

KERALA STATE SANITATION STRATEGY



Government of Kerala



Suchitwa Mission



(Under National Urban Sanitation Policy, 2008)

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1. INTRODUCTION

Sanitation as per National Urban Sanitation Policy (2008) is defined as safe management of human excreta, including its safe confinement treatment, disposal and associated hygiene-related practices. The Kerala SSS recognizes primacy to integral solutions that covers sub sectors of drinking water, waste water (including septage), solid waste and storm water drainage. The strategy has looked at the dimensions of capacity enhancement, finance, technology, inclusiveness, climate change responsiveness, institutional and governance strengthening.

The Twelfth Five Year Plan (2012-17) of the state of Kerala addresses the issue of high development in the state alongside improving the material and quality life of people. The National Urban Sanitation Policy (NUSP) of Government of India announced in 2008, entrusted state governments to prepare their State Sanitation Strategy (SSS) in line with constitutional provision. As per the Constitution, 'water' and 'sanitation' are classified as state subjects. 'Water' is included in Entry 17 under the List II i.e. the State List of Seventh Schedule, explained as:

"Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of Entry 56 of List I"

- 'Sanitation' is a subject matter included in Entry 6 of the State List as established through Article 246 of Constitution of India.
- India is signatory to United Nations led Millennium Development Declaration that affirms its commitment to Goals 7 to reduce by half the number of people without access to improved sanitation by 2015.

- The national five year plan for the period 2012 to 2017 has identified the urban sector as one of the eleven priorities in the country.

Need for State level Sanitation Strategy for urban areas in the state of Kerala

Improved sanitation is one of the critical determinants of the quality in human life that largely impact on outcomes for public health, environment and dignity. The positive outcomes of the sanitation interventions contribute to the economic growth propelled by livable cities. Investments made in the sanitation sector for urban areas will not only yield higher human development indicators but will also contribute to achievement of 15 percent growth rate for state's economic growth as envisioned in the Kerala's XII Five Year Plan.

The state of Kerala has a huge dependence on the industrial and services sector. The share of Gross State Domestic Product (GSDP) in agricultural sector has decreased from 38.08 percent in 1971 to 10.59 percent in 2010. Whereas the share of GSDP in secondary sector has increased from 16.2 percent to 20.60 percent between 1971 and 2010 and tertiary sector from 45.72 percent to 68.80 percent during the same period.

The National Urban Sanitation Policy (2008) stipulates all ULBs to develop their City Sanitation Plans (CSP) as a city level instrument for sanitation sector planning. Kerala SSS is a major fillip to guide the Municipal Authorities to prepare and operationalize CSPs.

The Service Level Benchmarks (SLBs) institutionalized by Ministry of Urban Development (MoUD) is also one of the 9 conditions of the Thirteenth Central Finance Commission. As per Thirteenth Finance Commission Grant, out of total grants of Rs.2676.18 Crores, Rs. 726.34 Crores was allocated to the urban local bodies, which were used to disburse grants to Urban Local Bodies (ULBs) based on their performance on 28 SLB indicators. The development of the Kerala SSS and its implementation will help to guide the ULBs to perform better on the SLB indicators.

About Kerala

The state of Kerala located on the southernmost tip of India is bounded by Western Ghats on east and Lakshadweep Sea on the west. The state comprises of 14 districts namely Kasaragod, Kannur, Kozhikode, Wayanad, Malappuram, Palakkad, Thrissur, Ernakulam, Idukki, Kottayam, Alappuzha, Pathnamthitta, Kollam and Thiruvananthapuram. The Census 2011 report urban population of Kerala state as 15.93 million

representing about 47.72 percent of total population. Most of the net increase in the urban population is contributed by five districts in Ernakulam (68.07 percent), Thrissur (67.19 percent), Kozhikode (67.15 percent), Kannur (65.05 percent) and Alappuzha (54.06 percent).

