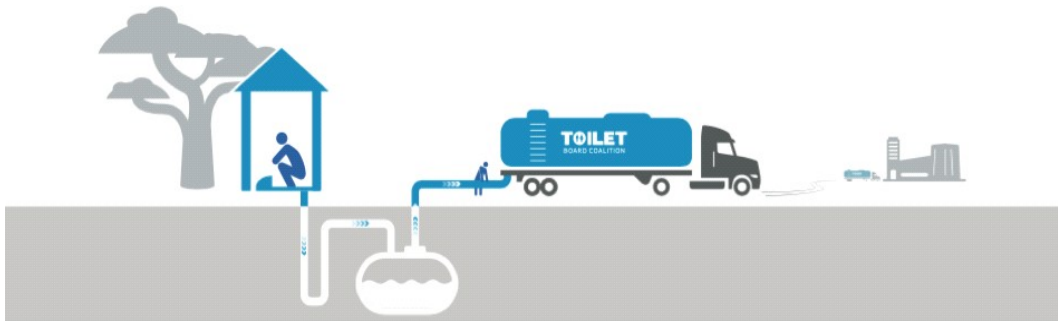


Faecal Sludge and Septage Management in Telangana State



2018

Project Information Report

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Chapter 1 General Profile of Telangana

Telangana is a state in the Southern region of India. It has an area of 1, 12,077 sq. kms, after the Andhra Pradesh Reorganization (amendment) Act, 2014 (as per Act No. 6 of 2014 it was 1, 14,840 kms.), and is the twelfth largest state in terms of both area and the size of the population (is 350.04 lakhs) in the country. Most of it was part of the princely state of Hyderabad, ruled by Nizam of Hyderabad during the British Raj, joining the Union of India in 1948. In 1956, the Hyderabad state was dissolved as part of the linguistic reorganization of states, and the Telugu speaking part of Hyderabad state, known as Telangana, was merged with former Andhra State to form Andhra Pradesh. On 2nd June 2014, Telangana was separated from Andhra Pradesh as a new 29th state of India, with the city of Hyderabad as its capital. The state comprises of 31 districts, with an urban population of 13.72 million representing 36 percent of total population, as per 2011 Census consisting of 176.12 Lakh males and 173.92 Lakh females.

The newly formed state is experiencing rapid urbanization, growth and development. It is estimated that the current level of urbanization has reached 42 percent (as on 2018) . Most of the net increase in the urban population is contributed by five districts of Hyderabad (100 percent), Rangareddy (70.32 percent), Warangal (28.34 percent), Adilabad (27.68%) and Karimnagar (26.08%). The urban population of the state is spread across 74 ULBs consisting of 6 Corporations and 68 Municipalities of all grades.

C&DMA is the State Mission Directorate and the Nodal agency for implementation of Swachh Bharat Mission. The Directorate of Municipal Administration (DMA) is the apex authority of Municipal Administration Department of Government of Telangana, which provides guidance to Municipal Corporations and Municipalities in performing their day to day activities in adherence to the policies, procedures and guidelines provided by Municipal Administration and Urban Development Department to achieve effective civic administration.

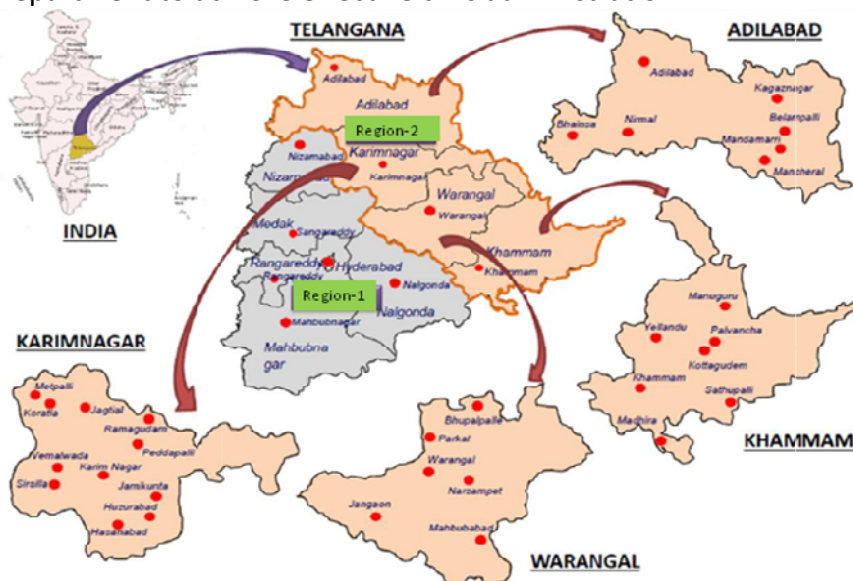


Figure 1: Division of 31 ULB as 4 groups (Karimnagar, Khammam, Warangal, Adilabad as group headquarters)

Telangana's Gross State Domestic Product (GSDP) expanded at a Compound Annual Growth Rate (CAGR) of 12.60 per cent (in Rupee terms) to US\$ 113.68 billion between 2011-12 and 2017-18. At a CAGR of 15.99 per cent (in Rupee terms), tertiary sector has been the fastest growing sector from 2011-12 to 2017-18. During 2017-18, tertiary sector accounted for 59.03 per cent share in the overall GSDP.

