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SWACHH BHARAT MISSION AND EVALUATION OF WATER AND SANITATION FACILITIES IN THANE DISTRICT OF MAHARASHTRA

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ABSTRACT:

Paper attempts to analyse talukawise availability of water and sanitation (toilet) facilities and the prevailing disparities in it in the district of Thane. Access to all time water availability has been examined for 2008-09 to 2016-17 while availability to tap water and sanitation facilities have been examined for the period 2009-10 to 2016-17 due to

systematic availability of data.

Research findings suggest that access to all time availability of water in the district observed negative growth of -8%. Palghartaluka noted maximum growth (7%) while Vasai noted maximum negative growth (-13%) during the study period. Talking about the mean access to all time water, district noted 92% availability with Bhiwandi showing maximum (99%) and Mokhada showing minimum (59%).

Access to tap water noted 25% growth in the district. Vada noted maximum (79%) while Dahanu noted minimum growth (2%) during the study period. Observation about the mean access to tap water, district noted 47% availability with Ambernath showing maximum (80%) and Dahanu showing minimum (14%) availability.

Combined access to sanitation (toilet) facilities by APL and BPL families (toilets) in the district noted -12% growth. Mokhada witnessed maximum (17%) while Kalyan noted minimum growth (-7%) during the study period. Talking about the mean access to sanitation, district observed 89% availability with Talasari and Vasai, showing maximum (99%) and Shahapur showing minimum (79%) availability in the district.

Growth of sanitation (toilets) for BPL families noted -15% in the district. Mokhada noted maximum (17%) while Kalyan noted minimum growth (-7%) in access by the BPL families during the study period. Talking about the mean access to sanitation, district noted 87% availability with Talasari showing maximum (100%) and Mokhada showing minimum (19%) availability.

Compound Annual Growth Rate for access to sanitation (toilets) by APL in the district noted -10% growth. Mokhada noted maximum (34%) while Vasai noted minimum growth (-22%) during the study period. Observation about the mean access to sanitation, district noted 89% availability with Palghar showing maximum (100%) and Mokhada showing minimum (79%) availability.

KEYWORDS: Sanitation, Disparity, Tap water, APL & BPL families, Mean, Range.

INTRODUCTION: Water and sanitation facilities are like basic needs needed by mankind not only for healthy life but for higher sustainability¹.

Study report suggests that nearly 1/7th population of the world defecate in open due to lack of toilets and majority (60%) belongs to India (Dr. Minakshi,

2015). But SDG 6 of United Nation suggested about the attention gained by water and sanitation facilities at global level in recent time. (UN Report, 2018)

India finds wide variations between Rural and Urban regions as well as in large and small towns with respect to access to better water and toilet facilities. About 81% of urban population and 32.7% of rural population is still not covered with toilet facilities. As major proportion of population is residing in rural and do not have access to these facilities hence are compelled to go for open defecation inviting various health issues (Pushpanjali, Srithi, 2016). Better access of these facilities ensure better socio-economic status, better health and higher students turnout ratio. Inadequacy of facilities on the other hand is accompanied with higher illness, higher health cost and poor quality of labour (MIRAJUL HAQ et al, 2008). Poor drinking water and sanitation facilities in country claim about 5 lakh deaths every year among children before age 5 (Ashwani Kumar et al, 2014). Facilities of water and sanitation depend on availability of water resources, level of income and institutional capacity in the country (Rashmi et al, 2013). Over use of water, increased contamination, rainfall deficiency, agriculture and poor infrastructures are expected to enlarge the problems of water and sanitation especially in developing countries in coming years. (Copenhagen Consensus, 2008).

OBJECTIVES:

1. To Study about access to all time water availability in Thane district during 2008-09 to 2016-17.
2. To Study about access to tap water facility in the Thane district during 2009-10 to 2016-17.
3. To study about access to sanitation (toilet) facilities by BPL and APL families in Thane District during 2009-10 to 2016-17.
4. To analyse about disparities in access to all time and tap water facilities in Thane district during the study period.
5. To analyse disparities present in access to sanitation (toilet) facilities among BPL and APL families in Thane district during 2009-10 to 2016-17.