The urban population is spread across 520 Urban Local Bodies consisting of 5 Corporations, 53 Municipalities, 1 Cantonment Board and 461 Census Towns. The net increase of urban population between 2001 and 2011 is 76,65,246 persons. The growth in number of urban population can be attributed to the increase in the number of towns from 159 to 520 between 2001 and 2011. Ernakulam is the most urbanized district in the state. The trend of urbanization in Kerala shows that with the increase in urban population it is imperative to focus attention on the urban areas for their robust sanitation infrastructure.

Recently, Kannur Municipality has been upgraded to Kannur Municipal Corporation. There are 28 newly added municipalities. The addition of new urban local bodies will put pressure and demand for water and sanitation infrastructure.

Steering and stakeholder consultations

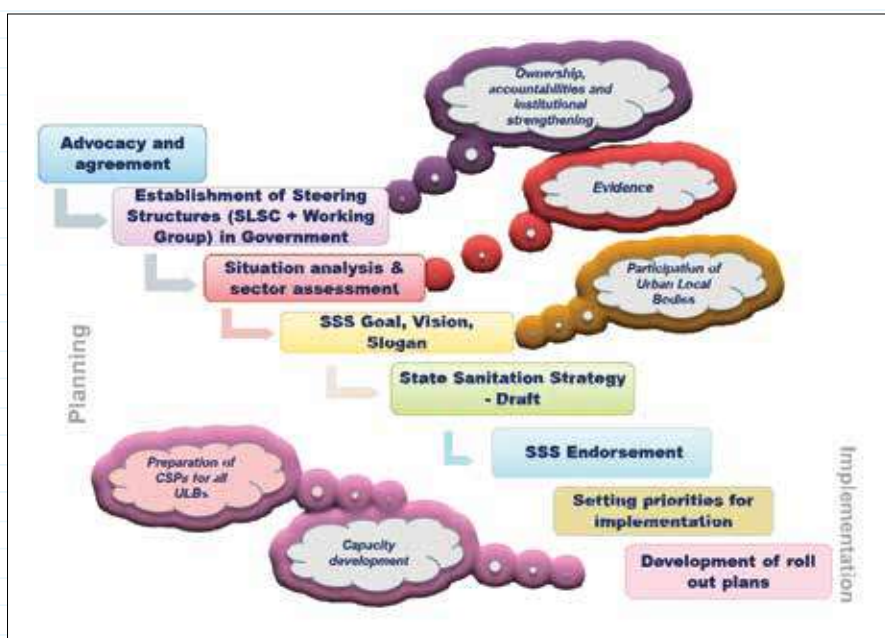
The government of Kerala established State Level Sanitation Committee (SLSC) vide Government Order (GO) Rt No. 2858/2012/LSGD dated 12.10.2012. The SLSC to provide strategic guidance for preparation and operational zing the State Sanitation Strategy with periodic evolution of progress across departments for better convergence and to achieve the goals envisaged in State Sanitation Strategy. The committee is headed by the Principal Secretary LSGD with Principal Secretaries and HoD's from the following departments, namely

- Suchitwa Mission
- Kudumbashree
- Corporation of Kochi
- General Education Department
- Health & Family Welfare Department
- Kerala State Pollution Control Board
- Kerala Water Authority
- Town Planning Department

The Executive Director, Suchitwa Mission was designated as member convener and as nodal office for the purpose of steering the development

of State Sanitation Strategy with support of the commensurate department represented in the Working Group chaired by the Executive Director – Suchitwa Mission. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) was identified as technical partner for overall development of the Strategy.

For the purpose of state sanitation strategy for Kerala an eight stage process was formulated. Two significant steps were to prepare an Urban Sanitation Sector Assessment Report (SAR) and consultations with the Urban Local Bodies (ULBs) in the state of Kerala for delineation of vision and goals of the strategy.



The working group met with participation of the departments to finalize the Sector Assessment Report. Also, ULB consultation was carried out with Executive Director – Suchitwa Mission in Chair to share SAR and finalize the vision and goals of the strategy¹.

