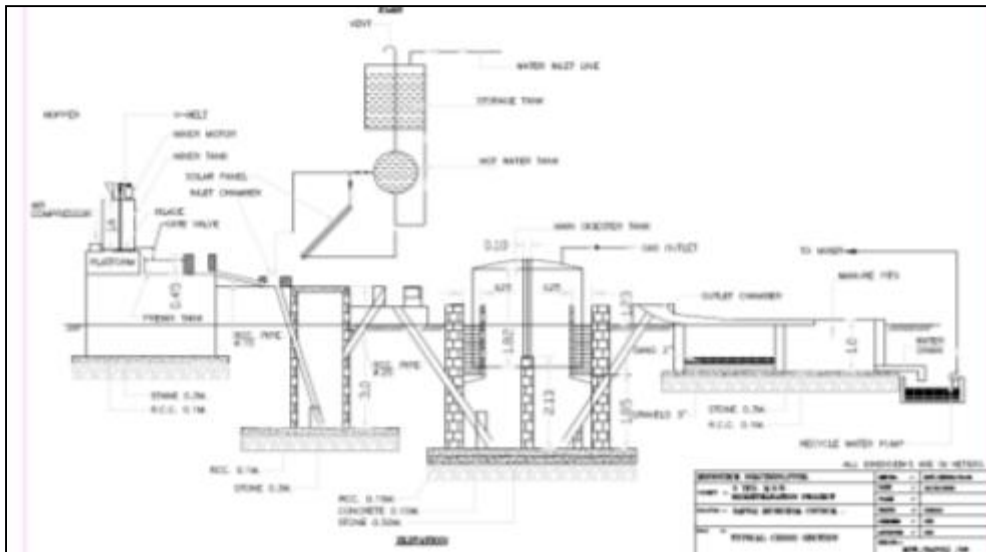
Bio-methanation Plant Revival and Extension to 10 MT

Consultant for Biogas Plant Extension: Mr. Sai Khanolkar, LHAS Consultants

The 5TPD biogas plant that was not functional due to an earthquake, will be revived and expanded to 10 TPD capacity.

Technology: Bio-methanation

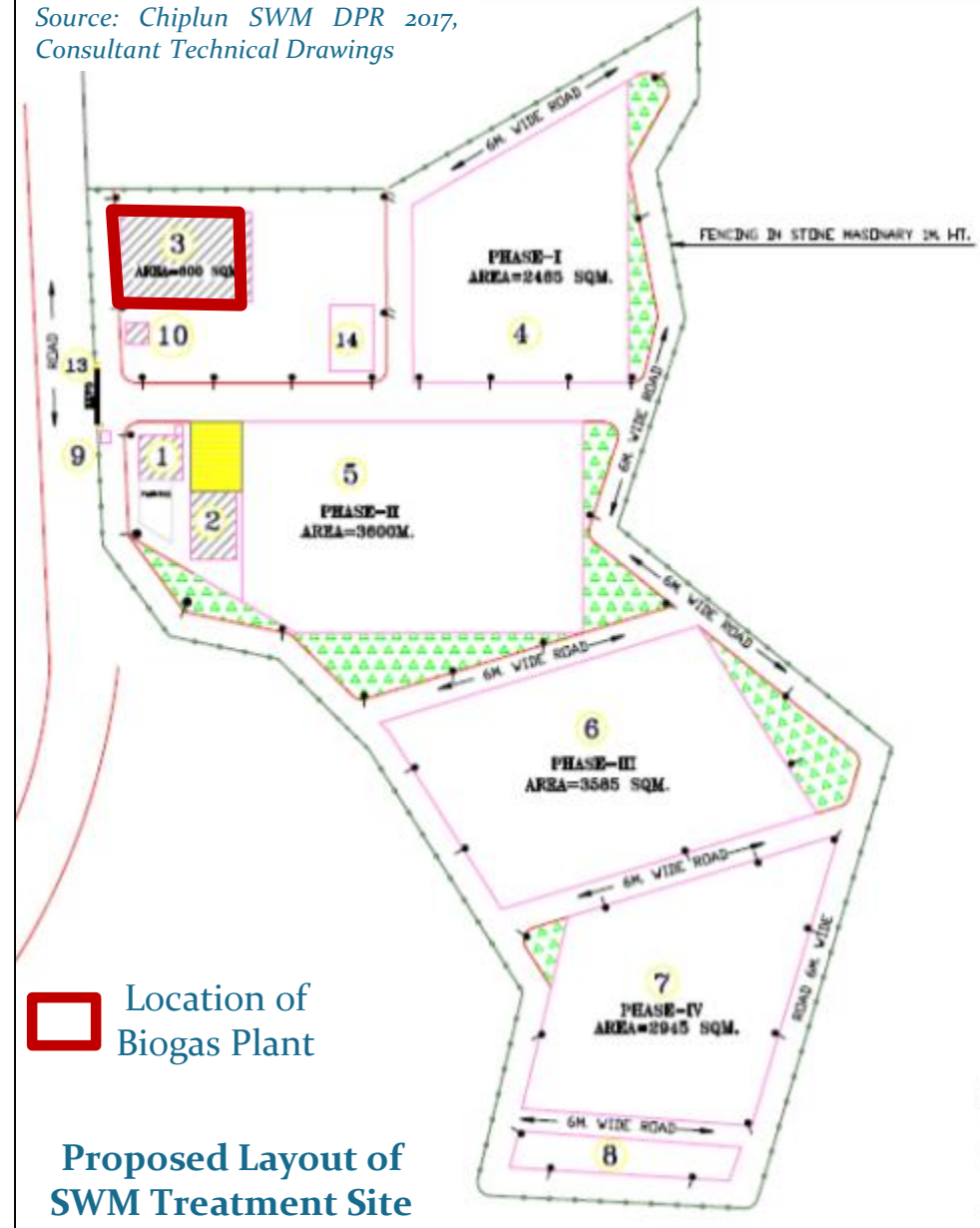
Components: Feed preparation tank, Primary and Main Digester, Gas and Slurry outlets



Costing for Project

- Biogas Civil Cost: INR 65 lakhs
- Biogas Machinery Cost: INR 83 lakhs
- Costing of Shed Work: INR 42 lakhs
- Scientific Land Fill: INR 12.8 lakhs
- Other machinery for site: INR 157.85 lakhs

Source: Chiplun SWM DPR 2017, Consultant Technical Drawings



5. Financial Assessment

Chiplun Municipal Budget

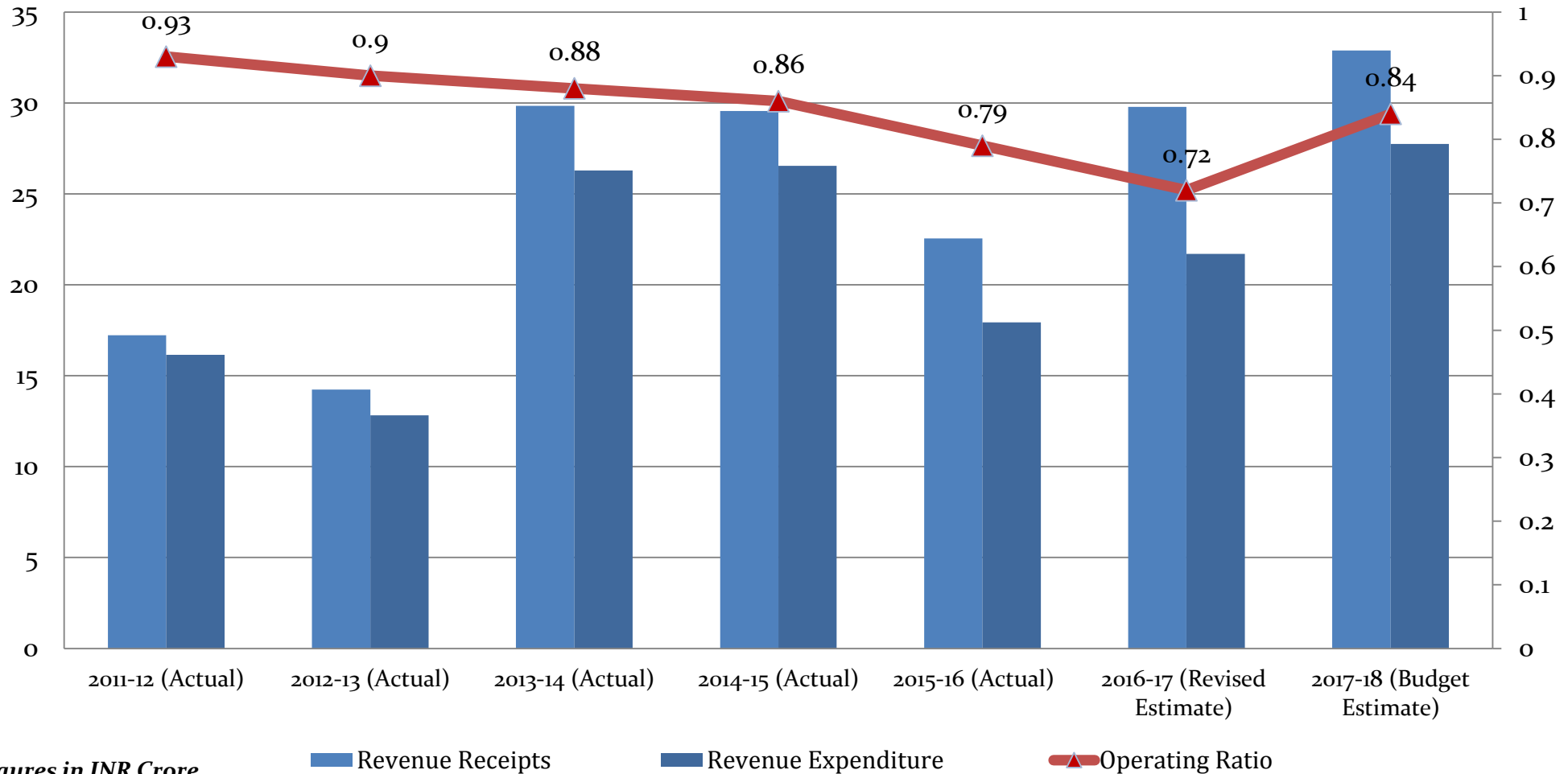
Category	2011-12 (Actual)	2012-13 (Actual)	2013-14 (Actual)	2014-15 (Actual)	2015-16 (Actual)	2016-17 (Revised Estimate)	2017-18 (Budget Estimate)
	Amount in Cr.						
Opening Balance	12.29	14.06	15.15	18.54	20.06	39.34	40.06
Revenue Account							
Revenue Receipts	17.23	14.24	29.84	29.56	22.55	29.78	32.87
Revenue Expenditure	16.15	12.82	26.29	25.54	17.94	21.70	27.74
Capital Account							
Capital Receipts	10.56	15.62	20.92	27.42	25.69	27.16	30.89
Capital Expenditure	9.87	21.76	46.17	38.22	19.95	34.51	38.50
Summary							
Total Receipts	27.79	29.87	50.77	56.98	48.25	56.94	63.77
Total Expenditure	26.02	34.58	72.47	63.76	37.89	56.21	66.25
Closing Balance	14.06	15.15	18.54	20.06	39.34	40.06	
Surplus/Deficit	14.06	9.35	-6.55	11.76	30.42	40.06	37.58
Operating Ratio	0.93	0.90	0.88	0.86	0.79	0.72	0.84
Revenue Account Surplus	1.08	1.42	3.54	4.02	4.61	8.07	5.13

The Council's budget has been on the rise every year from 2011 -12 to 2016-17. The budget is estimated to increase from INR 12 crore in 2011-12 is to INR 40 crore in 2016-17.

¹ Ratio of revenue expenditures to revenue receipts, core measure of financial health for a ULB

² Surplus/Deficit: (Total receipts+ opening balance)- total Expenditure

Revenue Expenditures are Less than Revenue Income



- Revenue expenditures have been lower than revenue receipts every year.
- The considerable increase in revenue receipts was mainly because of increase in tax and non-tax collections. The increase in expenditures are as a result of considerable increase in various operations.
- **Operating ratio** < 1 indicate that the town is able to meet its operating expenses through its own funds.
- The operating ratios have been high every year, although there has been a decreasing trend.

Revenue Receipt Share in Budget

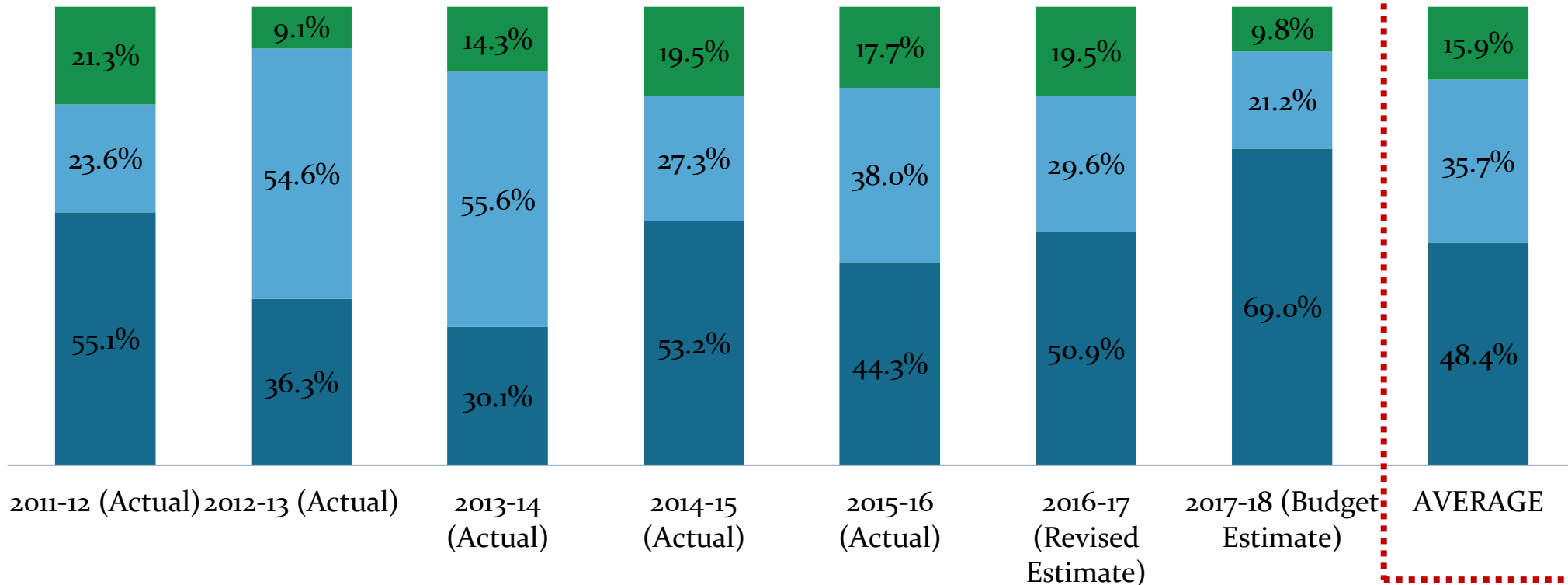
Source: Chiplun Budget 2013-14 to 2017-18

Chiplun M.Cl. Revenue Receipts (Average between 2011 and 2017)

Revenue Receipts 2011- 2017

■ Grants and Contributions ■ Own Non-tax ■ Own Tax

Average revenue receipts per capita: Rs. 3795



Grants and contributions- Revenue shared taxes such as entertainment tax, and court proceedings, toll tax compensations, census grants etc. Own non-tax revenue- revenue from properties, fees, fines, charges, sales and rents, etc. Own tax revenue- Property tax.

Grants form the largest source of revenue receipts; followed by own non-tax revenue. This has been the trend every year, except in 2012 and 2013. Own tax revenue contribution has always been low.