DATA SOURCE AND METHODOLOGY:

Present paper is designed to study the status of availability of drinking water and toilet facilities in Thane district during 2008-09 to 2016-17 using descriptive methodology. Access to all time water availability in the district has been studied for the period 2008-09 to 2016-17 while access to tap water and toilet facilities is studied for the period 2009-10 to 2016-17 due to systematic availability of data. Availability of water and sanitation facilities in Talasari, Dahanu, Vikramghad, Jawhar, Mokhada, Vada, Palghar and Vasai have been calculated till 2013-14 and for remaining till 2016-17.

Researcher has computed CAGR for computing the growth while Mean and Range for comparisons in the findings. Data for the study has been collected through various published sources comprising of state and local government publications, research articles, annual reports of various institutions and organisations, etc.

STUDY AREA:

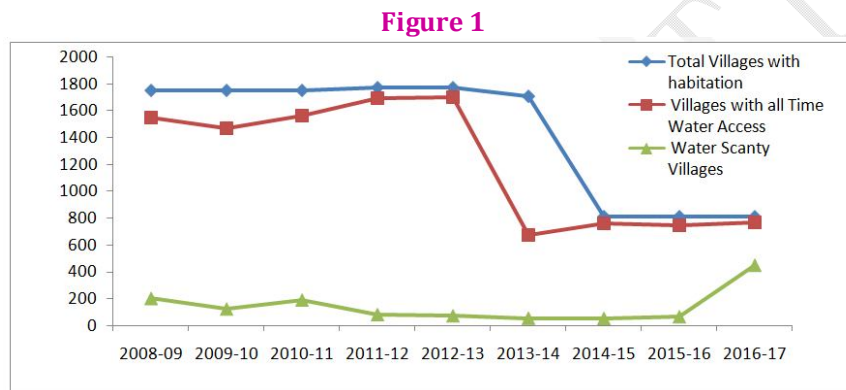
Thane district is one of the tribal district of Maharashtra, having total geographical area of 4214 square km. District total population according to 2011 was 80.70 lakhs and it contributed 7.18 percent in total state's population.

Thane had fifteen Talukas namely Talasari, Dahanu, Vikramghad, Jawhar, Mokhada, Vada, Palghar, Vasai, Thane, Bhiwandi, Shahapur, Kalyan, Ulhasnagar, Ambernath, Murbad but on August 1st 2014, after formation of new Palghar district, number of Talukas fell down to seven. They are Thane, Bhiwandi, Shahapur, Kalyan, Ulhasnagar, Ambernath and Murbad out of which Thane and Ulhasnagar are urban in the district.

**Access to Water and Sanitation (Toilet) Facilities in Thane District:
A) Availability of Water Facilities:**

There were 1748 villages with habitation in Thane district in 2008-09 out of which 46 were in Talasari, 167 were in Dahanu, 100 in Vikramghad, 109 in Jawhar, 59 in Mokhada, 167 in Vada, 208 in Palghar, 100 in Vasai, 0 in Thane, 220 in Bhiwandi, 228 in Shahapur, 69 in Kalyan, 0 in Ulhasnagar, 69 in Ambarnath and 206 Murbad. Since Thane and Ulhasnagar Taluka are fully urban, hence there was absence of village in it.

CAGR (Compound Annual Growth Rate) for access to all time water facilities was -8% for district while 7% for Talasari, 2% for Dahanu, 0% for Vikramghad, 2% for Jawhar, -2% for Mokhada, 0% for Vada, 5% for Palghar, -13% for Vasai, 0% for Bhiwandi, 1% for Shahapur, 2% for Kalyan, 0% for Ambarnath and 0% for Murbad between 2008-09 to 2016-17. Talasari and Palghar Taluka witnessed 7% and 5% growth, Dahanu, Jawhar, Kalyan witnessed 2% growth and Shahapur witnessed 1% growth. Talukas like Vikramghad, Vada, Bhiwandi, Ambarnath, Murbad noticed 0% growth while Mokhada and Vasai had negative growth of -2% and -13% respectively.