Policy environment

The NUSP envisaged a key role for the state governments to develop their state sanitation strategies by recognizing the water and sanitation problems existing across urban local bodies in the state. There are various

1 Workshop on “Consultation with ULBs on Urban Sanitation Vision Setting for the State of Kerala”, 5 December 2014, Trivandrum

initiatives undertaken in the sector of water and sanitation in the state of Kerala. Such projects have been facilitated and supported by Kerala.

The department of Town and Country Planning of Kerala published its report on “State Urbanization Report Kerala 2031”. This report has highlighted that there is a need to develop a settlement policy that will prevent urbanization of adjacent suburban areas and saving fragile eco zones from getting urbanized. Kerala is mainly urbanized along the coastal belt and midland region. Hence, the report states that there will be five urban corridors Thiruvananthapuram – Kollam, Pathanamthitta – Kottayam, Alapuzha – Ernakulam – Thrissur – Palakkad, Malappuram – Kozhikode and Kannur – Kasargod to be developed.

Kerala State Urban Development Project (KSUDP) is the main agency for implementing central assistance schemes such as JnNURM, UIDSSMT and externally aided project. Kudumbashree is another major agency for implementing of other schemes such as IHSDP, BSUP and SJSRY. During the Eleventh plan major outlay was allotted to KSUDP and Kudumbashree for these schemes. Suchitwa Mission is the technical body under the Local Self Government Department. It is responsible for providing technical as well as financial support to Districts and Local Self Government Institutions (LSGIs) in the field of solid and liquid waste management, septage management, establishment of slaughter house, sanitation and creation of awareness among people good practices in sanitation and waste management.

The “Swachh Bharat Mission” launched in October 2014 has a strong linkage with National Urban Sanitation Policy. It is a strong tool for achieving the goals of NUSP. The state of Kerala is already in the process of achieving the goals of SBM by preparing its state sanitation strategy.

The urban local bodies in Kerala are largely steered by Kerala Municipality Act 1994 for the Municipalities and Municipal Corporations. In Kerala, decentralized planning that followed 73rd and 74th constitutional amendments included important landmarks include the transfer of powers, functions, institutions and staff to local self-governments (LSGIs), adoption of separate budget document for LSGIs, decision to devolve 35 to 40% of the plan funds to LSGIs, launching of People’s Campaign, institution-building at different tiers and levels, restructuring of the relevant State level Acts and Rules².

2 Report on “Decentralized Experience of Kerala”, Programme Evaluation Organisation Planning, Govt. of India, January 2006, New Delhi

2. HUMAN DEVELOPMENT OUTCOMES FOR SANITATION INVESTMENTS

Investment in safe water supply and access to improved sanitation has multiple economic returns. For every 1 US Dollar invested, there is a projected USD 3 to 34 benefit gained. The benefits range from time savings and productivity gains, to budget savings on health-care. Per capita gains for the developing world population could reach at least USD 15 per capita per year.³ It is well established that aspects of women safety, dignity and well-being are intrinsically linked to improved availability, access and use of sanitation and drinking water facilities.

2.1 Health Outcomes

Infant Mortality Rate (IMR) is considered to be the single most significant indicator of public health outcomes for which safe water and sanitation is one of the important determinants. The urban parts of Kerala are reporting a decline in the IMR from 17⁴ in 1997 to 9 in 2012. Kerala has a strong health care system as compare to the other states in India. The health infrastructure in Kerala has become entrepreneurial with generating jobs and attracting tourism. The urban areas are performing better than the rural areas in terms of key indicators of human development. The Infant Mortality Rate (IMR) is 4 percent point lower in urban areas at 9 per 1000 as compared to 13 per 1000 in the rural areas.