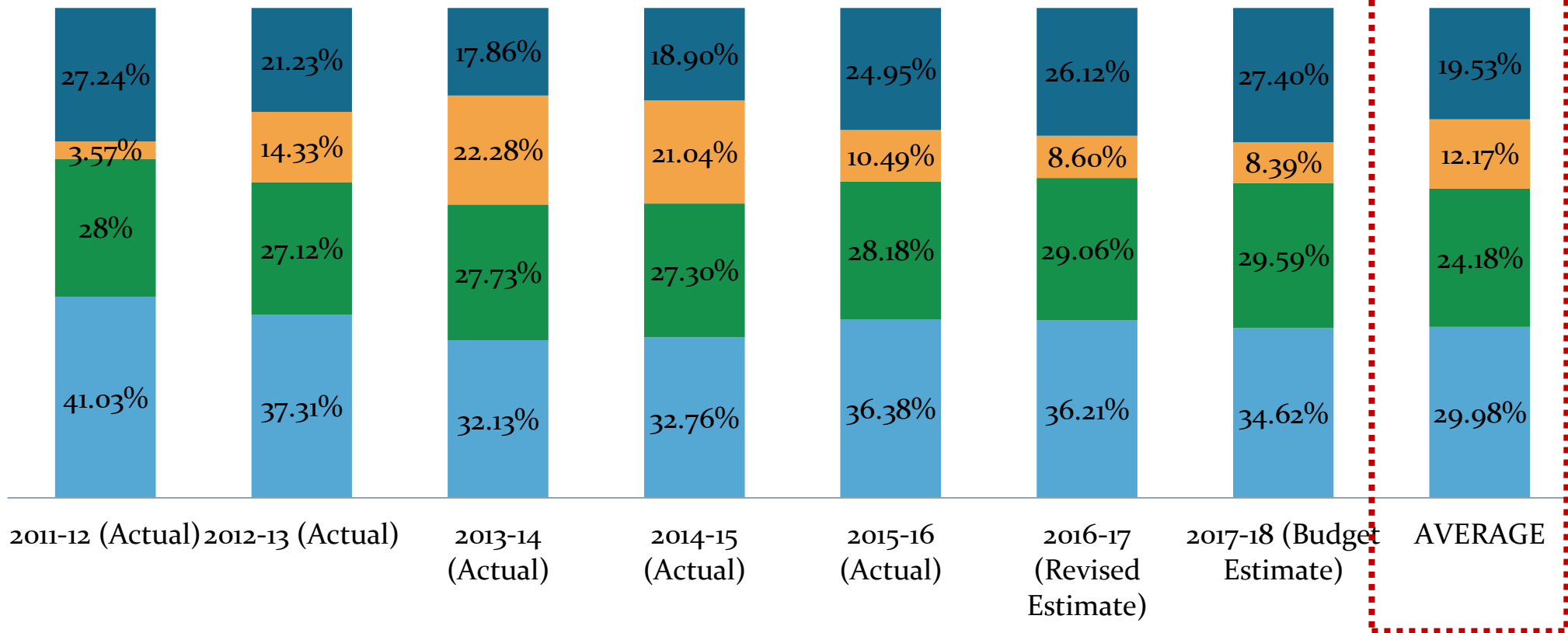
Revenue Expenditure Share in Budget

Chiplun M.Cl. Revenue Expenditure (Average between 2011 and 2017)

Chiplun M.Cl. Revenue Expenditure 2011- 2017

Average revenue expenditure per capita: Rs. 3215

■ General Expenses ■ Public Health and Welfare ■ Social Security ■ Others



Sources: Revenue Department records, Chiplun Budget 2017-18

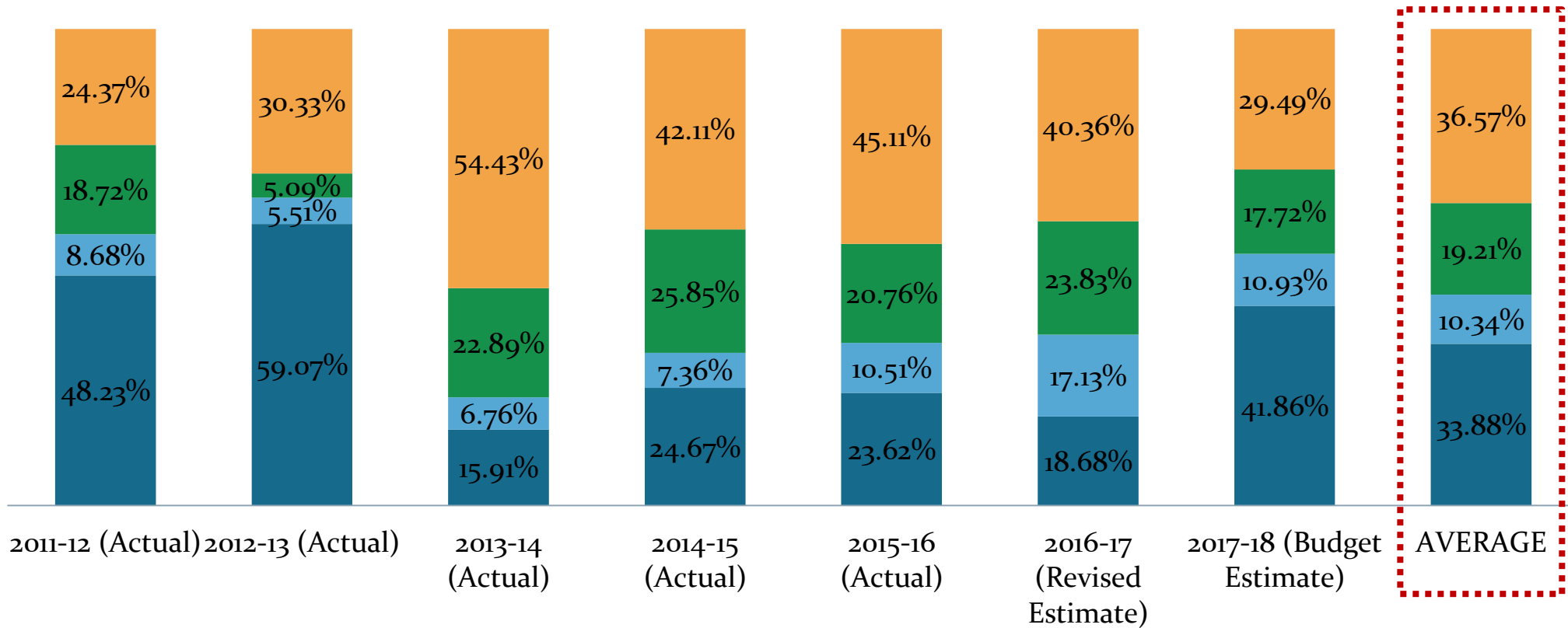
On an average, expenditure on general administration is the highest, followed by public health and welfare. The share of expenditure on social services is low.

Revenue Expenditure Share in Budget

Chiplun M.Cl. Revenue Expenditure on Public Health and Welfare (Average between 2011 and 2017)

Chiplun M.Cl. Expenditure on Public Health and Welfare 2011-2017

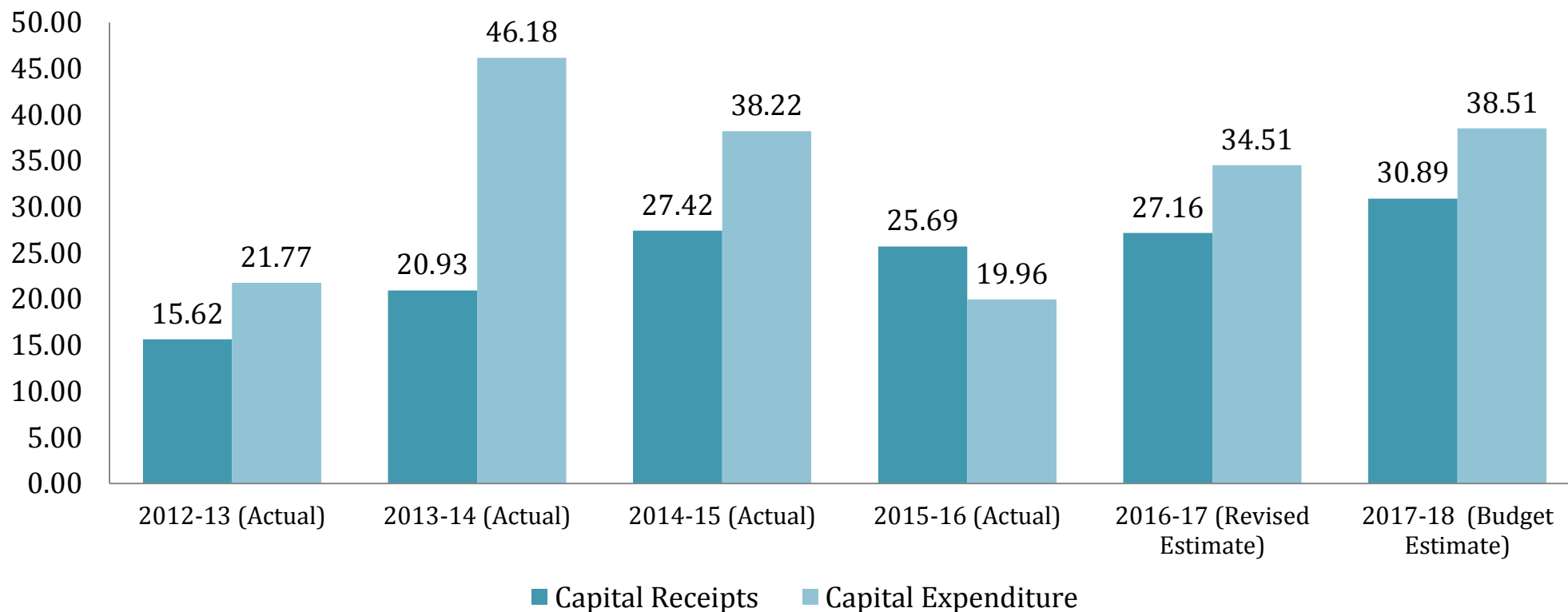
■ Water ■ Solid Waste Management ■ Wastewater ■ General Expenses



Sources: Revenue Department records, Chiplun M.Cl. Records, Chiplun Budget 2017-18

On an average, maximum spending of the public health and welfare category is on general works, followed by water supply. The share of SWM is the lowest. A rather higher spending on general works maybe due to increased expenditure in establishment expenses, Council property and parks, engineer/architect fees, and school computer distribution.

Capital Receipts and Expenditure



All figures in INR crore

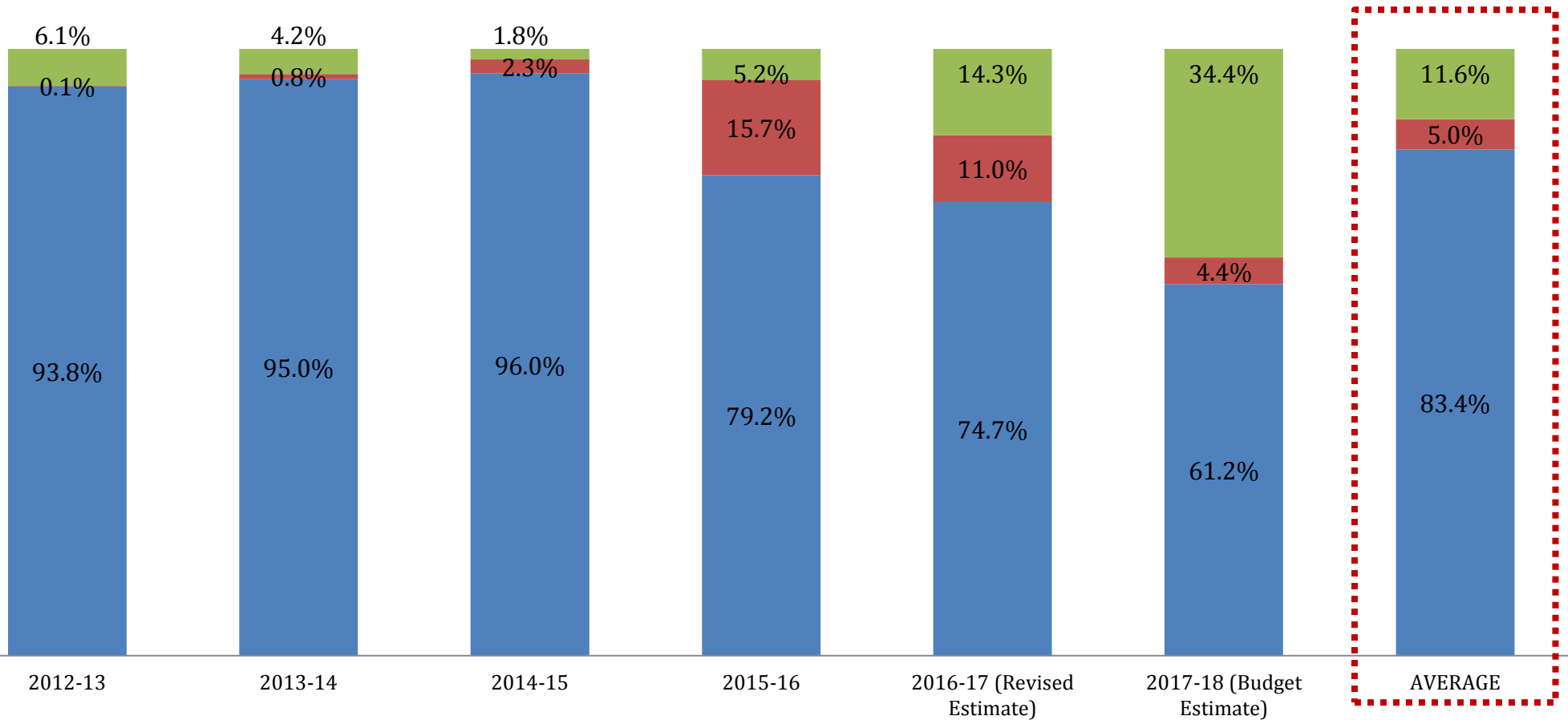
- On an average, capital expenditures exceed capital receipts.
- The expenditure on WSS capital projects are very low. Capital expenditure on WSS include UIDSSMT in the water supply sector, IHHL grants, new drainage lines, etc. There has been no capital spending on SWM.
- The Council finances the excess capital expenditures with the revenue receipts.