Urbanization in Telangana

Urbanization is now becoming a global phenomenon, but its ramifications are more pronounced in developing countries. High rate of population growth, declining opportunities in rural areas and shift from stagnant and low paying agriculture sector to more paying urban occupations, largely contribute to urbanization.

The people of the state are predominantly residing in rural areas with 61.12% and the rest of 38.88% are residing in urban areas. Temporal analysis of urbanization in Telangana reveals that there has been continuous increase in the proportion of urban population in India. According to Census 2011, about 31.2 per cent of the country's total population lives in urban areas. Urban population in the State grew by 38.12% during the decade 2001 to 2011 as compared with 25.13% in the preceding decade.

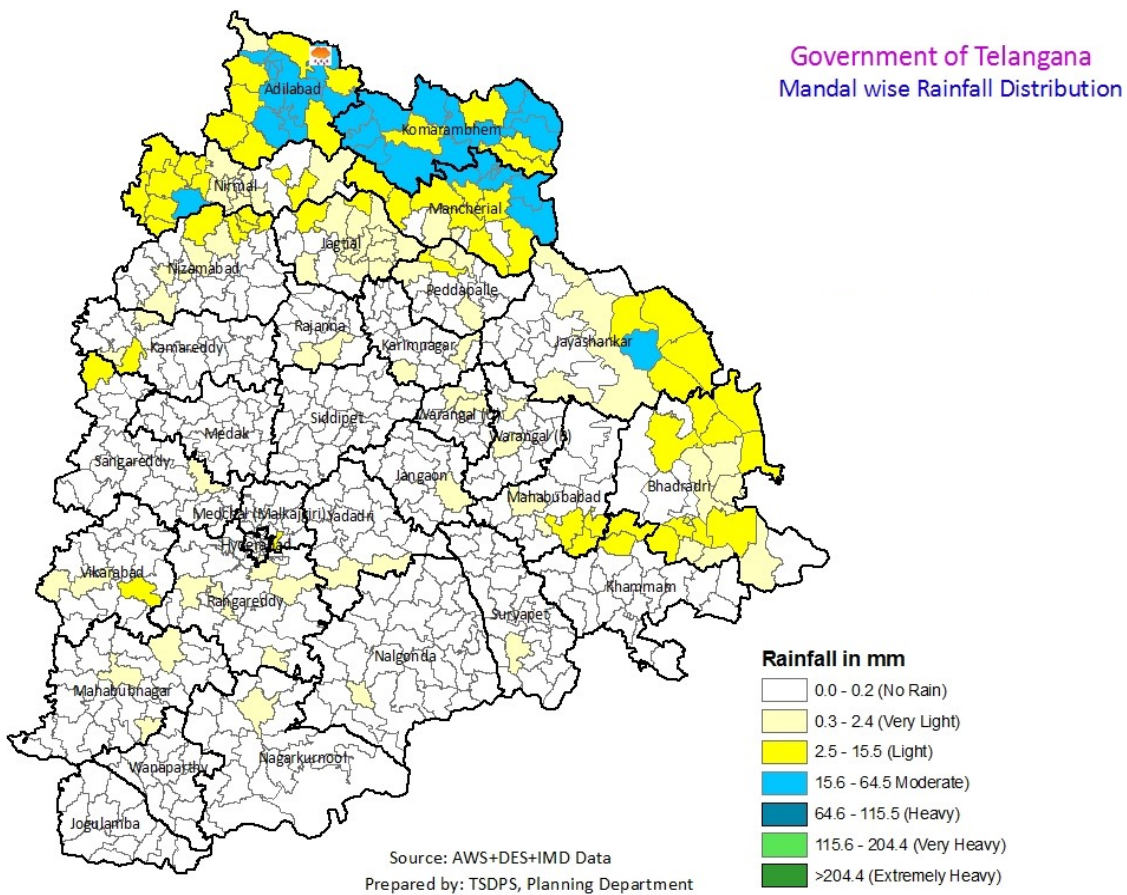
The growth of the population in urban areas has been witnessing a significant increase. State-wise comparison of urban population in India reveals that out of 29 states, 11 have urban population higher than the national average of 31.2 per cent. Telangana, with 38.9 per cent urban population, stands seventh in terms of urbanization in the country, according to the Socio-Economic Outlook -2018. In sharp contrast, rural population in the state grew by a modest 2.13% as per the 2011 census, which is much higher than the United Nations estimates of world population growth at 1.23%. Around 30% of total urban population is residing in the capital city of Hyderabad alone.