2.2 Environmental Outcomes

To define the environmental outcomes, it is imperative to establish the benchmarks and the targets that maintain sensitive ecosystems such as water bodies especially in the coastal. The parameter needs to fall in line with national available standards and regulations for water quality monitoring. The water body classification of CPCB and water quality norms for discharge of effluents (EPR, Pollution Control Law Series, PCLS/4/2000-2001) are an important pre-requisite. However, it is essential that describing the ecological status of water bodies the national regulations should be completed by "Trophic Level Index"⁵. The road-map to comply with the overall goal of restoring the ecological balance involves steps, such as, and in the same order: (I) arresting of external / anthropogenic pollution, (II) removal of already accumulated pollution

3 Hutton, Guy, and Laurance Haller (2004), Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level, World Health Organization, Geneva

4 IMR measured in children per 1000

5 Beyá J, Hamilton D, Burger D. (2005) Analysis of catchment hydrology and nutrient loads for Lakes Rotorua and Rotoiti. Report 83, University of Waikato, New Zealand

and (III) preservation through monitoring of water quality. All the three steps require technical intervention until the ecological balance is accomplished. It is achieved if the water bodies fulfill the water quality criteria according to the Best-Designated-Use standard Class-D and the same status can be maintained throughout the year.

Kerala despite its small area has a coastline of 590 kms. It has vast network of backwaters, lagoons, natural lakes, rivers and canals. The wetlands in Kerala are subjected to extreme pressure due to rapid development activities such as encroachment, reclamation, mining and biodiversity loss. The household activities such as waste disposal and direct and indirect defecation into the wetlands are the major issues.⁶

2.3 Gender and Inclusive Sanitation outcomes

The literacy gender gap, with male literacy rates of 96.83 percent vis a vis female literacy rate of 93.33 percent in the state of Kerala can be better bridged with adequate focus on school sanitation especially for girl students. In the schools of urban areas, the enrollment rates for boys and girls up to elementary school are 49.04 and 50.96 respectively. The drop out rate upto the elementary school is zero in Kerala as against the country's average rate of 43 percent. The poverty level in the state of Kerala is 5 percent at the poverty line of Rs. 987 monthly per capita. This translates to about 0.84 Million persons below poverty line in absolute numbers.⁷ The aspects of public sanitation from point of women safety, dignity and well-being are critically important in the state of Kerala.

3. VISION OF KERALA STATE SANITATION STRATEGY

All cities and towns in Kerala become totally clean, sanitized, healthy, liveable, ensuring and sustaining good public health and environmental outcomes for all citizens, with a special focus on hygienic and affordable sanitation for the urban poor and women with specific focus on the diverse topography of the state and its implications.

⁶ State of the Environment Report, Kerala, 2007, Kerala State Council for Science, Technology and Environment

⁷ Planning Commission (July 2013) Poverty Estimates in India based on data of 2011-12

4. GOAL OF KERALA STATE SANITATION STRATEGY

The overall vision of Kerala SSS is to achieve an urban Kerala ensuring environmentally safe disposal of solid and liquid waste.

The specific goals are:

A. Ensuring 100 percent hygienically safe and sanitary Treatment and Disposal

100 percent of human excreta and liquid wastes from all sanitation facilities including toilets must be safely treated and disposed. In order to achieve this goal, the following activities shall be undertaken:

- a) Promoting / encouraging safe and properly constructed on-site sanitation arrangements wherever cost efficient and sustainable;
- b) In case of network-based sewerage systems, adequate connectivity of households and demonstrated financial viability for O&M would be required to ensure sustainability and proper functioning of the system;
- c) Promoting proper disposal system and treatment of sludge from on-site installations (septic tanks, pit latrines etc.);
- d) Ensuring that all the human wastes are collected safely, confined and disposed-off after treatment so as not to cause any hazard to public health or the environment;
- e) Promoting recycle and reuse of treated waste water for non-potable applications wherever possible.
- f) Promotion of proper collection, segregation, transportation, treatment and disposal of solid waste.