Nature of Capital Expenditure in Chiplun

Chiplun M.Cl. Capital Expenditure (Average between 2012 and 2018)

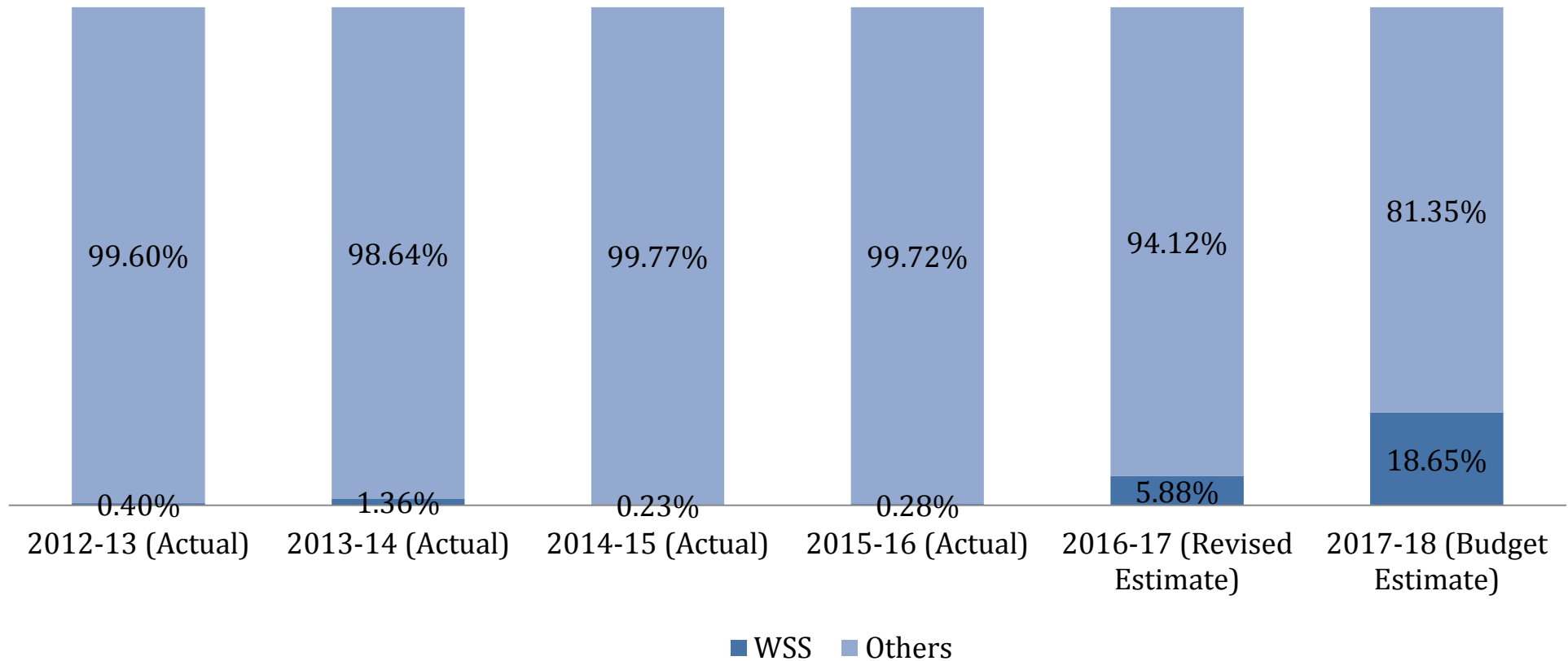
Sources: Revenue Department records, Chiplun Budget 2017-18

- Immovable and Movable Property
- Capital Works in Progress
- Investments, Loans, Agrim and Deposita, Rokh and Bank Balances and Amount to be given to the Government



On an average, expenditure on general administration is the highest, followed by public health and welfare. The share of expenditure on social services is low.

Expenditure on WSS Capital Works as Part of Total Capital Expenditure



- The figures show how small a share the expenditure on WSS makes up of the total capital expenditure.
- The share is expected to increase in 2016-17 and 2017-18.

Future Projects and Capital Funding Sources

S r · N o	Sector	Projects	Project Period	Funding Source	Funds Received	Amt. req. for CAPEX	Estimated OPEX	Status
1	Sanitation	220+ IHHL Construction	2018-19 onwards	SBM Funding from Central and State Govt	Rs. 41.52 lakh	Rs. 41.52 lakh	NA	G.R. passed, data collection to be carried out, applications being received
				SBM Incentive Fund	Rs. 92 lakh	To depend on target set		
2		Sewerage Management Project for Chiplun	Yet to begin	Nagoraththan, NP Funds Reserved for STP	Rs. 30 lakh (21 Dec 2017)	Rs. 98.8 crore	Rs. 2.58 crore/ year	DPR completed, sanction awaited
3	Solid Waste Management	Zero Waste SWM Project under SBM, DPR implementation	Yet to begin	14 th FCC	Rs. 14.15 crore	Rs. 3.47 crore	Rs 33.64 crore from 2017 to 2041	DPR completed. Technical sanction pending.
4	Water Supply	Water Supply Scheme for Chiplun from Kolkewadi Dam	Yet to begin	Nagarotthan	Funds yet to come	Rs. 70 crore	Rs. 16 crore	G.R. passed, DPR under process

Sources: Chiplun Municipal Budget 2017-18, Chiplun GR on IHHL Construction August 2017, SWM DPR 2017, SHG Department records, Health Department Records

Property Tax Rate

For sake of property tax collection, town divided into 4 zones, and for each zone rate has been set for any 4 type of building-

Property Tax Rate/ sq.m. 2016-17

Zone/ Type	A	B	C	D
1	340	288	211	144
2	294	232	185	124
3	247	216	175	113
4	216	175	144	108

- Type A- RCC
- Type B-Load bearing
- Type C- Iron sheets / Clay tiles
- Type D- Mud- Kaccha

Depreciation = Area of plot lying in zone of type x rate (r)
-(r x 10%) (a)

Gharpatti/House Tax= a x 23% (Double of this for commercial properties)

Tree Tax= a x 1%

Shikshan Tax= r x 6%

Vishesh Swacchata Tax= Rs. 100/property (not enforced since 2016)

Agnishaman Tax= a x 2%

Rozgar Hami Kar= Shikshan Kar x 2% (only applied to commercial establishments)

Total Property Tax= Sum of all taxes above

Source: Chiplun Property Tax Records

For example, for a residential unit of area 32.93 sq.m. lying in Zone 2 of type C
Property Tax Rate- Rs. 185/ sq.m.

Depreciation= (32.93 x 185) (y) - 10% of (32.93 x 185) = 5483 (z)

Gharpatti= z x 23% = 1261

Tree Tax= z x 1% = 55

Education Tax= y x 6% = 366

Agnishaaman Tax= z x 2% = 110

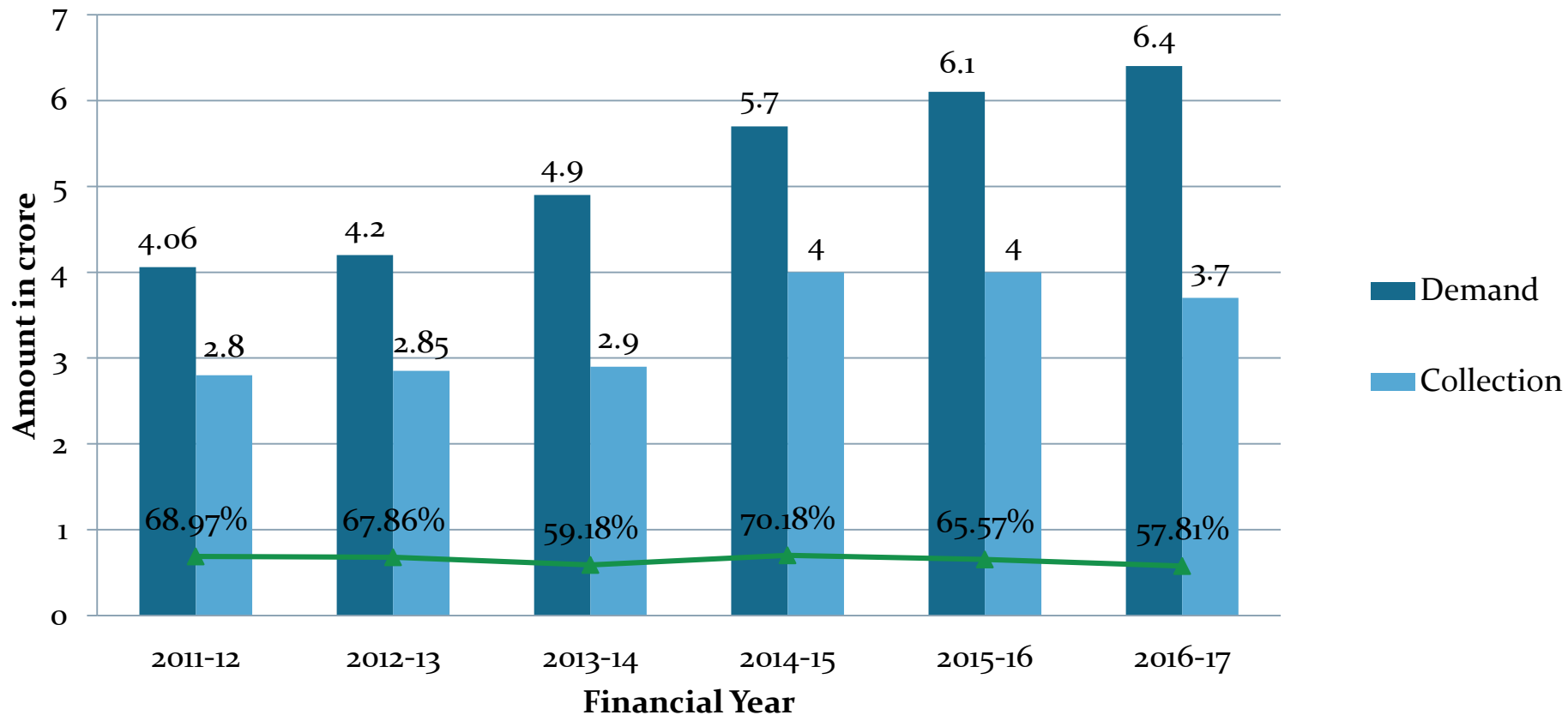
Vishesh Swacchata Kar= 100

Rozgar Hami Kar- Not Applicable

Total Property Tax to be Paid= Rs. 189214

Demand Collection Table (DCB)

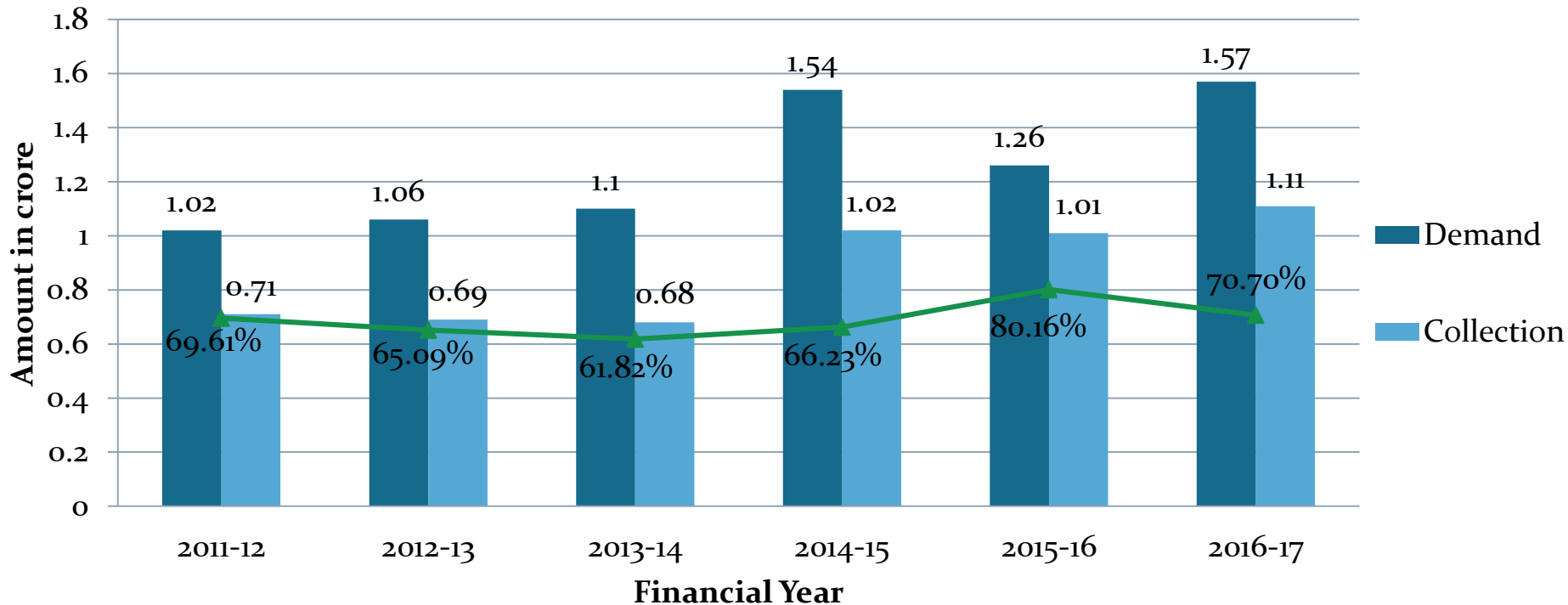
Property Tax Demand and Collection 2011-2017



- The average property tax collection efficiency of the Council is 65.9%
- The collection efficiency for 2016-17 has been below average, and is also the lowest for the last 6 years.
- The Council carries out a property assessment every year, based on which the demand is increased.
- To improve collections the Council spreads awareness by putting up banners on auto rickshaws, in newspapers, house-to-house awareness, levying penalties on non-payment, and giving notices to acquire house, or discontinue services.

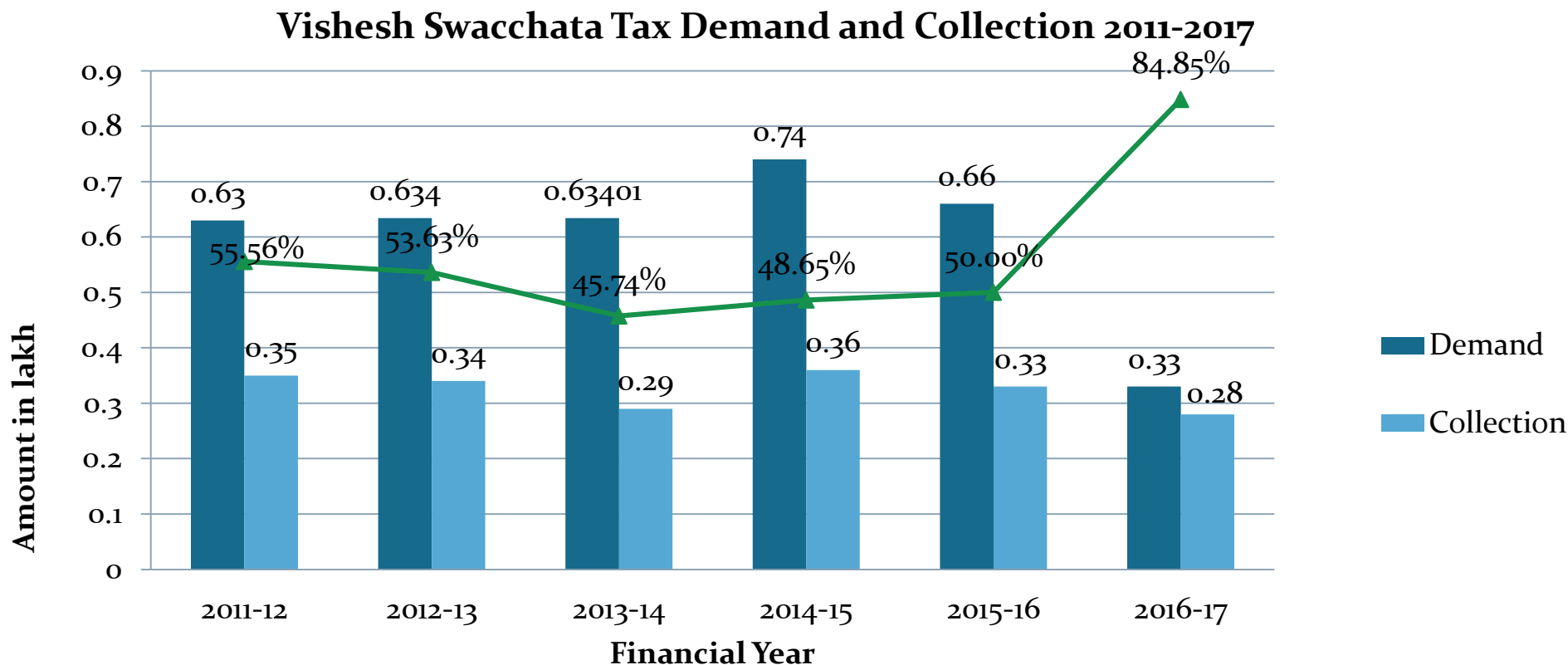
Demand Collection Table (DCB)

Water Charge Demand and Collection 2011-2017



- Water charge collection efficiency has been higher in the last two years than the average of the 4 previous years.
- In 2015-16, collection efficiency is exceptionally high owing to a lower demand in that year.
- The average water charge collection efficiency is 68.9%.