Urbanization in conjunction with change in lifestyle contributes to higher waste generation, and unscientific waste handling causes health hazards and urban environment degradation.

Chapter 2

Rainfall and Ground Water Levels

Rainfall is the principal source of input for groundwater recharge. The behaviour of groundwater table is essentially governed by rainfall, its quantity, intensity and frequency. The State as a whole received 776 mm actual rainfall against the normal rainfall of 865 mm, (10% less than the normal rainfall during water year 2017-2018 (up to March)). The southwest monsoon contributes about 79% of Normal rainfall, 14% is contributed by Northeast monsoon and rest by other seasons. The rainfall in the state is erratic and uncertain and distribution of the rainfall is uneven in various mandals.



Map 1: Mandal wise Rainfall Distribution in Telangana State

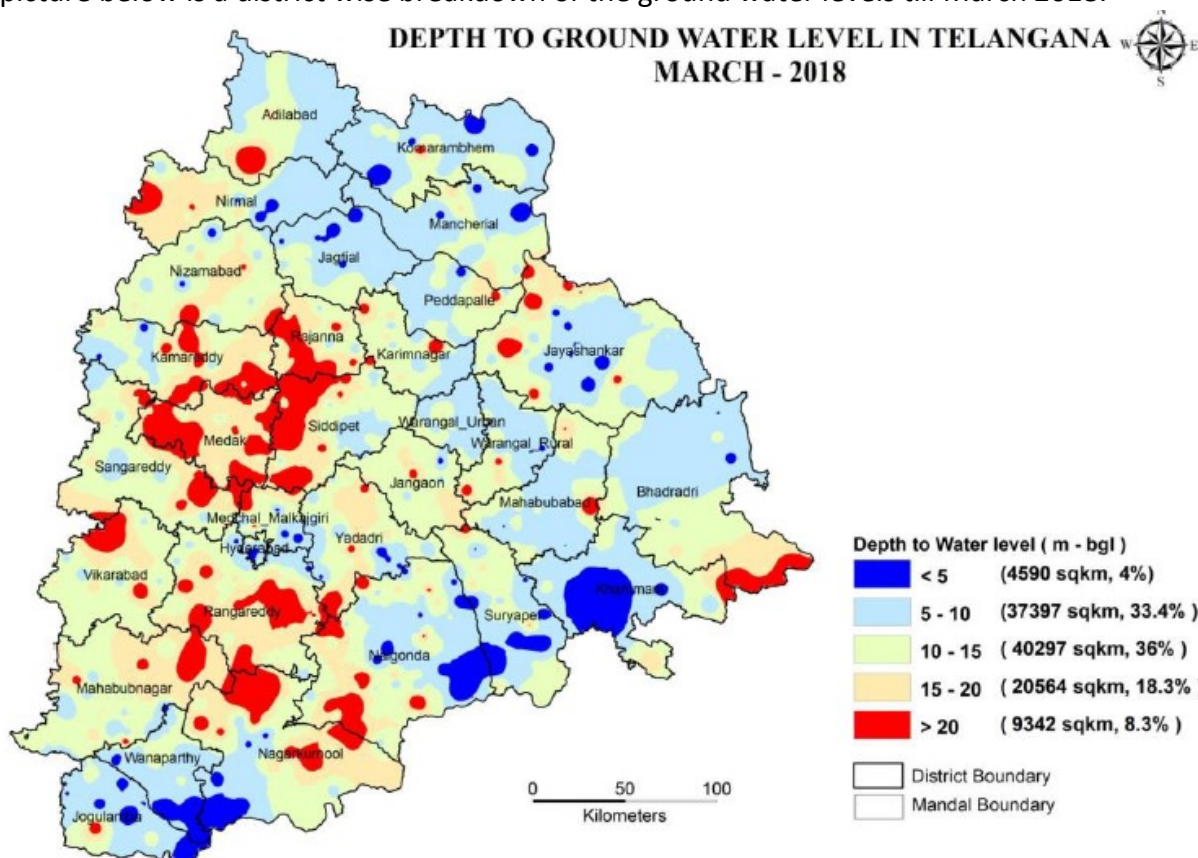
As per the Telangana State Development Planning Society (TSDPS), the average rainfall of 31 districts has been given in the below table.

Table 1: District – wise Rainfall in Telangana State

Name of District	Normal Rainfall(mm)	Actual Rainfall(mm)
Adilabad	287.5	258.7
Komaram Bheem-Asifabad	260.1	242.6
Mancherial	215.2	242.6
Nirmal	208.8	246.2
Nizamabad	233.9	218.3
Jagtial	183.7	222.8
Peddapalli	248.8	221.9

Jayashankar-Bhupalpally	238.5	205.5
Bhadradri-Kothagudem	207.5	173.5
Mahabubabad	196.3	156.7
Warangal Rural	146.4	179.5
Warangal Urban	193.9	166.1
Karimnagar	132.9	158.7
Rajanna-Sircilla	92.6	189.2
Kamareddy	176.7	189.3
Sangareddy	127	153.5
Medak	140.3	167.8
Siddipet	98.5	134.6
Jangaon	159.2	152.6
Yadadri-Bhongir	122.5	118.7
Medchal-Malkajgiri	123.1	127.1
Hyderabad	84.6	119.1
Rangareddy	87	110.1
Vikarabad	123.1	132.7
Mahabubnagar	114.7	92.8
Jogulamba-Gadwal	76.1	65.9
Wanaparthy	75	79.1
Nagarkurnool	91.7	87.6
Nalgonda	101.9	102.1
Suryapet	121.1	118.9
Khammam	170.2	140

The picture below is a district wise breakdown of the ground water levels till March 2018.