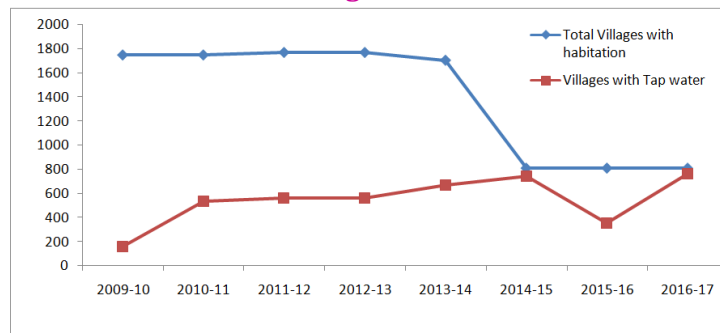
Mean availability about access to all time water in district improved from 89% in 2008-09 to 94% in 2016-17. Due to presence of salt content, all the available water in Taluka was not in usable form creating shortage of 11% in 2008-09 and 55% in 2016-17.

If we see talukawise access to all time mean availability of water, Talasari witnessed 89% availability, Dahanu 93%, Vikramghad 94%, Jawhar 88%, Mokhada 59%, Vada 94%, Palghar 91%, Vasai 93%, Bhiwandi 99%, Shahapur 87%, Kalyan 98%, Ambarnath 95% and Murbad witnessed 93% availability. Kalyan Taluka noticed maximum availability (99%) and Mokhada witnessed minimum (59%) while the District availability during the same period was 92%. Despite access to all time presence of water, salinity content in the water was the matter of concern for the villages. Mokhada and Shahapur were among the top water deficient Talukas in the district during the study period.

Availability of Tap Water in District:

CAGR (Compound Annual Growth Rate) for access to tap water facilities was 25% for the district while for the talukas, it was 6% for Talasari, 2% for Dahanu, 50% for Vikramghad, 33% for Jawhar, 40% for Mokhada, 79% for Vada, 41% for Palghar, 2% for Vasai, 57% for Bhiwandi, 27% for Shahapur, 37%, for Ambarnath and 49% for Murbad between 2009-10 to 2016-17. Vada had witnessed maximum growth (79%) while Dahanu witnessed minimum (2%) showing disparity of 77% between the two talukas during study period. Due to unavailability of data for Kalyan Taluka in 2009-10, CAGR has not been calculated.

Figure 2



Mean availability about tap water facilities in district improved from 9% in 2009-10 to 94% in 2016-17. Availability of tap water facility improved with progress in time.

Seeing talukawise mean access to tap water facilities, Talasari witnessed 21% availability, Dahanu 14%, Vikramghad 18%, Jawhar 24%, Mokhada 19%, Vada 19%, Palghar 17%, Vasai 19%, Bhiwandi 68%, Shahapur 52%, Kalyan 52%, Ambernath 80% and Murbad witnessed 35% availability. Bhiwandi Taluka noticed maximum availability (68%) and Dahanu witnessed minimum (14%). District availability was 47% during the study period.

B) Availability of Sanitation (Toilet) Facilities:

Percentage of APL and BPL families to total population in the district up to 2010-11 has been calculated using population census 2001 while rest is calculated using population census 2011.

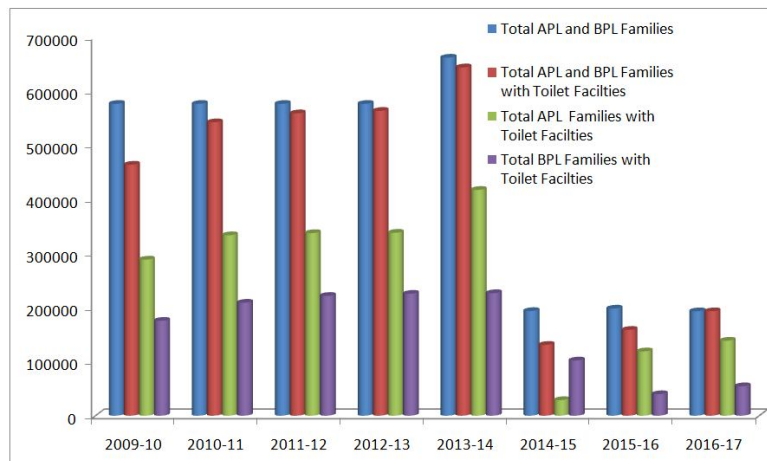
Number of APL and BPL families in the district decreased from 576422 in 2009-10 to 193024 in 2016-17. Percentage share of APL and BPL families to total district population fell sharply from 7% to 2 percent during the above mentioned period. Mokhada, Vada, and Murbad talukas in the district noted presence of 22% of APL and BPL families while Kalyan noted 4% presence in 2009-10. Percentage share of APL and BPL families showed reduction in 2016-17 to around 18% for Murbad and Shahapur while Talukas like Bhiwandi, Kalyan and Ambernath noted 6 percent and 2% presence respectively.