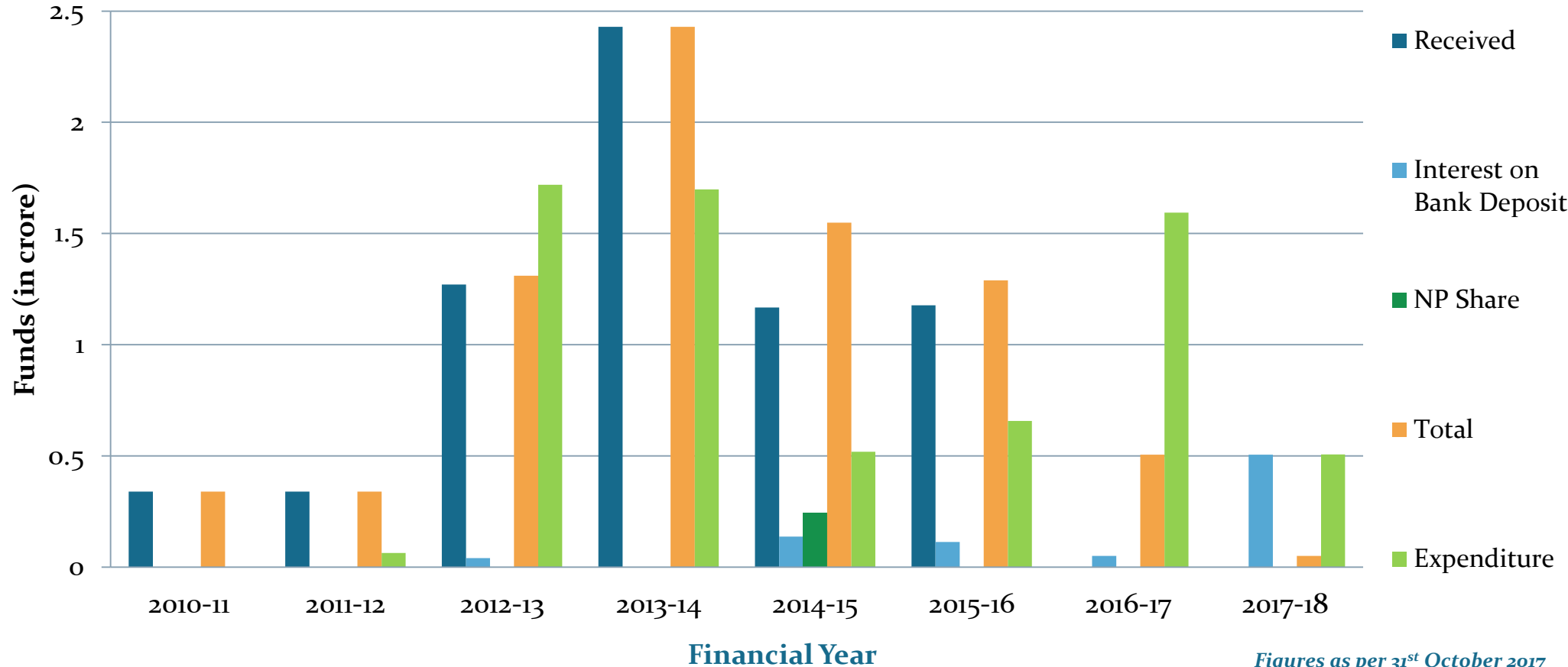
Demand Collection Table (DCB)



- Vishesh Swacchata Kar collections against demands have been low, as there has been opposition from the citizens to the tax.
- As the citizens have been against the Vishesh Swacchata Kar, the enforcement of this tax was discontinued in 2016-17, although it is still levied, thus the demand for 2016-17 low.
- The average collection efficiency for the Vishesh Swacchata Tax is 56%.

Funding Sources- 13th Finance Commission Funds

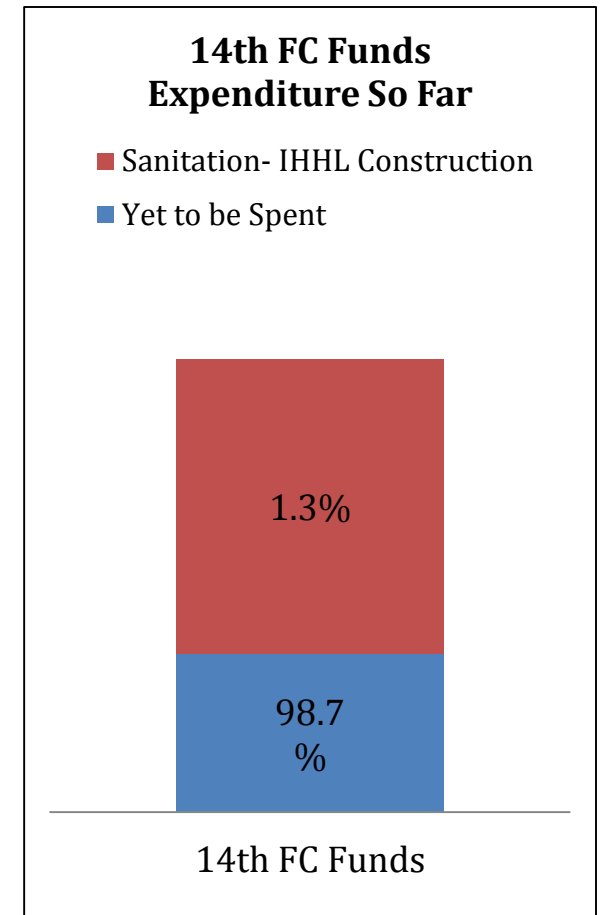
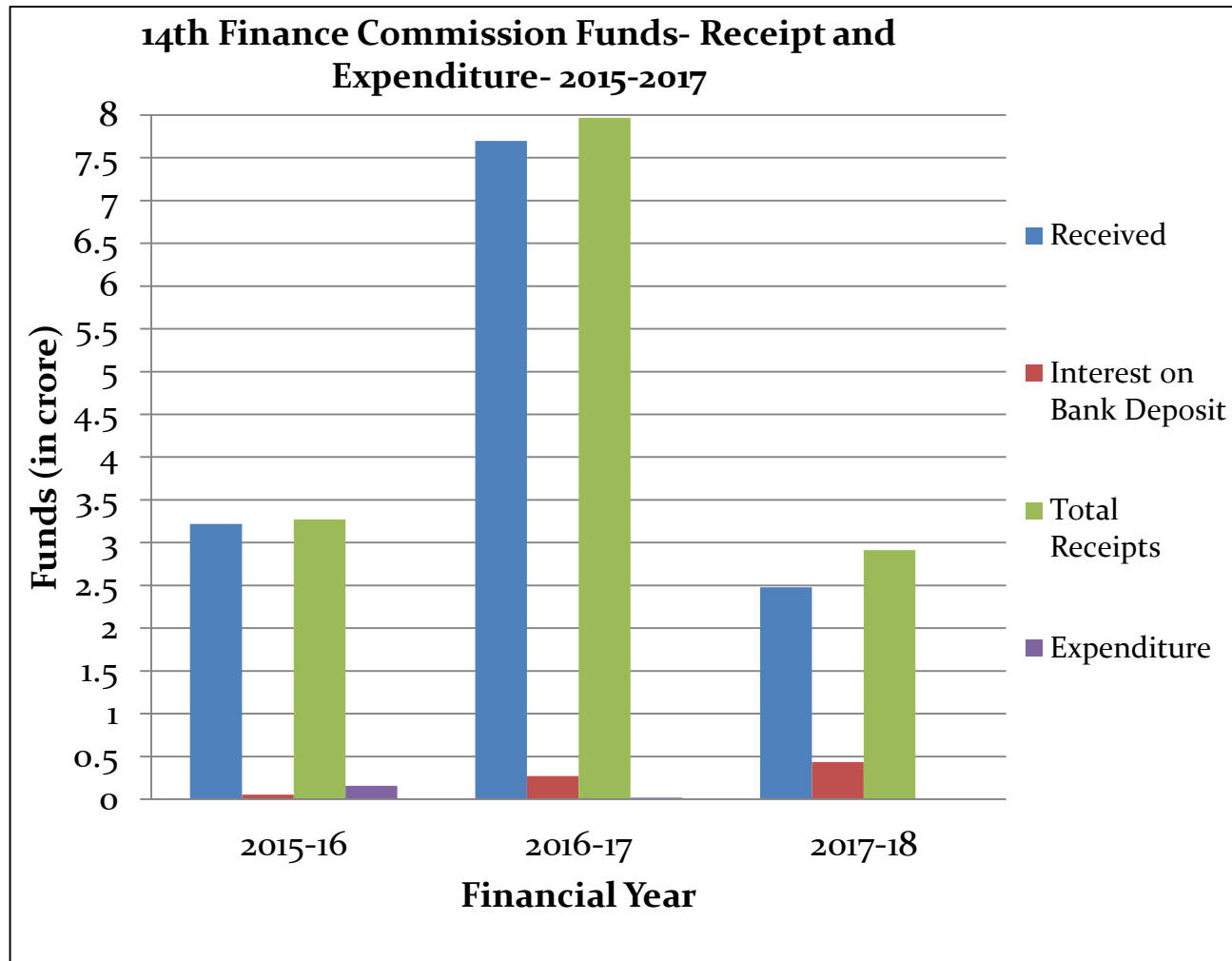
13th Finance Commission Funds- Receipt and Expenditure- 2010-2017



Figures as per 31st October 2017

- A total of INR 7.81 crore has been received from the 13th Finance Commission grant between 2010 and now.
- Of this, INR 6.75 crore have already been spent.
- The expenditure of the 13th FC funds have been on capital works of water supply, an ABM technology project and outsourced workers services.

Funding Sources- 14th Finance Commission Funds



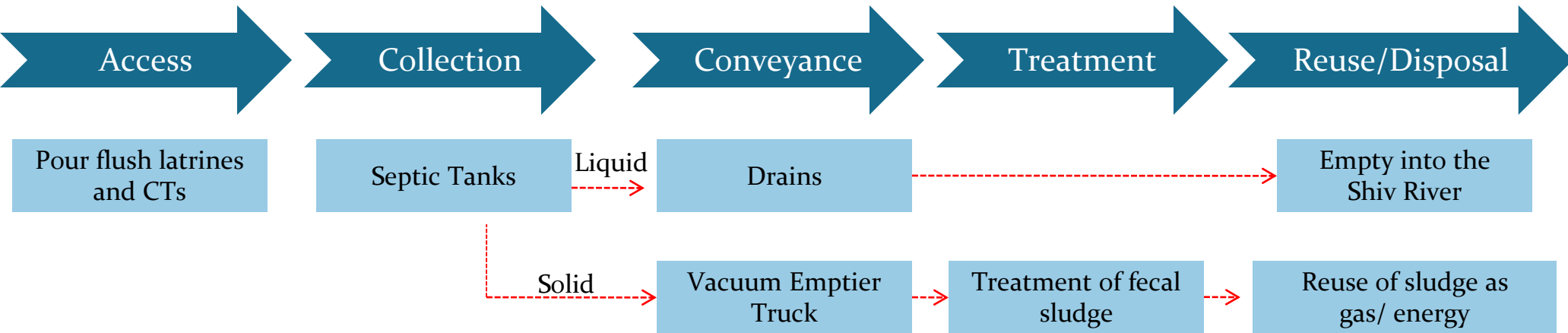
Figures as per 14th March 2018

Sources: Account Department records, Chiplun Budget 2017-18

- A total of INR 14.15 crore has been received from the 14th Finance Commission grant between 2015 and now. 50% of these will be allocated to the Building Works Department, and the rest to the Health Department.
- Of this, INR 0.17 crore have already been spent on sanitation capital work- mainly to finance the IHHL subsidy of citizens.

6. Summary of Challenges

Summary: Proposals Across Sanitation Service Chain



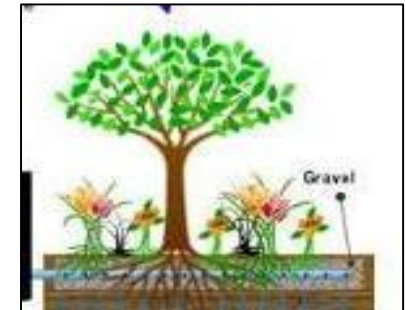
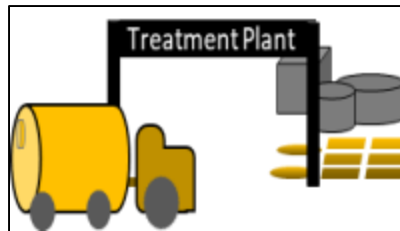
- Achieve at least 95% coverage of IHHLs.
- Improved conditions of CTs.
- Close or modify underused CTs.

- Ensure new septic tanks built are of adequate size and specifications.
- Clean IHHL septic once every three years.

- Implement scheduled septic tank emptying in town for a 3-5 year cycle.
- Council can operate/hire operator service with new fleet of trucks.

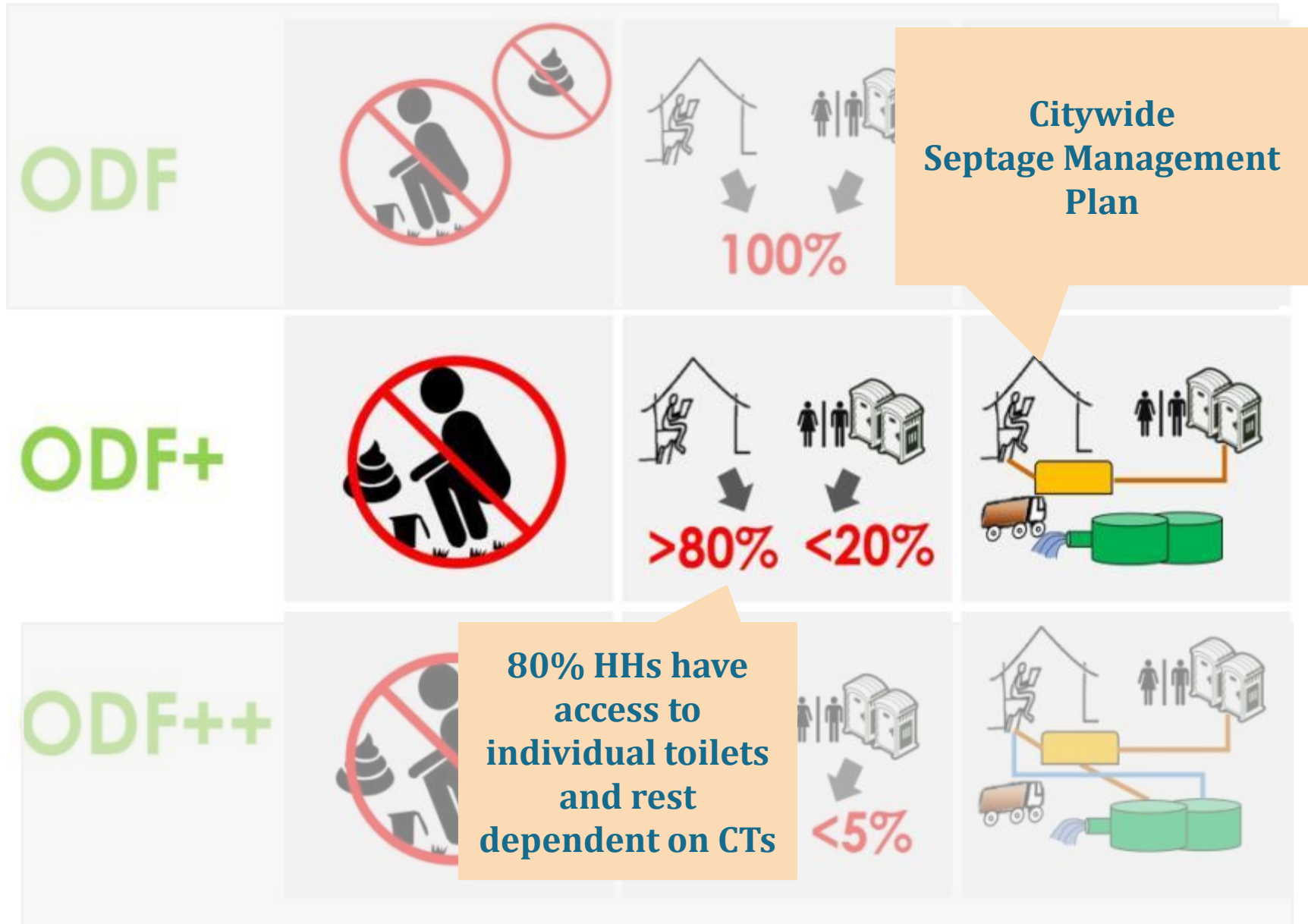
- FSTP plant construction to treat septage.
- Quality of effluent emptying into drains will be better

- Improved quality of water in nallahs, saving contamination of river.
- Reuse of manure or gas produced after treatment creating a better environment, and bringing additional income for M.Cl.