Map 2: Ground water levels in Telangana State

Temperature

Telangana is a semi-arid zone and has a predominantly hot and dry climate. The average annual rainfall is about 906 mm, 80% of which is received from the South-west monsoon. The areas Covered by the Deccan plateau are characterized by hot summers with relatively mild winter. The mean maximum temperature varies between 40°C and 43°C in May and the mean minimum temperature is 13°C to 17°C in December and January. The minimum temperature falls rapidly after October, and less than 10°C has also been recorded on certain days. The State experiences tropical climate with slight variations depending on the elevation and maritime influence and varies according to the rainfall, type of soils and cropping pattern.

Soil

Most of the part in Telangana state is covered by Red soils which are about 48%. These soils formed due to weathering of ancient metamorphic rocks. Red color is due to presence of iron oxides. These soils cover large part in Mahabubnagar, Nalgonda, Karimnagar, Khammam, Ranga Reddy, Nizamabad districts and very less in Adilabad district.

Black soils accounts for 25% of total area of Telanagana. These are made up of volcanic rocks and lava flow. These are also called as regur soils. These soils are very much suitable for Cotton crop. Water holding capacity of these soils is high. It can found most of the parts in Adilabad, Rangareddy, Nizamabad districts and less parts of Karimnagar, Warangal, Mahabubnagar districts.

Laterite soils cover 7% of the area. These soils formed due to intense leaching where high temperature and high rainfall occurs. These soils are sticky in nature. Found in Medak and Khammam districts.

Chapter 3

Towards ODF Plus (Faecal Sludge and Septage Management)- Telangana

The state of Telangana was formed on 2nd June 2014 with the enactment of Andhra Pradesh Reorganization Act 2014 with Hyderabad as its capital.

Government of Telangana launched Swachh Telangana campaign with a goal of achieving total sanitation in line with the vision of Swachha Bharat Mission. All the 74 ULBs are self-declared ODF, of which 58 ULBs are certified as ODF and the remaining 16 ULBs are in the process of receiving certification through provision of individual household toilets as well community/public toilet. Over 90 percent of urban HHs in Telangana has access to toilets and access to toilet facilities to the balance 10 percent of HHs is being provided through public and community toilets.

Greater Hyderabad Municipal Corporation (GHMC) and 3 cities have partial Under Ground Drainage (UGD) facility. This amounts to 57.07 percent of Telangana's urban population being connected to Piped Sewerage network with GHMC itself accounting for 98 percent of the UGD coverage in the state. Lack of formal mechanism of septage management is leading to disposal of septage or faecal sludge into drains and open areas in and around the cities without any treatment in 74 ULBs of the state.

Lack of formal mechanism of septage management is leading to unsafe emptying, indiscriminate disposal, and absence of treatment facilities. None of the 74 ULBs in the state have facilities to treat the faecal sludge generated. Currently the state has about 22 STPs. The ULB-wise capacities of existing STPs are given in the table overleaf:

Table 2: ULB Wise Capacity of STPs (2016)¹

Sl.No.	City/Town	STP Location	Status	Capacity (MLD)
1	Greater Hyderabad Municipal Corporation (GHMC)	Amberpet	Operational	339
2		Nagole		172
3		Saroornagar		2.5
4		Langar house		1.2
5		Safilguda		0.6
6		Miralam tank		10
7		Peddacheruvu (Nacharam)		10
8		Durgamcheruvu		5
9		Necklace Road (Khairtabad)		20
10		Nallacheruvu (Uppal)		30
11		Kattedan, (Noor MahamadKunta)		4
12		Kukatpally		12
13	Manchiryala Municipality	Reddy Colony		4
14		Saikunta		2.5
15	Ramagundam	Malkapur, Godavarikani		14

16	Municipality	Ramagundam		4
17	Miryalaguda	Miryalaguda (Thalagadda & Ramnagar bandam)		11.52+5.45 =16.97
18	Karimnagar	Karimnagar		38
19	Vikarabad	Vikarabad		13
20	Siddipet	Siddipet		7.25+11+0.8+(0.4*3) = 20.25
21	Nalgonda	Nalgonda	Under Const.	17.16+2.55 =
22	GHMC	Attapur, Hyderabad		51
	Total			789.73

However, sanitation is more than just having access to toilets and better hygienic practices, and it covers the management of faecal sludge and septage from the point of generation to its treatment for reuse or safe disposal.