CAGR (Compound Annual Growth Rate) for access to toilet facilities for APL and BPL families were -12% in the district while at taluka level, it was 6% for Talasari, 10% for Dahanu, 5% for Vikramghad, 9% for Jawhar, 23% for Mokhada, 9% for Vada, 9% for Palghar, -17% for Vasai, 7% for Bhiwandi, 7% for Shahapur, -5% for Kalyan, -5% for Ambernath and 4% for Murbad between 2009-10 to 2016-17. Jawhar had witnessed maximum growth in availability of facilities in the district (23%) while Vasai witnessed maximum deterioration (-17%) showing huge disparity of forty percent between the two talukas.

District noted quite high downfall in access to toilet facilities by BPL families to -15%, higher than combined APL and BPL access of -12%. At taluka level, it was 0% for Talasari, 11% for Dahanu, 1% for Vikramghad, 6% for Jawhar, 17% for Mokhada, 5% for Vada, 7% for Palghar, 1% for Vasai, 6% for Bhiwandi, 2% for Shahapur, -7% for Kalyan, -4% for Ambernath and 2% for Murbad between study period 2009-10 to 2016-17. Mokhada witnessed maximum growth in the district (17%) while Kalyan noted maximum deterioration (-7%) showing disparity of 24 percent between the two talukas.

Better access (-10%) in toilet facilities was observed in case of APL families when compared with BPL families. Talking at taluka level growth, it was 20% for Talasari, 10% for Dahanu, 11% for Vikramghad, 15% for Jawhar, 34% for Mokhada, 13% for Vada, 9% for Palghar, -22% for Vasai, 7% for Bhiwandi, 11% for Shahapur, -4% for Kalyan, -6% for Ambernath and 5% for Murbad between study period 2009-10 to 2016-17. Mokhada witnessed maximum growth in the district (34%) while Vasai noted maximum downfall (-22%) showing disparity of 24 percent between the two talukas.

Figure 3



Combined mean access to sanitation (toilet) facilities by APL and BPL families during the study period in the district was 89%. Talasari witnessed 99% availability, Dahanu 92%, Vikramghad 95%, Jawhar 91%, Mokhada 80%, Vada 97%, Palghar 96%, Vasai 99%, Bhiwandi 90%, Shahapur 79%, Kalyan 93%, Ambernath 97% and Murbad witnessed 85% availability. Talasari and Vasai noticed maximum access (99%) and Shahapur witnessed minimum (79%) access to the facility. Disparity between the access to sanitation facility between the top and bottom taluka was of 20%.

Mean availability of sanitation (toilet) facilities for BPL families in the district was 87%. Coming to mean availability in talukas, Talasari had 100% availability, Dahanu 91%, Vikramghad 94%, Jawhar 89%, Mokhada 81%, Vada 96%, Palghar 99%, Vasai 99%, Bhiwandi 85%, Shahapur 75%, Kalyan 98%, Ambernath 84% and Murbad witnessed 84% availability. Talasari noticed maximum (100%) and Shahapur witnessed minimum (75%) availability during the study period (2009-10 to 2016-17) showing disparity of 20 percent in access to sanitation facilities between the topmost and bottommost talukas.

Mean availability of sanitation (toilet) facilities for APL families was 89% in the district while at taluka level, Talasari observed 99% availability, Dahanu 94%, Vikramghad 98%, Jawhar 97%, Mokhada 79%, Vada 99%, Palghar 100%, Vasai 99%, Bhiwandi 88%, Shahapur 83%, Kalyan 91%, Ambernath 96% and Murbad observed 86% availability. Talasari, Vada, Vasai, Palghar noticed 100% availability (100%) while Mokhada witnessed least (79%) while during 2009-10 to 2016-17 showing disparity of 21 percent between top and bottom talukas.