7. Proposals

Concept of ODF , ODF +, ODF ++ by GoM



Why is Septage Management important !!!

**1 truck of Faecal Sludge and Septage
carelessly dumped
= 5,000 people shitting in the open!**

**1 Gram of Faeces may
contain:**

100 parasites eggs

1000 Protozoa

1,000,000 Bacteria

10,000,000 Virus

Recognition to Septage Management at National level . . .

- ❑ **National Policy on FSSM** by MoHUA, GoI
- ❑ **National declaration on Septage Management** by MoHUA, GoI
- ❑ One of the major **thrust areas** of **AMRUT**
- ❑ **Primer on septage Management and Rapid Assessment tool** for estimating **budget requirements** for **FSSM**
- ❑ **Septage Management Advisory** of Government of India provides references to CPHEEO guidelines, BIS standards, and other resources for preparing SMP / FSSM plan.



CEPT support for moving cities towards ODF+

Support for Onsite systems

- 1 For new toilets that are under construction: Ensuring suitable technology option

CEPT Support

- Dos and Don'ts Flyer
- Training to masons
- CT/PT Assessment

Support in Planning & Technology selection for Emptying & Treatment

- 2 Regular desludging of septic tanks within the city limit and exploring possibility of desludging septic tanks outside city limit

CEPT Support

- Exploring scheduled v/s demand based desludging
- Deciding type & number of vacuum emptier
- Deciding the model of operation (ULB v/s Private)
- Support in development of contract for emptying (if required)
- Support in development of monitoring process / awareness programs

- 3 Suitable technology options for treatment of septage

CEPT Support

- Carrying out septage quality tests to assess quality of septage to be treated.
- Carrying out Ground /river water quality tests
- Identification of suitable treatment technology based on technical and financial assessment and requirement of the ULB
- Support in development of monitoring process
- Market assessment for byproducts /reuse

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Support for Conveyance Mechanism - Demand v/s Scheduled

□ Current practice – Demand based emptying

(Complaint redressal mode)

- Cleaning is done **on-call** by the **household** who **raises a complaint** regarding this with either the ULB or Private when the tank is full
- A **fee is charged** by the ULB or Private for provision of these services
- Leads to low toilet usage due to the fear of tanks filling up and high cost of emptying



□ Proposed practice – Scheduled based emptying

(Regular service mode)

- Septic tanks are cleaned on a **pre-determined schedule**.
- Households / property owners pay a **local tax** and get this services on regular intervals
- Scheduled emptying is being used in **Wai, Sinnar, Malaysia, Vietnam and Indonesia**



From a Consumer complaint system to Regular service ...

Benefits of Scheduled Emptying

- **Equitable services** - all households / properties are covered by services
- **Pricing** – Services are offered at lower prices, due to efficiency gains
- **Behavior change** - Contribution to ODF sustainability as toilet usage can increase
- **Eradicate Manual scavenging** - Removal of need for manual scavenging due to regular emptying
- **Infrastructure optimization** - More predictable loads for treatment facility and route optimization of trucks
- **Environmental benefits** - Likely reduction in BOD and coliform in septic tank effluent, as well as lower likelihood of septic tank overflows

Support in operationalizing emptying services . . .

City	Demand Desludging (Existing)		Scheduled Desludging (5 year cycle)	
	No. of tanks emptied at present	Number of trucks	No. of tanks to be emptied daily	Number of trucks required *
Chiplun	One in 2-3 days	1 - 4000 L	4	1-2 trucks

Private sector is ready to invest for these trucks

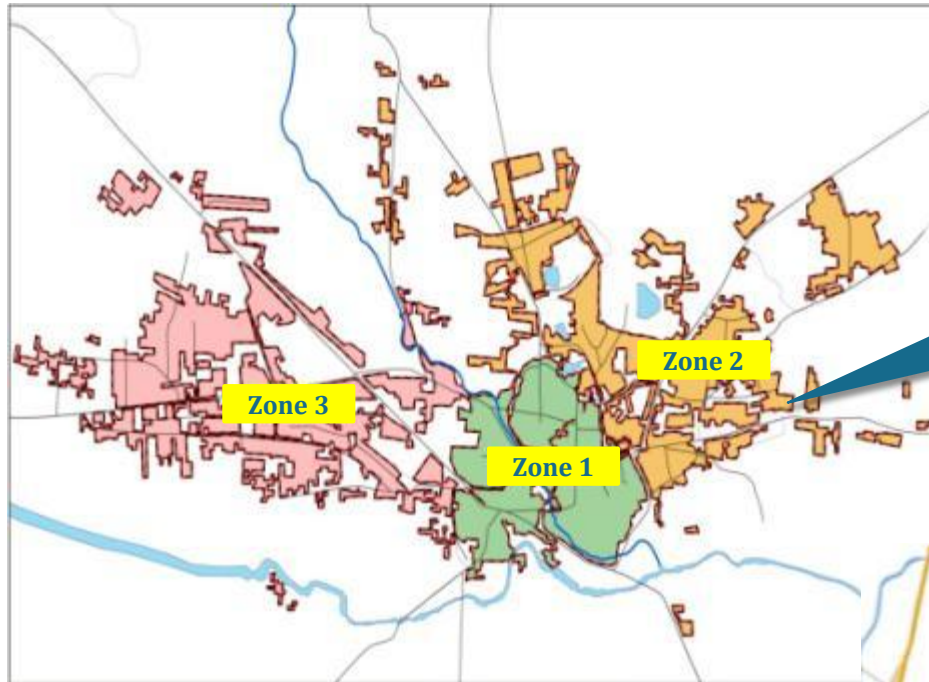
Support in

- Setting up **Monitoring mechanism** to monitor ULB / Private sector operations
- Support in **development of contract** for emptying (if required)
- **Awareness** for regularly desludging of septic tanks

Note : * - Truck sizes may range from 3000 – 5000 L based on road width and average size of septic tanks

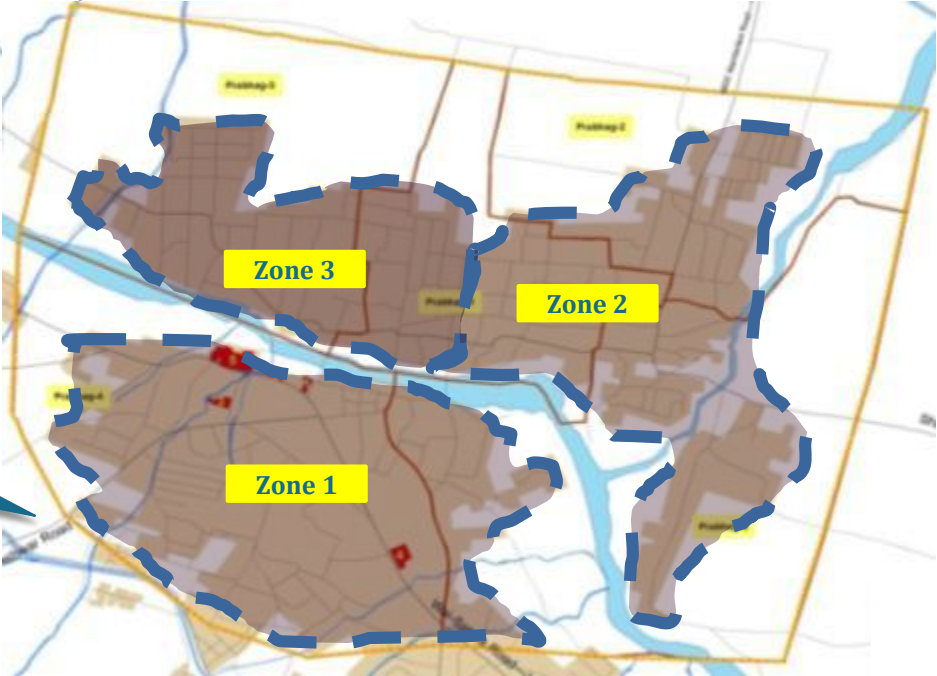
Example of Wai and Sinnar - Scheduled desludging services by involving private sector . . .

3 year cycle



3 trucks to desludge ~ 4000 septic tanks annually

2 trucks to desludge ~ 2000 septic tanks annually



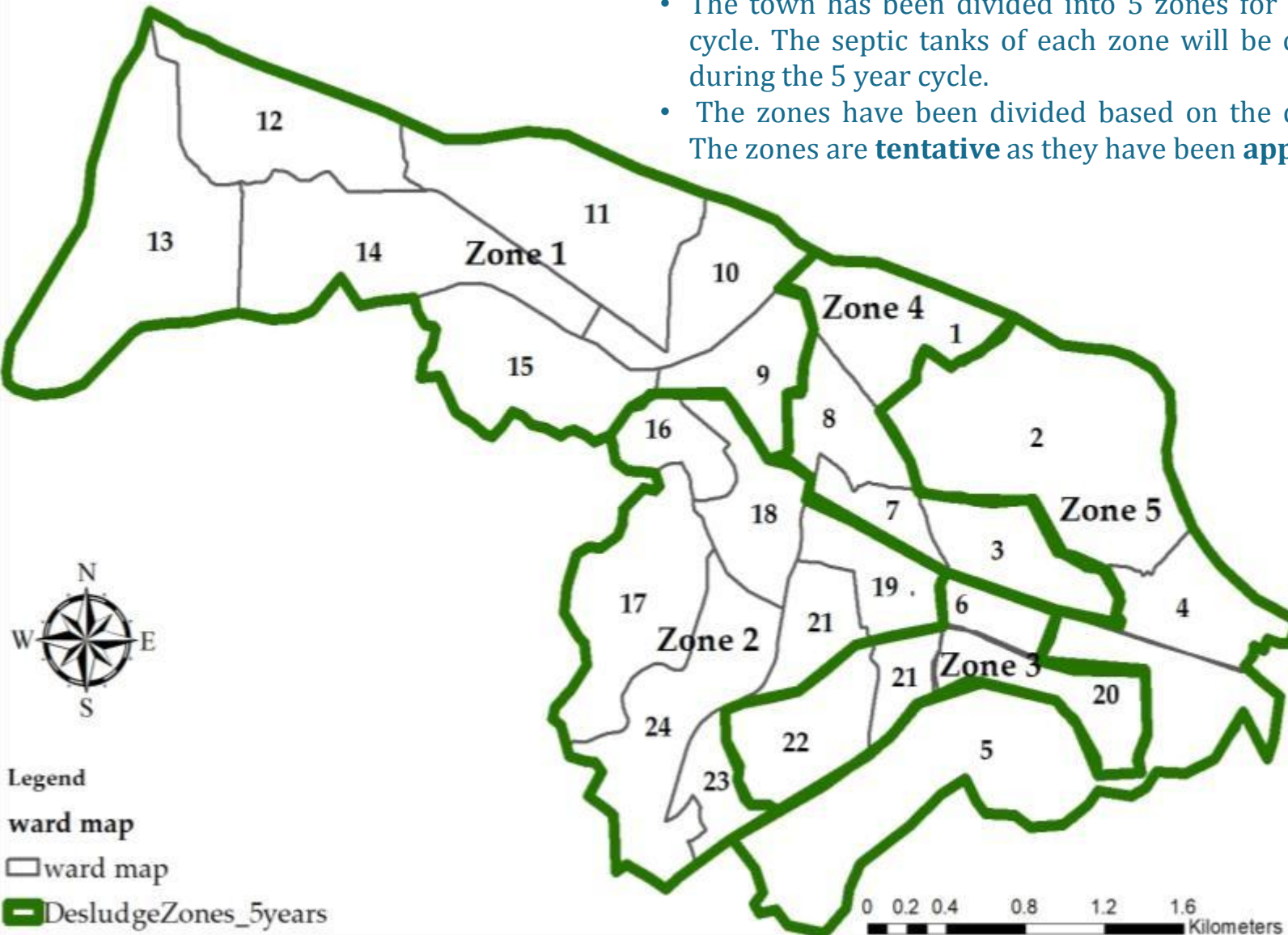
Zoning for Chiplun for Schedule Emptying

Approximately, 964 **septic tanks of individual toilets** in the city need to be cleaned annually.

Zoning of the city for emptying of septic tanks

- The town has been divided into 5 zones for the septic tank desludging cycle. The septic tanks of each zone will be cleaned in turn every year during the 5 year cycle.
- The zones have been divided based on the distribution of households. The zones are **tentative** as they have been **approximately delineated**.

Zone	Ward	No. of septic tanks
Zone 1	9- 15	951
Zone 2	16-19, 21, 24	1021
Zone 3	6, 20-22	905
Zone 4	1,3,7,8	953
Zone 5	2,4,5	990



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Support in operationalizing Treatment plant. . .

City	Demand Desludging	Scheduled Desludging
	Septage load cum/day	Septage load cum/day
Georai	7	31-35

Incremental Approach

Support in

- Identification of suitable septage treatment option
- Carrying out Wastewater quality tests
- Developing monitoring process
- Market assessment for by products /reuse

Need for **Incremental Approach** . . .

- Need to **start treating** the **existing septage** that is being dumped at dump site
 - ▣ Need to select **treatment technology** which is **modular** in approach



Incremental

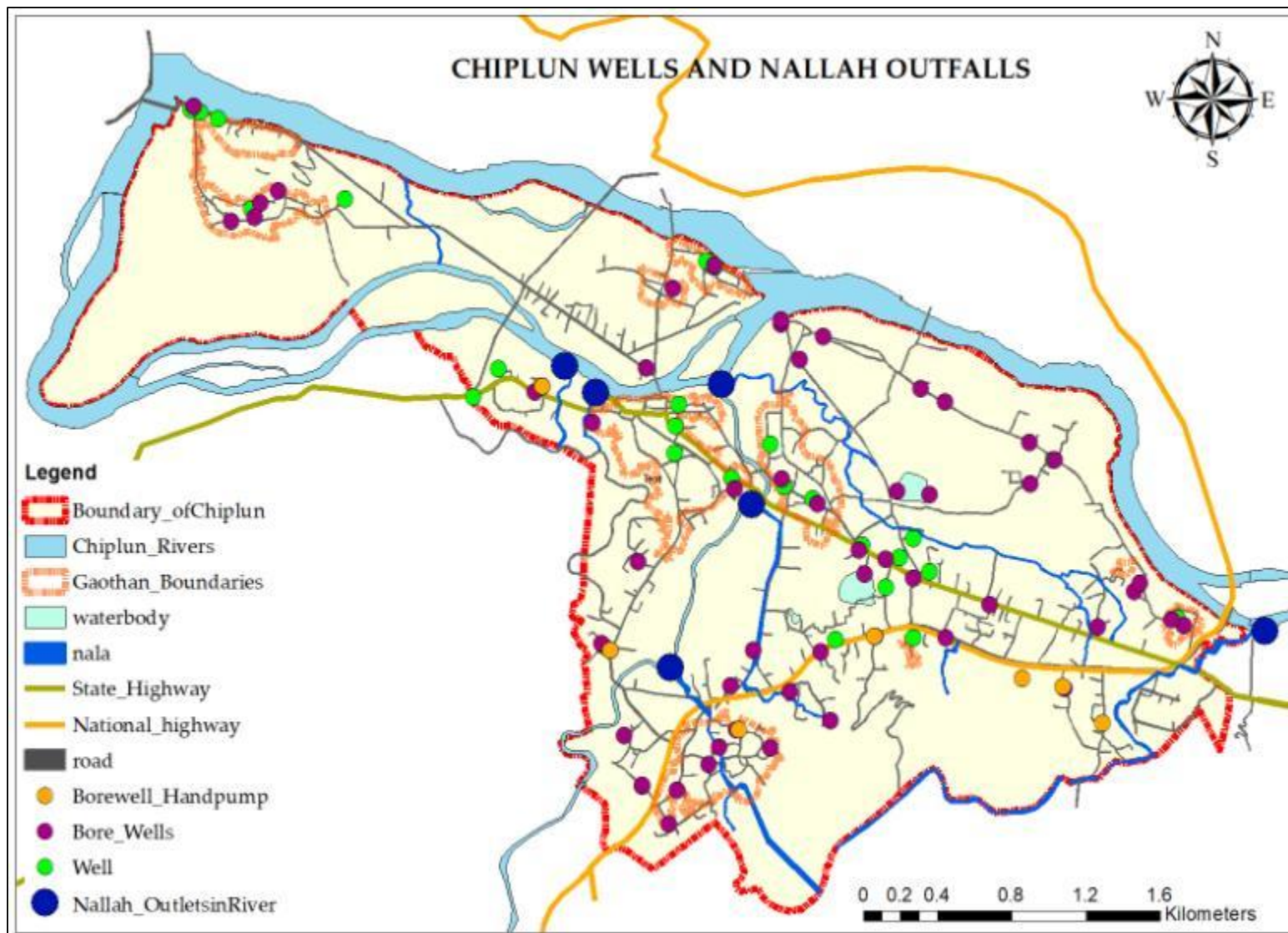
- Need to move towards **scheduled desludging gradually**
 - ▣ Develop a **DPR**
 - ▣ Take **technical** and **administrative approvals**
 - ▣ Roll out **contracts** for **construction** and **O&M**

Quality tests carried out in Chiplun. . .