Presently, out of 74 ULBs in the state all have self declared and 58 ULBs were recertified by QCI, under SBM the state has constructed 2.88 lakh Individual Household Toilets, 169 Community Toilets and 304 Public Toilets 40 SHE-toilets.¹ Accordingly, the State of Telangana is now gearing to move towards the status of **ODF+ which is a step ahead of being ODF, it also includes waste water management and treatment of faecal sludge and septage.**

Further, Government of India (GoI) through the Ministry of Housing and Urban Affairs (MoHUA) has launched a **National Policy on Faecal Sludge and Septage Management (NFSSM)** in 2017 and encouraged States to set up systems towards the safe collection, treatment and disposal of all human waste that is collected from on - site sanitation systems. In accordance with this, Government of Telangana State has releasing State **level Policy on Faecal Sludge and Septage Management** outlining the **Operative Guidelines for Faecal Sludge and Septage Management (FSSM) in Urban Local Bodies**. To comprehensively establish improved sanitation practices and systems, the Government of Telangana has decided to set up Faecal Sludge and Septage Treatment Plants in all Urban Local Bodies to tackle the health and environmental hazard caused when human excreta is disposed in open areas and water bodies due to lack of treatment facilities. It is to be noted that pollution load of septage is much higher vis - à - vis sewage and needs immediate attention.

The C&DMA has accordingly decided to invite competitive bids to select Concessionaire (s) to whom the setting up of FSTPs in 76 Urban Local Bodies of Telangana on Design, Build, Operate & Transfer (DBOT) / Hybrid Annuity Model (HAM) basis would be awarded. The Selected Bidder (Concessionaire) is responsible for effective treatment and safe disposal of faecal sludge and septage.

Packages for the Request for Proposals (RFP)

To achieve the vision of making urban areas of Telangana ODF+ comprehensively establish improved sanitation practices and systems, the Government of Telangana has decided to set up Faecal Sludge and Septage Treatment Plants in 76 (seventy-six) Urban Local Bodies (ULBs) to tackle the health and environmental hazard caused when human excreta is disposed in open areas and water bodies due to lack of treatment facilities.

¹<http://swachhhs.cgg.gov.in/statusReport.do>

C&DMA has accordingly decided to invite competitive bids to select Concessionaire(s) to whom the setting up of FSTPs in 76 (seventy-six) ULBs of Telangana on Design, Build, Operate & Transfer (DBOT Hybrid Annuity) basis would be awarded. The Project has been divided into 7 (seven) Packages each package comprises 11 towns except package 2 which has 10 towns. Each Package will entail the establishment and maintenance of stand-alone FSTPs for each of the ULBs. The packages have been structured keeping in mind geographical proximity of the Urban Local Bodies.