B. Enhanced awareness and sustained behavioral change

- i) Generate enhanced awareness about sanitation and its linkages with public- environmental health and climate change recognizing different impacts on men and women amongst communities and institutions;
- ii) Promote mechanisms to bring about sanitary practices and hygiene behavioral changes

C. Achieving Open Defecation Free Cities

Move towards a situation where all urban dwellers have access to and use safe and hygienic sanitation facilities and arrangements so that no one defecates in the open. In order to achieve this goal, the following activities shall be undertaken:

- a) Promote access to households with safe sanitation facilities (including proper disposal arrangements);
- b) Promoting community-planned and managed toilets in slums and underserved areas and wherever necessary, for groups of households who have constraints of space, tenure or economic constraints in gaining access to individual facilities;
- c) Adequate availability and 100 percent upkeep and management of Public Sanitation facilities, for migrant and floating population and community toilets for urban poor in all urban areas, to rid urban centres off open defecation and environmental hazards.

D. Improved Institutional governance and enhanced human resource capacities for city-wide Sanitation

Role clarity for guidance and advisory at state – level is required. There is also need for regulatory function on state level and implementation and operational function on urban local body level.

- i) Re-Orienting Institutions and mainstreaming sanitation
 - a) Mainstream thinking, planning and implementing measures related to sanitation in all sectors and departmental domains as a cross-cutting issue, especially all urban management endeavors;
 - b) Strengthening state, city and local institutions (public, private and community) to accord priority to sanitation provision, including planning, implementation and O&M management;
 - c) Extending access to proper sanitation facilities for poor communities and other un-served settlements;
 - d) Strengthening the regulatory framework on sanitation service delivery
- ii) Strengthening ULBs to provide or cause to provide, financially sustainable sanitation services delivery.
- iii) Building and strengthening of human resources in the field of sanitation

- iv) Proper Operation & Maintenance of all Sanitary Installations
- v) Promoting proper usage, regular upkeep and maintenance of household, community and public sanitation facilities, sewage / septage treatment facilities and management of solid waste.

E. Technological efficiency and appropriateness

- i) Guidelines on range of technology options that are energy efficient, ecologically and climatically suitable and financially sustainable
- ii) System capacities are built for a range of technological options and its management for comprehensive range of water and sanitation services.

5. POLICIES AND PRIORITIES IN URBAN WATER AND SANITATION SERVICES

5.1 Statutory Status of Urbanization

The state of Kerala has witnessed highest urban growth between 2001 and 2011 from 25.96 percent to 47.72 percent respectively. The increase in urban population has been contributed by the growth of census towns. As per Census 2011 the number of census towns increased from 159 in 2001 to 520 in 2011. The trend and nature of urbanization in the state of Kerala leads to the conclusion;

- a) The urban growth is rapid as compared to other states and this will continue to pose a pressure on the sanitation infrastructure in the urban centers.
- b) Policy formulation for the rapidly urbanizing areas in the state.
- c) Urbanization has to be viewed differently in case of the state of Kerala given its diverse topography including highlands, midlands and coastal lowlands area that has varying environmental carrying capacity of the sanitation infrastructure and services.

Based on the foregoing rationale, it is imperative that the state's urban policy for tackling the problems of urbanization in future developed.

5.2 Open Defecation

There has been significant reduction in the prevalence of open defecation in the state of Kerala largely contributed by acceleration in

the implementation of Total Sanitation Campaign (TSC) in the rural areas of the state. However, cities and towns have not seen similar trends in reduction of open defecations. As per Census 2011, about 2.57 percent of households in the urban areas do not have access to a sanitary toilet in their residential premises in the urban Kerala. Out of this about 1.67 percent defecate in open while remaining 0.90 percent use shared public sanitation facilities. In absolute terms about 93,046 households do not have access to sanitary toilets. About 32,425 of these households use shared toilet facilities while 60,621 go out to defecate in open, thereby adding to the fecal load in the environment.

The latent demand for toilets exists in most urban areas. However, efforts are needed to convert this to effective demand in order to accelerate the process of making our cities open defecation free. This will result in safe and clean toilet infrastructure that keeps pace with urban growth. Evidence suggests that this is possible with motivated state and local leadership.