Sampling location
points identified for:

- **Surface water** quality,
- **Groundwater** quality,
- **Effluent** quality
- **Septage** quality

Sample collection has been carried out on 7th and 8th March 2018. Testing being done by Polytest Laboratories Ltd. Pune



Selection of Septage Treatment Technology

Selection of treatment technology considering the following parameters

1. Assessment of Existing Situation and Desludging System that Can be Adopted

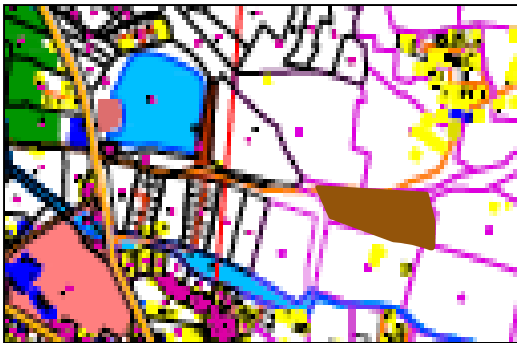
- Scheduled / Demand emptying in Chiplun.
- If Scheduled there will be a fixed supply of septage to the treatment plant daily.

2. Treatment systems

- Assessment/planning of treatment with existing Bio-methanation plant of SWM

3. Availability of Land and its Surrounding Land Use

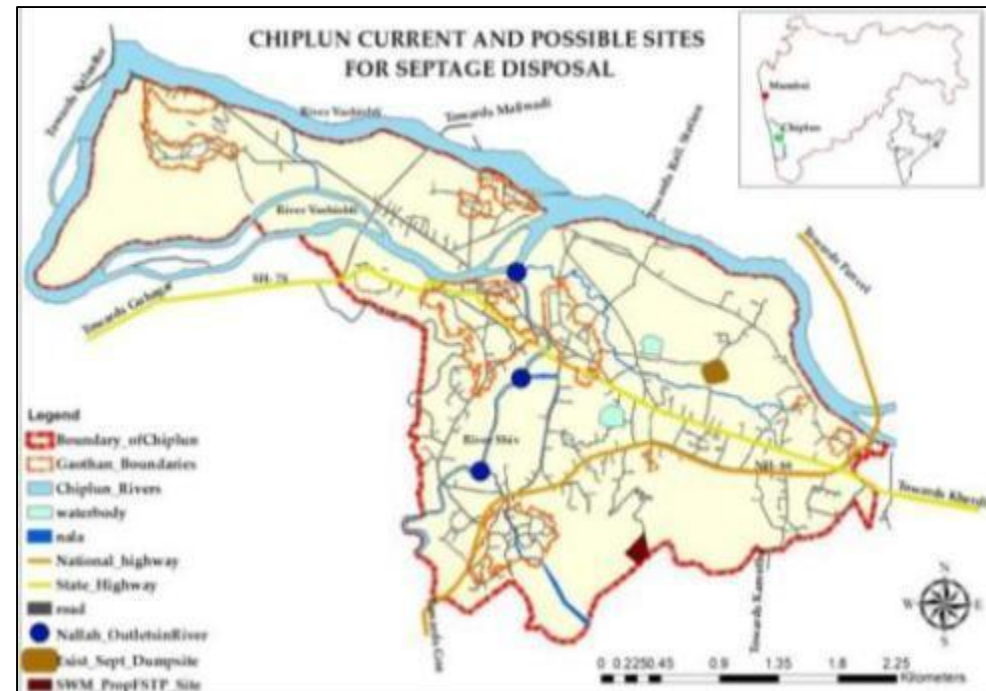
Existing Septage Disposal Site



SWM Site



- Land available at two locations- 1. At SWM Site- 1 acre, 2. Existing FSTP Site- 2023 sq.m.
- The SWM site is on a hill, and there is no surrounding habitation, reserved as no-development zone in DP; the FSTP site is surrounded by vacant land as of now, reserved as a playground and surrounding land residential in DP.
- The Council members prefer setting up FSTP at SWM Site.



Selection of Septage Treatment Technology

4. Assessment of Septage Treatment Options

Options for cities without STP

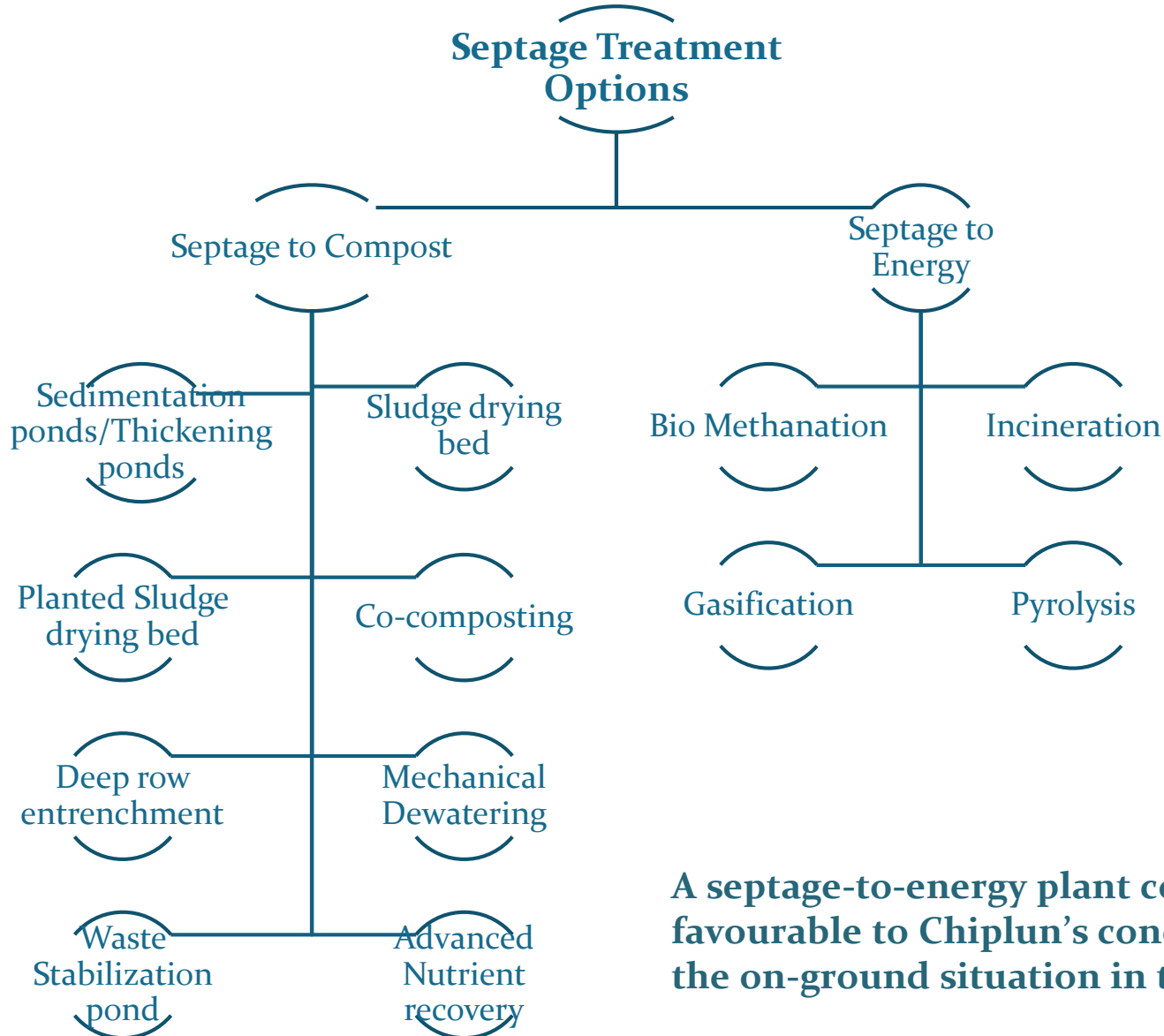
- a. Co-treatment at nearby STP
- b. Co-treatment with SWM treatment facility
- c. Cluster based FSTP
- d. Independent FSTP

The proposed biogas plant will run on bio-methanation technology, thus combining septage with the solid waste in a single treatment plant can be explored.

Co-treatment of septage and solid waste is recommended for Chiplun.

Selection of Septage Treatment Technology

4. Assessment of Septage Treatment Options



A septage-to-energy plant could be more favourable to Chiplun's conditions owing to the on-ground situation in the Chiplun

Technology Option for Chiplun

		Chiplun
Approach	Financing	Co-treatment with Biomethanation
Scheduled	Capex	55-65
	Opex/year	15-20

All figures in lakhs

Land available for FSTP on SWM Site- 1 Acre --- area required is 500-4,000sqm



Co-treatment with Biomethanation

Technology Options for FSSM Services- Emptying & Treatment

Co-treatment with Biomethanation

- Capacity of bio-methanation plant: 10 TPD
- Total area of solid waste treatment site: 6 acres
- Area to be occupied by plant- 600 sq.m.
- Additional area available for plant extension / new FSTP = 1 acre
- Total septage generation per day = **35 cu.m.** (*IHHL+ Community Toilets+ Outgrowth Areas*)
- Density of sludge to be obtained through the septage quality tests.
- Thus, total capacity of plant, to be exceeded by the quantity of septage generated.

Consultant's Views:

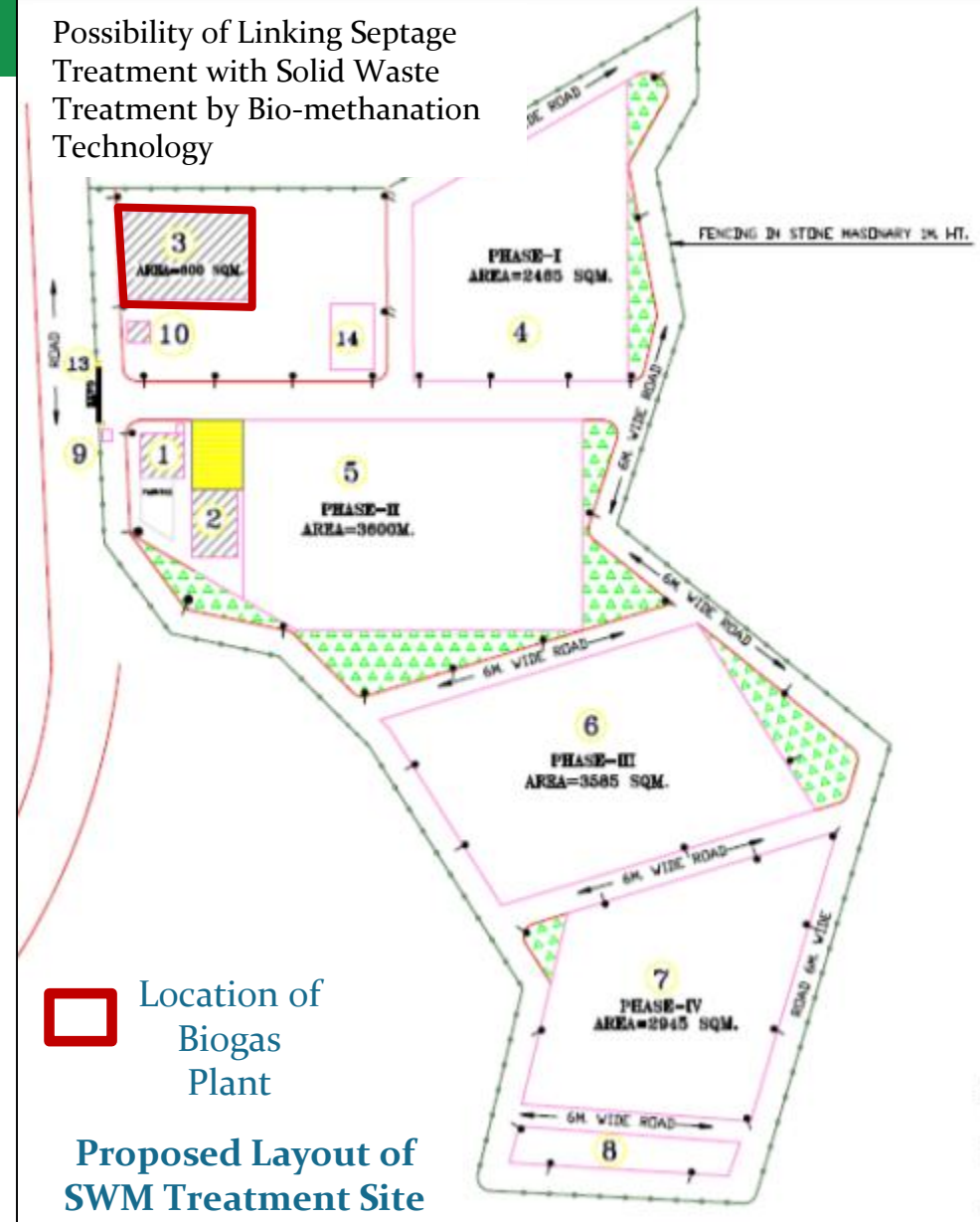
About 35-40 MT of septage can be added.

The unit will require a pre-treatment plant and digesters of higher capacities, along with other components.

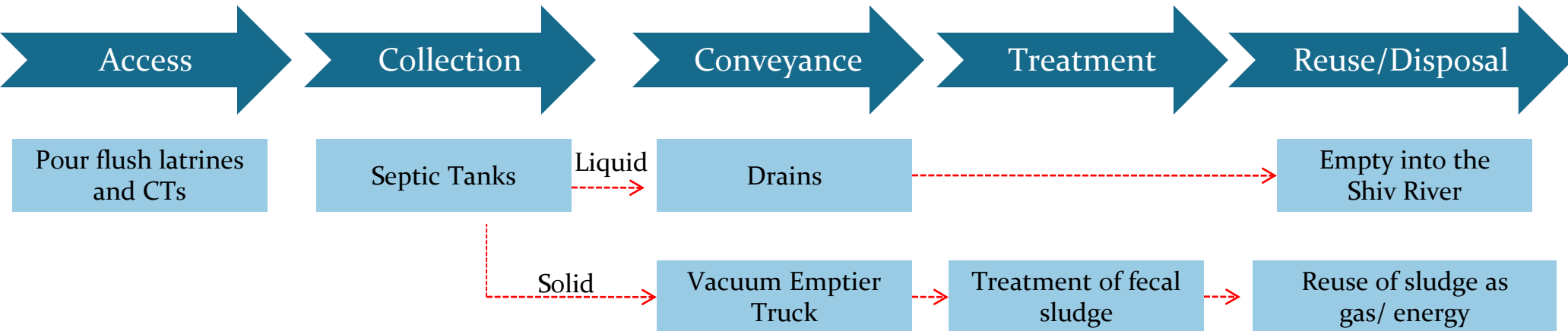
About 1 acre land can be made available for the extension.