Clustering of ULBs for Establishing FSTPs in Telangana

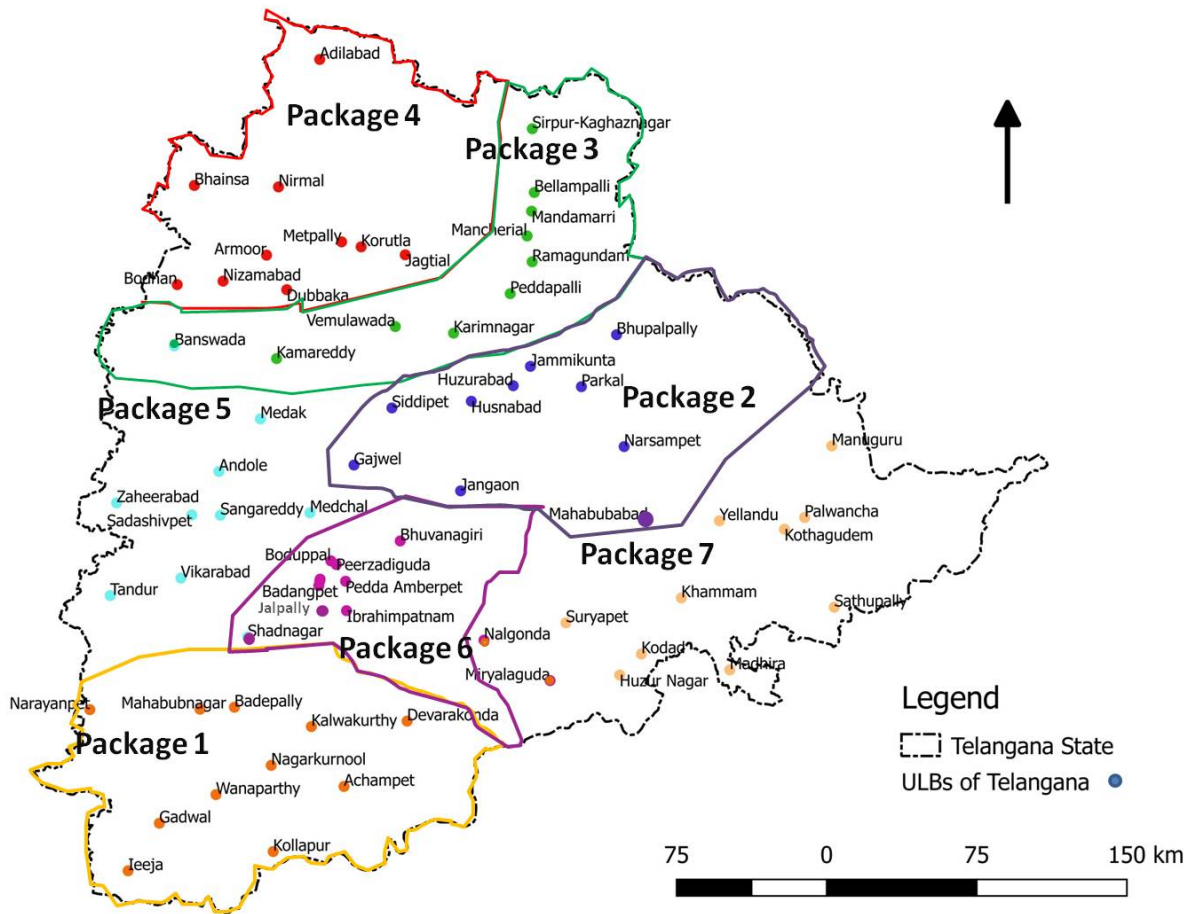


Table 3: All packages at a glance

Package Details	Names of ULBs Package-wise	No of proposed FSTPs	Estimated FS generation (KLD)
Package 1	Gadwal, Ieeja, Badepally, Mahaboobnagar, Narayanpet, Atchampet, Kalwakurthy, Kollapur, Nagarkurnool, Devarakonda, Wanaparthy	11	220
Package 2	Bhupalpally, Jangaon, Huzurabad, Jammikunta, Gajwel, Husnabad, Siddipet, Narasmpet, Parakala,	10	160

	Mahbubabad.		
Package 3	Kagaznagar, Kamareddy, Karimnagar, Bellampally, Mancherial, Mandamarri, Peddapalli, Ramagundam, Vemulavada, Banaswada.	10	310
Package 4	Adilabad, Jagityal, Korutla, Metpalli, Bhainsa, Nirmal, Armur, Bodhan, Nizamabad, Dubbaka.	10	330
Package 5	Medak, Medchal, Andol-Jogipet, Sadasivapet, Sangareddy, Zaheerabad, Tandur, Vikarabad.	8	140
Package 6	Boduppall, Peerzadiguda, Badangpet, Ibrahimpatnam, Jillelguda, Meerpet, Pedda Amberpet, Bhongir, Shadnagar, Jalpally.	10	230
Package 7	Khammam, Madhira, Sattupalli, Kothagudem, Manuguru, Palvancha, Yellandu, Huzurnagar, Kodada, Suryapet, Nalgonda, Miryalguda.	12	380
Total		71 ULBs	1770 KLD

Package 1:

Sl. No.	Name of the Town	Population (2017)	District	District Headquarter	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Gadwal	65000	Gadwal	Gadwal	0	20
2	leeja	35367	Gadwal	Gadwal	29	10
3	Badepally	34228	Mahaboobnagar	Mahaboo bnagar	20	10
4	Mahaboobnagar	270115	Mahaboobnagar	Mahaboo bnagar	0	80
5	Narayanapet	53200	Mahaboobnagar	Mahaboo bnagar	68	20
6	Atchampet	34530	Nagarkurnool	Nagarkur nool	106	10
7	Kalwakurthy	31729	Nagarkurnool	Nagarkur nool	31	10
8	Kollapur	24177	Nagarkurnool	Nagarkur nool	50	10
9	Nagarkurnool	29250	Nagarkurnool	Nagarkur nool	0	10
10	Devarakonda	39960	Nalgonda	Nalgonda	79	10
11	Wanaparthy	85000	Wanaparthy	Wanapart hy	0	30