RESULT ANALYSIS AND DISCUSSIONS:

- CAGR for all time availability of water in the district was -8%. Compound Annual Growth Rate was maximum (7%) for Palghar and minimum for Vasai (-13%) talukas showing the gap of 20% during the study period. Talking about the mean availability of the all-time water in the district, it was 92%. Bhiwandi had an upper edge (99%) while Mokhada was on the bottom (59%) leaving the gap of 40%.
- CAGR for tap water availability in the district was 25%. Compound Annual Growth Rate was maximum (79%) for Vada and minimum for Dahanu (2%) Taluka in the district leaving gap of 77%. Talking about the mean availability of the tap water in the district, it was 47%. Ambernath had an upper edge (80%) while Dahanu was on the bottom (14%) leaving the gap of 66% during the study period.
- CAGR for availability of Sanitation (Toilet) facilities for APL and BPL families in the district was -12%. Compound Annual Growth Rate was maximum (23%) for Mokhada and minimum for Dahanu (-17%) Taluka in the district leaving gap of 40%. Talking about the mean availability of the

sanitation facilities, it was 89% for the district, Talasari and Vasai had maximum mean value (99%) while Shahapurhad minimum (79%) leaving the gap of 20%.

- CAGR for availability of Sanitation (Toilet) facilities for BPL families in the district was -15%. Compound Annual Growth Rate was maximum (17%) for Mokhada and minimum for Kalyan (-7%) Taluka in the district leaving gap of 24%. Talking about the mean availability of the sanitation facilities in the district, it was 87% in the district, Talasari had maximum mean value (100%) while Mokhada had minimum (81%) leaving the difference of 19% between the top and bottom talukas.
- CAGR for availability of Sanitation (Toilet) facilities for APL families in the district was -10%. Compound Annual Growth Rate was maximum (34%) for Mokhada and minimum for Vasai (-22%) Taluka in the district leaving difference of 56%. Talking about the mean availability of the sanitation facilities in the district, it was 89% in the district. Palghar had cent percent availability while Mokhada had 79% availability showing disparity of 21% between the top and bottom talukas.

CONCLUSION:

Study concludes that availability of water and sanitation facilities and its growth observed different growth patterns both at district and at taluka level during the study period. Where in one hand, access to availability of all time water and sanitation noted negative growth indicating deterioration in the facilities while growth of 25% in provisioning of tap water shows achievement for the district.

92 percent of Thane district noted mean availability of all time water facilities out of which 47 percent had access to tap water. Study finds that 8 percent are still in wait of access to water facilities. Talking about safe drinking water in the district which is accessible through tap, district needs to have serious planning and its execution.

On an average, 89 percent of the BPL and APL families are covered with sanitation facilities in the district. Study findings suggest about more and better access to sanitation facilities by APL families. 11% of the families are still not having access to toilet facilities in the district for which too, there is need for serious government attention.

Study found that Palghar taluka noted maximum growth (7%) in access to all time water availability, Mokhada noted maximum growth (79%) in access to tap water and sanitation facilities both by BPL (17%) and APL (34%) families. While Vasai taluka noted maximum negative growth in access to all time water (-13%), Dahanu noted minimum growth (2%) in access to tap water, Kalyan noted maximum negative growth (-7%) in access to sanitation by BPL and Vasai noted maximum negative growth (-22%) in access to sanitation facilities by APL families during the study period.

Findings suggested that Bhiwandi taluka observed 99% access to all time water availability, Ambernath noted 80% access to tap water, Talasari noticed 100% access to sanitation facilities by BPL families and Palghar observed 100% access to sanitation by APL families in the district. Vasai taluka in the district noted minimum access to all time water (59%), Dahanu noted minimum availability (14%) in access to tap water, Mokhada noticed minimum mean availability (19%) in access to sanitation by BPL and Mokhada again noticed minimum availability (79%) in access to sanitation facilities by APL families during the study period.

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