Thus the consultant has stated that co-treatment of solid waste and septage is feasible.

Possibility of Linking Septage Treatment with Solid Waste Treatment by Bio-methanation Technology



Summary: Proposals Across Sanitation Service Chain



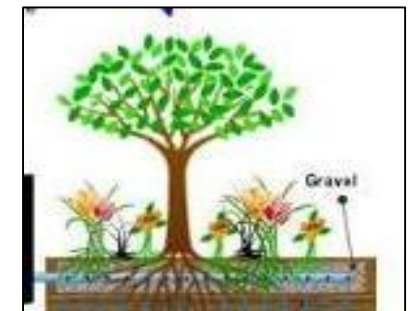
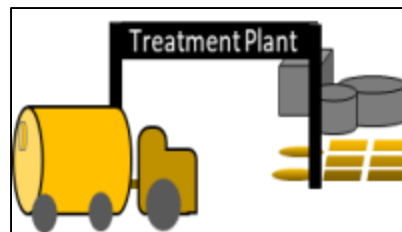
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- Reuse of manure or gas produced after treatment creating a better environment, and could bring additional income for M.Cl.



**How do we finance
FSSM Services??**

Capital costs can be financed through . . .

GoM resolution on use of 50% of funds for SBM and sanitation activities

१४ व्या केंद्रीय वित्त आयोगाच्या शिफारशीनुसार राज्यातील नागरी स्थानिक स्वराज्य संस्थांना प्राप्त होणाऱ्या मुलभूत अनुदानातून स्वच्छ महाराष्ट्र अभियानावर करावयाच्या खर्चाच्या कार्यपध्दतीबाबत.

महाराष्ट्र शासन
नगर विकास विभाग
शासन परिपत्रक क्रमांक: स्वमअ-२०१७/प्र.क्र. ४१/नवि-३४,
हुतात्मा राजगुरु चौक, मादाम कामा मार्ग
४ था मजला, मंत्रालय, मुंबई
दिनांक : २९ एप्रिल, २०१७

वाचा :

- (१) शासन निर्णय ,नगर विकास विभाग, क्रमांक स्वमाअ २०१५/ प्र.क्र.२३/नवि-३४, दिनांक १५ मे, २०१५.
- (२) शासन निर्णय ,नगर विकास विभाग, क्रमांक टिएफसी-८०१५/ प्र.क्र.१०६/नवि-०४, दिनांक ३ ऑगस्ट, २०१५.

शासन परिपत्रक :

१४ व्या वित्त आयोगाच्या शिफारशीनुसार राज्यातील नागरी स्थानिक स्वराज्य संस्थांना प्राप्त होणाऱ्या मुलभूत अनुदानातून किमान ५० टक्के एवढा निधी स्वच्छ महाराष्ट्र अभियानातील बाबींवर खर्च करण्याचे संदर्भात क्रमांक २ येथील दिनांक ३ ऑगस्ट, २०१५ च्या शासन निर्णयान्वये बंधनकारक करण्यात आले असून, सदर शासन निर्णयातील परिच्छेद १ (1) (1) मध्ये नमूद करण्यात आलेली कामे या निधीमधून करण्यास मूमा देण्यात आलेली आहे.

२. या संदर्भात शासनाच्या असे निदर्शनास आले आहे की, काही शहरांमध्ये घनकचऱ्याचे संकलन व वाहतूक करून त्यावर प्रक्रीया न करता तो डंपिंग ग्राऊंडवर डंप करण्याचे काम कंत्राटीपध्दतीने (Outsource) करण्यासाठी १४ व्या वित्त आयोगाचा निधीचा वापर करण्यात येत आहे. तसेच, काही शहरांमधील घनकचऱ्याचे संकलन व वाहतूक करण्यासाठी वाहने खरेदी करण्याकरीता हा निधी वापरण्यात येत आहे.

३. केंद्र शासनाच्या स्वच्छ भारत अभियानाच्या धर्तीवर राज्यामध्ये स्वच्छ महाराष्ट्र अभियानाची अंमलबजावणी सुरु आहे. या अभियानांतर्गत घनकचरा व्यवस्थापन नियम, २०१६ अंतर्गत कार्यवाही करून शहरे "स्वच्छ" करणे हा महत्वाचा घटक आहे. त्यानुसार, राज्यातील प्रत्येक नागरी स्थानिक स्वराज्य संस्थानी त्यांच्या शहरात निर्माण होणारा १००% कचरा निर्मितीच्या जागीच वेगवेगळा (ओला कचरा, सुका कचरा व घरगुती घातक कचरा) करून घेवून स्वतंत्रपणे संकलित करणे, या संकलित केलेल्या (ओला कचरा, सुका कचरा व घरगुती घातक कचरा) १००% कचऱ्याची वाहतूक करणे, ओल्या कचऱ्यावर केंद्रीय अथवा विकेंद्रित पध्दतीने जागीच प्रक्रीया

GoM resolution asking city to move towards ODF+ and to utilize incentive grant and 14th FC funds for ODF+ activities

स्वच्छ महाराष्ट्र अभियान (नागरी) अंतर्गत शहरांनी हागणदारी मुक्ततेचा दर्जा शाश्वतरित्या टिकविण्याबाबत.

महाराष्ट्र शासन
नगर विकास विभाग
शासन परिपत्रक क्रमांक: स्वमअ-२०१७/प्र.क्र.३१/नवि-३४
शाहीद भगतसिंग चौक, मादाम कामा मार्ग,
मंत्रालय, मुंबई - ४०० ०३२.
दिनांक : १७ मार्च, २०१७

वाचा -

शासन निर्णय क्र. नगर विकास विभाग, स्वमाअ-२०१५/प्र.क्र.२३/नवि-३४, दि.१५ मे २०१५.

शासन आदेश -

केंद्र शासनाच्या "स्वच्छ भारत अभियान (नागरी)" च्या धर्तीवर दिनांक १५ मे, २०१५ च्या शासन निर्णयान्वये राज्यामध्ये "स्वच्छ महाराष्ट्र अभियान (नागरी)" ची अंमलबजावणी सुरु झाली आहे. या अभियानांतर्गत शहरे "हागणदारी मुक्त" करणे व घनकचरा व्यवस्थापनांतर्गत "स्वच्छ" करणे या दोन प्रमुख बाबींचा समावेश आहे.

२. या अभियानांतर्गत शहरांमधील ज्या कुटुंबांमध्ये शौचालयाची सुविधा उपलब्ध नसल्याने जी कुटुंबे उघड्यावर शौचास जातात, अशा कुटुंबांना वैयक्तिक घरगुती शौचालय (H-NHL) अथवा सामुदायीक शौचालयाची (C) सुविधा उपलब्ध करून देवून शहरे हागणदारी मुक्त करण्यात येत आहेत.

३. राज्यातील सार्वजनिक शौचालय वापरणाऱ्या कुटुंबांची संख्या (२१%) देशातलीवरील सार्वजनिक शौचालय वापरणाऱ्या कुटुंबांच्या संख्येच्या सरासरीपेक्षा जास्त आहे. या अभियानांतर्गत शहरे हागणदारी मुक्त झाल्यानंतर हागणदारी मुक्त शहराचा दर्जा शाश्वत रित्या टिकविण्यासाठी (ODF Sustainability) जास्तीत जास्त कुटुंबांना वैयक्तिक घरगुती शौचालयाची सुविधा उपलब्ध करून देणे आवश्यक आहे. तसेच शहरांमध्ये बांधण्यात आलेल्या शौचालयांच्या सेप्टिक टँक मधील मैला व्यवस्थापन करणे आवश्यक आहे.

४. हागणदारी मुक्त शहर (ODF) व ODF+ तसेच ODF++ शहरांचे निकष पुढील प्रमाणे आहेत :-

	निकष १	निकष २	निकष ३
ODF शहरे	विद्यमाच्या कुठल्याही वेळेस शहराच्या कुठल्याच भागात एकाही व्यक्तीने उघड्यावर शौचास बसल्याचे आढळून न येणे, तसेच शहरामध्ये कुठेही उघड्यावर मानवी विच्छेचे पुरावे न दिसणे	प्रत्येक कुटुंबास, संस्थेस व इतर सर्व प्रकारच्या मालमतांना शौचालयांची उपलब्धता असणे. (स्थतःची अथवा गट शौचालये / सार्वजनिक शौचालये)	शहरातील सर्व शौचालये सुरक्षित मैला संकलन व विल्हेवाट प्रणालीस जोडलेली असणे.

GoM resolution for incentive funds for ODF+ activities

	ODF Cities (Rs.)	Swachh Cities (Rs.)	Linked to Sustainability
A Class	2 Cr.	2 Cr.	30% released on first validation by State, if positive
B Class	1.5 Cr.	1.5 Cr.	30% released on validation by MoUD, if positive
C Class	1 Cr.	1 Cr.	40% released on 2 nd validation after a six months, if positive

*Utilisation of funds for
Sustainability and moving towards
ODF+ and ODF++*

स्वच्छ महाराष्ट्र अभियान (नागरी)
अंतर्गत हागणदारी मुक्त व स्वच्छ
होणाऱ्या नागरी स्थानिक स्वराज्य
संस्थांना प्रोत्साहन अनुदान देण्याबाबत.

महाराष्ट्र शासन
नगर विकास विभाग
शासन निर्णय क्रमांक: स्वभाअ २०१६/प्र.क्र.२३/नवि-३४
हुतात्मा राजगुरु चौक, मादाम कामा मार्ग
४ व्हा मजला, मंत्रालय, मुंबई
दिनांक : २८ मार्च, २०१६

याचा:

- (१) शासन निर्णय, नगर विकास विभाग, क्रमांक स्वभाअ २०१५/प्र.क्र.२३/नवि-३४, दिनांक १५ मे, २०१५.
- (२) राज्य अभियान संचालनालय, स्वच्छ महाराष्ट्र अभियान संचालनालय, यांचे परिपत्रक क्रमांक राअस/कार्यान्वयन सूचना/४२/१५-१६ दिनांक २८ जुलै, २०१५
- (३) शासन निर्णय, नगर विकास विभाग, क्रमांक स्वभाअ २०१५/सं.क्र.१५४९/नवि-३४, दिनांक २९ ऑक्टोबर, २०१५.

प्रस्तावना :

केंद्र शासनाच्या "स्वच्छ भारत अभियान (नागरी)" च्या धर्तीवर संदर्भीय दिनांक १५ मे, २०१५ च्या शासन निर्णयान्वये राज्यामध्ये "स्वच्छ महाराष्ट्र अभियान (नागरी)" ची अंमलबजावणी सुरु झाली आहे. या अभियानांतर्गत शहरांमधील ज्या कुटुंबांकडे शौचालयाची सुविधा उपलब्ध नसल्याने ती कुटुंबे उघड्यावर शौचास जातात, अशा कुटुंबांना वैयक्तिक घरगुती शौचालय अथवा सामुदायीक शौचालयाची सुविधा उपलब्ध करून देऊन, शहरे "हागणदारी मुक्त" करणे व घनकचरा व्यवस्थापनांतर्गत शहरात निर्माण होणारा १००% कचरा निर्मितीच्या जागीच (ओला व सुका) वेगवेगळा करून स्वतंत्रपणे संकलित करणे, या संकलित केलेल्या (ओला व सुका) १००% कचऱ्याची वाहतूक करणे, ओल्या कचऱ्यावर केंद्रीय अथवा विकेंद्रित पध्दतीने जागीच प्रक्रिया करणे तर सुक्या कचऱ्याचे विलगीकरण करून त्यावर प्रक्रिया करणे व उर्वरित कचऱ्याची शास्त्रीय पध्दतीने विकसित केलेल्या भराव मूनीवर विल्हेवाट लावून शहर "स्वच्छ" करणे या दोन प्रमुख बाबींचा समावेश आहे.

२. स्वच्छ महाराष्ट्र अभियानाच्या अंमलबजावणीस गती यावी व हागणदारी मुक्त झालेल्या तसेच स्वच्छ झालेल्या शहरांचा यथोचित सन्मान द्यावा म्हणून, राज्यातील हागणदारी मुक्त झालेल्या व स्वच्छ झालेल्या शहरांना प्रोत्साहन अनुदान देण्याची बाब शासनाच्या विचाराधीन होती.

शासन निर्णय :

प्रस्तावनेत नमूद केलेल्या बाबींचा विचार करून स्वच्छ महाराष्ट्र अभियानांतर्गत "हागणदारी मुक्त" झालेल्या व "स्वच्छ" झालेल्या नागरी स्थानिक स्वराज्य संस्थांना पुढील प्रमाणे प्रोत्साहन अनुदान देण्यास शासन मान्यता देत आहे:

- **Sinnar Municipal Council has passed resolution to fund FSTP project cost through 14th FC funds.**

- **The project cost includes:**
 - **Capex**
 - **Opex for 3 years**

Funds available with CHIPLUN for financing FSSM Capex

CAPEX

Sr. No.	Funds	Total Received (in Rs. crore)	Amount Earmarked for SBM Projects		Total Amount Utilized		Total Amount Available	
			(Rs. Crore)	(%)	(Rs. Crore)	(%)	(Rs. Crore)	(%)
1	14th Finance Commission (2015- 2017)	7.07	3.47	49	0.17	2.4	6.9	97.5
3	SBM Incentive Fund (2017)	1.00	-		0.08	8	0.92	92
	Total	8.07	3.47		0.25		7.82	

- ❑ The total amount of funds available for capital funding is **INR 7.82 crore**
- ❑ Maximum funds of the 14th FCC are available.

'City Swachhata Kosh' for Funding Sanitation Activities in Chiplun

A City Swachhata Kosh is a fund made up of the donations of local donors and industries, specially made for funding sanitation activities that will be looked after by a CSF committee, and monitored by an agency made up of CEPT, the Council, citizens and the private contractors.

City Sanitation Fund mechanism will **enable local industrialists and other donors** to effectively **contribute to development** of improved and **universal sanitation in the city.**

Funding can be requested from the industrialists of Lote and Kherdi.



Meeting with the President and other industrialists of Lote MIDC Industries Association. In October 2017.

O & M can be financed through Charges or taxation

Funding - Opex

Including tax ,user charges, fines and so on.

Levying sanitation tax is recommended in Chiplun. It will ensure that all households having septic tanks will pay for the service that they will definitely receive. It will also ensure that households without toilets are paying for desludging and treatment of septage from the community toilets.

Details	Amount	Sanitation Tax
Existing sanitation tax	Rs -100/-	4.26% of existing property tax
Average Existing Property Tax/ HH	Rs. 2346/-	
For scheduled emptying sanitation tax	Rs. 250 - 300	10 % of revised property tax
Property tax with scheduled emptying sanitation tax	Rs. 2600-2650/-	

Details	Amount	User Charge
Existing desludging charge	Rs -2000/- per trip	The revised charge can be lower than the existing charge, if regulated

10 % revised property tax will finance the scheduled desludging services

Taxation can be done as per the Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act, 1965, Chapter IX : Municipal taxation, Section 108 only if it is provided as a service

Sinnar has levied differential tax on all properties for financing FSSM services

City level resolution for taxation

Differential taxation rates

Residential Properties **with / without toilets** –
Rs. 300 / annum

Non Residential Properties **with toilets** –
Rs. 300 / annum

Non-residential properties **without toilets** –
Rs. 100 / annum

सिन्नर नगरपरिषद, सिन्नर मे. विशेष सभा
ठराव क्रमांक ६१ दिनांक २४/०३/२०१७

विषय क्रमांक ५) सिन्नर नगरपरिषद तर्फे आकारण्यात येणारा स्वच्छता कर, घनकचरा व्यवस्थापन कर व मैला व्यवस्थापन कर यांची पुनःरचना करणेबाबत घर्चा करून निर्णय घेणे.