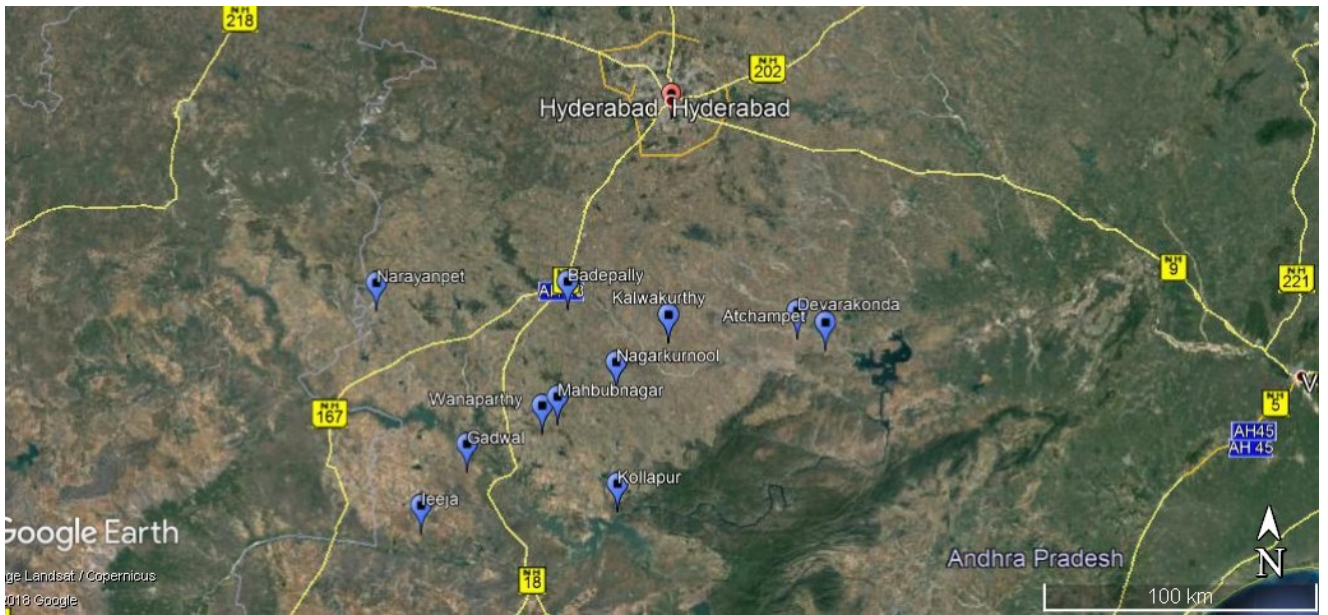


Figure 2: Google Earth view of towns in Package 1

PACKAGE 2:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Bhupalpally	65220	Bhupalpally	Bhupalpally	0	20
2	Jangaon	65500	Jangaon	Jangaon	0	20
3	Huzurabad	36151	Karimnagar	Karimnagar	41	10
4	Jammikunta	34276	Karimnagar	Karimnagar	47	10
5	Gajwel	45475	Siddipet	Siddipet	46	10
6	Husnabad	30110	Siddipet	Siddipet	41	10
7	Siddipet	144763	Siddipet	Siddipet	0	40
8	Narasmpet	41817	Warangal rural	Warangal rural	36	10
9	Parakala	34950	Warangal rural	Warangal rural	36	10
10	Mahabubabad	78511	Mahabubabad	Mahabubabad	0	20



Figure 3: Google Earth view of towns in Package 2

PACKAGE 3:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Kagaznagar	59034	Asifabad	Kamareddy	26	20
2	Kamareddy	100000	Kamareddy	Karimnagar	0	30
3	Karimnagar	300152	Karimnagar	Mancherya I	0	90
4	Bellampally	57848	Mancherial	Mancherya I	26	20
5	Mancherial	101410	Mancherial	Mancherya I	0	30
6	Mandamarri	49685	Mancherial	Peddapalli	17	10
7	Peddapalli	47042	Peddapalli	Peddapalli	0	10
8	Ramagundam	257200	Peddapalli	Sircilla	25	80
9	Vemulavada	36521	Sircilla	Nizamabad	12	10
10	Banaswada	37750	Nizamabad	Nizamabad	46	10



Figure 4: Google Earth view of towns in Package 3

PACKAGE 4:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Adilabad	124369	Adilabad	Adilabad	0	40
2	Jagityal	103002	Jagityal	Jagityal	0	30
3	Korutla	73636	Jagityal	Jagityal	23	20
4	Metpalli	57000	Jagityal	Jagityal	33	20
5	Bhainsa	57254	Nirmal	Nirmal	42	20
6	Nirmal	141342	Nirmal	Nirmal	0	40
7	Armur	60000	Nizamabad	Nizamabad	28	20
8	Bodhan	84553	Nizamabad	Nizamabad	26	30
9	Nizamabad	346737	Nizamabad	Nizamabad	0	100
10	Dubbaka	30300	Siddipet	Siddipet	97	10



Figure 5: Google Earth view of towns in Package 4

PACKAGE 5:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Medak	54106	Medak	Medak	0	20
2	Medchal	39950	Medchal	Medchal	0	10
3	Andol-Jogipet	25247	Sangareddy	Sangareddy	29	10
4	Sadasivapet	47000	Sangareddy	Sangareddy	18	10
5	Sangareddy	88803	Sangareddy	Sangareddy	0	30
6	Zaheerabad	56220	Sangareddy	Sangareddy	57	20
7	Tandur	75500	Vikarabad	Vikarabad	40	20
8	Vikarabad	60000	Vikarabad	Vikarabad	0	20



Figure 6: Google Earth view of towns in Package 5

PACKAGE 6:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Boduppall	135000	Medchal	Medchal	46	40
2	Peerzadiguda	75000	Medchal	Medchal	44	20
3	Badangpet	106550	Ranga Reddy	Shamshabad	17	30
4	Ibrahimpattanam	42000	Ranga Reddy	Shamshabad	32	10
5	Jillelguda	80818	Ranga Reddy	Shamshabad	20	20
6	Meerpet	98481	Ranga Reddy	Shamshabad	18	30
7	Pedda Amberpet	44641	Ranga Reddy	Shamshabad	37	10
8	Bhongir	66000	Yadadri	Bhongir	0	20
9	Shadnagar	66300	Ranga Reddy	Shamshabad	38	20
10	Jalpally	112374	Ranga Reddy	Shamshabad	6	30

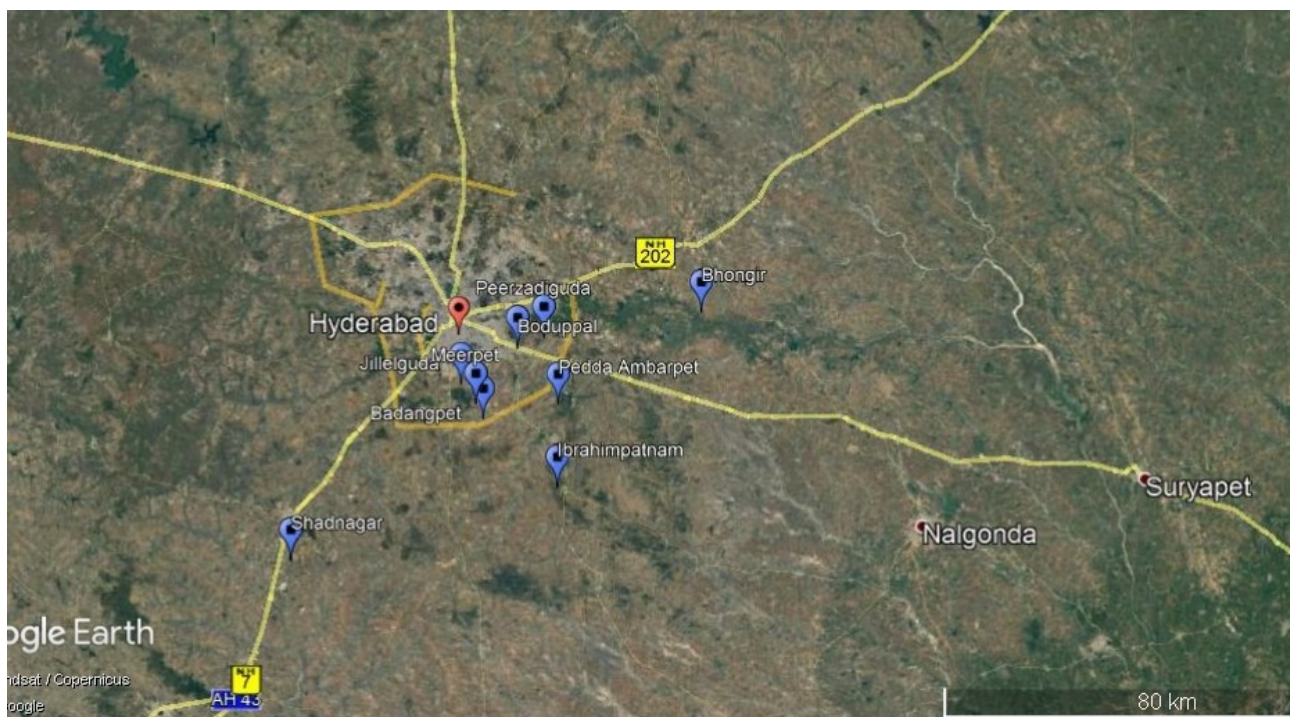


Figure 7: Google Earth view of towns in Package 6

PACKAGE 7:

Sl. No.	Town	Population (2017)	District	District Head quarters	Distance from District Headquarters (Km)	Estimated Design Capacity of Plant (KLD)
1	Khammam	358963	Khammam	Khammam	0	110
2	Madhira	30617	Khammam	Khammam	55	10
3	Sattupalli	35500	Khammam	Khammam	81	10
4	Kothagudem	125476	Kothagudem	Kothagudem	0	40
5	Manuguru	34470	Kothagudem	Kothagudem	58	10
6	Palvancha	85407	Kothagudem	Kothagudem	14	30
7	Yellandu	36986	Kothagudem	Kothagudem	36	10
8	Huzurnagar	43830	Suryapet	Suryapet	54	10
9	Kodada	71400	Suryapet	Suryapet	44	20
10	Suryapet	121000	Suryapet	Suryapet	0	40
11	Miryalguda	127600	Nalgonda	Nalgonda	60	40
12	Nalgonda	171101	Nalgonda	Nalgonda	0	50

Figure 8: Google Earth view of towns in Package 7