प्रस्तावाचा मजकूर - कार्यालयीन टिपणीचे समागृहात घर्चा होवून सिन्नर नगरपरिषदे तर्फे सद्या आकारण्यात येणारे विशेष स्वच्छता कर, विशेष घनकचरा कर व मैला व्यवस्थापन कर यांची पुनःरचना करून यापुढे सन २०१७-१८ या आर्थिक वर्षापासून खालील प्रमाणे मैला व्यवस्थापन कर व घनकचरा कर म्हणून आकारण्यात यावेत व त्याप्रमाणे विल तयार करून मालमत्ता धारकांना देण्यात यावेत.
वार्षिक कराचे दर (रुपये)

अ.क्र.	कराचे नांव	निवासी मालमत्ता		बिगर निवासी मालमत्ता	
		शौचालय असलेले	शौचालय नसलेले	शौचालय असलेले	शौचालय नसलेले
१.	मैला व्यवस्थापन कर	३००/- (प्रति सिट)	३००/-	३००/- (प्रति सिट)	१००/-

वार्षिक कराचे दर (रुपये)

अ.क्र.	कराचे नांव	निवासी	बिगर निवासी
१	घनकचरा व्यवस्थापन कर	१००/-	३००/-

वरीलप्रमाणे कर आकारणी करणेस सदरची सभा सर्वानुमते मान्यता देत आहेत. त्याप्रमाणे प्रशासकीय कार्यवाही करण्यात यावी.

सुचक :- श्री. लोखंडे गो.वि.
अनुमोदन :- श्री. चौधवे प्र.सु.
ठराव सर्वानुमते मंजूर



अध्यक्ष,
सिन्नर नगरपरिषद, सिन्नर

सिन्नर नगरपरिषद, सिन्नर

Wai has levied tax on all properties for financing FSSM services

Incremental approach: Moving towards ODF++

- ❑ ULBs should take **incremental approach** for **liquid waste management**
- ❑ All four ULB's topographic profile suits for incremental approach for liquid waste treatment
- ❑ First step to **tap the liquid waste** from **existing discharge points** either **diverted** through **interceptor sewer** or **in-situ decentralized treatment system** as per availability of land
- ❑ Need to carry out **quick preliminary technical** and **financial feasibility** assessment for possible options

City	Waste Water generated (MLD)	Cost for interceptor sewer (Rs in Cr)	Treatment cost (Rs in Cr)
Chiplun	14.5	0.75 - 1	14- 15

Stakeholder Involvement in ODF Sustainability and FSSM

ODF sustainability and implementation of septage management plan, along with awareness generation through effective participation of following stakeholders:

Citizens



Citizens participation is solicited for effecting planning and implantation of scheme. Team will identify various platforms and events to involve them in the process.

Elected and Administrative Wing



Most important role of taking decisions related to the project. Passing resolutions, awareness creation as well as implementation and monitoring is required from them.

Self-Help Groups



21 Active SHG groups in Chiplun who can help in awareness generation and loan mobilization

NGOs



NGOs too can play a major role in awareness generation. They can assist in fund mobilization.

Financial Institutions



Assess availability of sanitation loan product if there is demand

Stakeholder Involvement in ODF Sustainability and FSSM

ODF sustainability and implementation of septage management plan, along with awareness generation through effective participation of following stakeholders:

Various Departments of the Municipal Council



Various departments of the Council such as the Health Department, Vehicle Department, Computer Department, and any others who will be involved in plan preparation and implementation by working together.

Local Gov. of Outgrowth Areas



Gram Panchayats surrounding Chiplun will be consulted while making the septage management plan. They will have to make a commitment to septage management, create awareness, contribute in terms of finance, manpower, land, etc. Likewise, SHGs, citizen groups, NGOs, private companies, financial institutions, industries, of the Gram Panchayats will also be involved.

Stakeholder Involvement in ODF Sustainability and FSSM

ODF sustainability and implementation of septage management plan, along with awareness generation through effective participation of following stakeholders:

Private Contractors



Private contractors, if hired for septic tank desludging should aim to follow the 3 year desludging rule, set a reasonable charge for citizens, and at the same time work as per the terms of the Council. The private contractors in charge of design and construction of the FSTP should ensure sound design, good quality construction and proper O&M.

They must co-operate with other stakeholders.

Industries



There are 2 MIDCs around Chiplun. Assess their interest for CSR funding

Measures to be taken by CMC for Implementing FSSM Plan

- ❑ Consent from CMC for implementing FSSM activities in Chiplun through a council resolution
- ❑ Pass a general resolution for the following-
 - Fecal sludge management-Desludging and type and setting up a FSTP
 - Purchase of new vehicles / Private sector involvement
 - Land allocation
 - Levying a revised sanitation tax
 - Desludging in the outgrowth and charge based on distance
- ❑ Allocate land for setting up FSTP and acquire land if necessary.
- ❑ Allocate funds for the project.
- ❑ Invite tenders.
- ❑ HH Survey (through Sanitab/Property tax survey) to make accurate database of septic tanks.
- ❑ Action plan towards attaining universal access to individual toilets and reduce dependency on community toilets.
- ❑ Finalize the timeline for implementation of ODF+ plans

Proposed Timeline for discussion . . .

Sr. No.	Key steps	Timeline (months)											
		1	2	3	4	5	6	7	8	9	10	11	12
	FSM Plan and Execution												
1	Discussion with ULB (Elected and other administrative wing to take up FSM and activities related to ODF sustainability)												
2	Stakeholders identification / consultation throughout the FSM planning process												
3	City level FSM plan based on secondary data source / data base of SaniTab survey												

Online Module for performance assessment

Performance Measurement Framework for developing countries

Capacity Building of Govt. Officials

SLB cell formation at city/state level

City Ranking

Performance Improvement Plans

Demand Based Scheme for making cities ODF

Target Setting tool

City Sanitation Plans for small and medium town

Performance Improvement Planning (PIP) tool : SaniPlan

Tariff setting tool

Integrated faecal sludge management plan for cities

National Roll-Out

Repository of 1800 city Benchmarks over 3 years

Information system improvement plan

Innovative Sanitation Financing

Integration with e-governance system

Annual Data for UWSS of 900+ cities



SAN Benchmarks citywide sanitation assessment framework

IFSM toolkit

SANI Tab App for Sanitation Survey

Support to Maharashtra State Government in implementing Swachh Maharashtra Mission

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C-WAS, CEPT University, Ahmedabad, India

Annexures

Infrastructure Calculations for Scheduled emptying

Infrastructure calculations for Scheduled emptying

Assumptions:

Number of working days in a year: 280

Number of trips possible for a vehicle per day: 4



Emptying Details	IHHL	CT/PT
Total number of septic tanks to be cleaned in the city	4866	72
Recommended cleaning cycle	Once in 5 years	Once in 8-10 months (Current Cycle)
No. of Septic tanks to be cleaned annually	974	-
Total number of septic tanks to be cleaned daily	4	0.3 (Cleaned once in 3-4 days)
Total septage to be cleaned daily	31	2.7

For all the Properties within council limit (IHHL + commercial properties)

- **Service provider** - Selection of **private service provider** may be done through bidding process
- **Infrastructure required** - **2 more trucks** would be required along with existing truck,:
- Truck sizes may range from 2500 – 5000 l based on road width and average size of septic tanks

The Council has stated that the current pipe extension of length 125 ft would be sufficient to access in the inner lanes of the goathan

For CT/PT

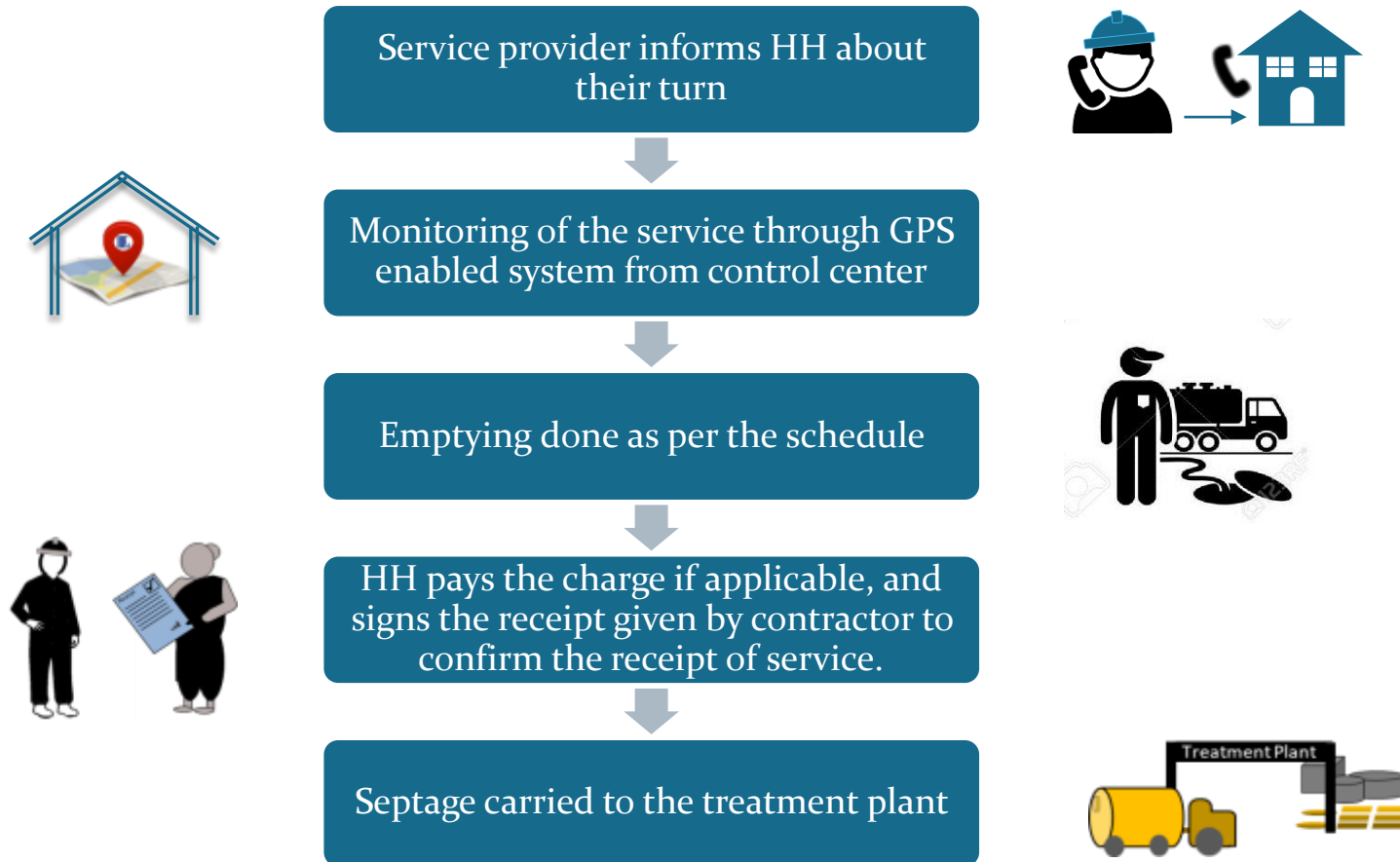
- **Service provider** – ULB
- **Infrastructure** – **Existing suction emptying trucks** with **4000** liter capacity can be dedicated to CT cleaning, along with the household toilets.

Assessment would be required to calculate the fecal load of commercial properties

Execution and Monitoring for Scheduled Emptying

Execution and Monitoring Mechanism:

- As per the target and with the help of property level data, route plan will be decided by service provider.

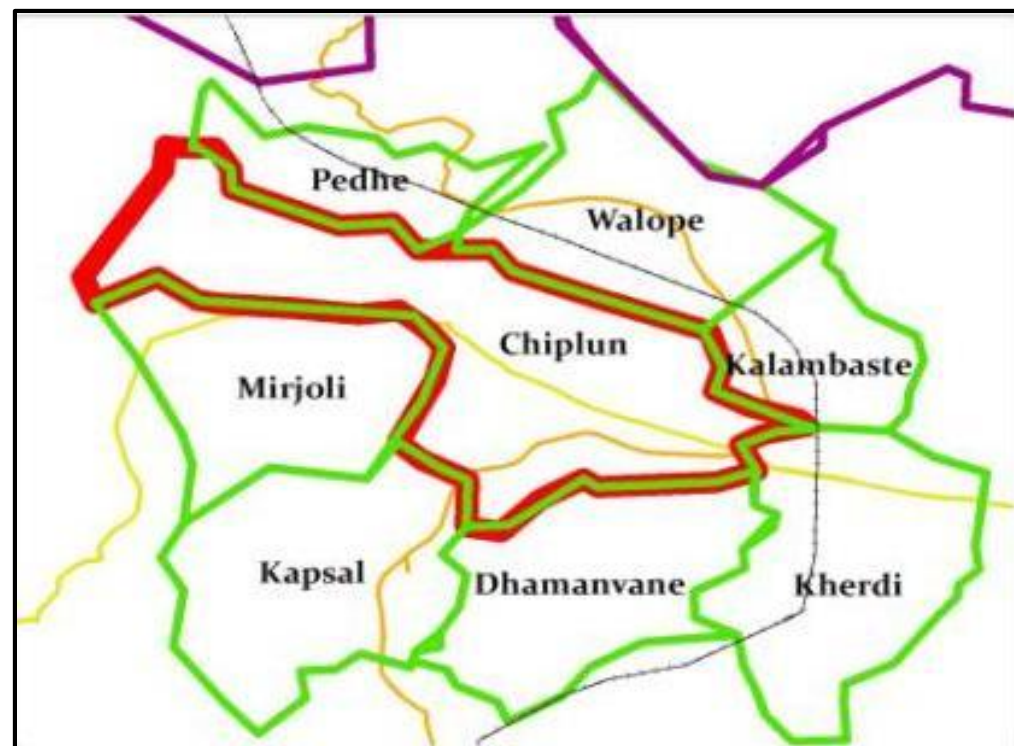


Demand Based Emptying Service for Outgrowth

Demand based emptying of the outgrowth at the initial stage.

Current status of outgrowth area

1	Nature of outgrowth	7 villages
2	Authority	All Gram Panchayats
3	Population	33,112
4	Households	7,780
6	Septic tank emptying services provider	Chiplun Municipal Council
7	Treatment of septage	No treatment
8	Charge for cleaning septic tank	Rs. 4000/ trip



Infrastructure Requirement for Outgrowth Areas

On-site sanitation system	2 villages have 100% septic tanks, 1 village has 90% coverage, others septic tanks and twin pits system
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No new trucks needed as of now, any one from new fleet for city can cater to outgrowth.

Number of tanks to be cleaned daily	0.1 (2-3 tanks to be cleaned in a month)	User Charge to be levied
Total septage to be cleared daily	0.81 cu.m.	By Calculation- Rs. 719
Additional vehicles required	0	But as the Council charges double the city rate in the outgrowth , the user charge can be Rs. 878
Vehicle Capacity	Any large size 4000 or 5000 l from fleet	

Sewage Treatment v/s Septage Treatment

Aspect	Sewage Treatment	Septage Treatment
Treatment	Solid and liquid Treatment	Solid and Partial Liquid Treatment
Construction	New construction of sewers, demolishing of existing septic tanks	Works with existing system of septic tanks, no new construction apart from FSTP
Time Frame	Project will take years to take off	Project can take off within a Years time
Land Requirement for Treatment Plant	3 lands- acquisition required	Will occupy less space, land options already available, at the most acquisition for extension
Surrounding Villages	Will not serve surrounding villages	Will serve surrounding villages
CAPEX for Treatment Plant	INR 98.8 crore	INR 55-65
Annual OPEX for Entire Operation	INR 2.55 crore	INR 15-20 lakh
Burden on Citizens	Added capital expense in connecting toilet to road sewer INR 2011/-/House Annually	No additional capital expense apart from creating access to septic tank for few households INR 250-300/Sanitation tax/property