Service Level Benchmark (SLBs) is to reach 100 percent coverage of the households with toilets. The SLB gazette notification⁸ reports in the 65 ULBs (that are undertaking self-assessment) two ULBs, Kothamangalam and Malappuram have met target. The ambiguity on the data management for the coverage is emerging as an issue.

District level Analysis: The districts reporting highest percentage of open defecation in urban areas are Palakkad (4.38), Alappuzha (3.83) and Wayanad (3.60) and also higher than the state's average of 1.67 percent. If we add districts of Pathanamthitta and Thiruvananthapuram to the list then these five districts will constitute 48.12 percent of total households defecating in open across urban areas in the state of Kerala.

ULB level Analysis: Out of total of 520 Urban Local Bodies (ULBs) in the state of Kerala, Census towns contribute to about 69.60 percent of the households that defecate in open in the state. The figure for Municipalities is 21.82 percent and Municipal Corporations is 8.57 percent.

Amongst *Municipalities*, the towns of Varkala (5.57) in Th'puram district, Chittur (5.43) in Palakkad district, Nedumangad (5.40), Chavakkad (4.92) and Neyyanttinkara (4.83) in Th'puram have the highest prevalence of open defecation. In *Census Towns*, the towns with highest percentage of households defecating in open are Puthunagaram (10.56), Pudussery (10.26), Koduvayur (9.95) in Palakkad district and Pallippuram (8.90) in Alappuzha district.

8 Kerala Gazette Notification, March 2012

Amongst *Municipal Corporations* of the state, Kollam (1.56) and Thiruvananthapuram (1.28) have highest percentage of households defecating in open.

5.3 Lack of Access to Sanitary Toilets

Over and above 60,621 households which defecate in open are another set of 32,425 households who do not have access to toilet at home or within the residential premises. They have to depend on shared facility. As per the WHO UNICEF JMP⁹ definition, use of shared facilities by the household is not considered as access to sanitary toilet. It is therefore desired that these additional households should also be considered part of the target group for ensuring access to safe sanitation. In case of paucity of land within the residential premises, it should be desired that the toilet complex can be considered with individual household ownership rather than adopt community toilet or public toilets as means of ensuring their coverage by safe and hygiene sanitation.

It is suggested that the financial assistance is delivered directly to the households by cash transfer as an incentive. The use of the financial assistance can be used to also pay for the sewer connection fee / charges and / or water connection. There is a large body of evidence that suggests that the toilets are also not used in absence of water availability for washing.

The promotion of adequate number of public and community toilets is required to be focused to cater to the needs of floating population of tourists and migrants.

The state government shall prepare a state plan of action for universal coverage of latrines targeting both toilet less households and the households with insanitary latrines in a time bound manner while recognizing different needs of men and women and poverty levels by adopting participatory approach.

The aspect of public sanitation, for both community needs and that of floating and tourist population shall be especially focused in the plan taking in to account issues of women safety, dignity and well-being with appropriate design standards for provision of facilities. The plan shall be developed on basis of proper feasibility studies and social assessment with appropriate monitoring mechanism with stringent penalties for non-compliance for sustainability and to meet the service delivery standards. Mapping the access and quality of existing public sanitation facilities and

9 — WHO & UNICEF Joint Monitoring Programme (JMP)

hot spots understanding the nature of demand are imperative first steps to implementation that will address gaps in service delivery.

The operation and maintenance has been a major challenge in keeping models of public sanitation functional and therefore appropriate business / operator mechanisms be suitably designed with greater accountability on the service provider. Provide incentives to the private sector and community groups to participate in provision and O&M, and instituting these in policies and contractual instruments through appropriate management contracts.

5.4 Urban Sanitation Hygiene and IEC

The evidence from else-where suggests that the mission mode campaign style of programming may well help the state to reach an Open Defecation Free (ODF) soon enough but to maintain the status would rather be difficult. There is always a risk of slippage from the ODF status unless the campaign is run in the demand responsive approach fully backed by an Inter Personal Hygiene Communication (IPHC) (especially hand washing and menstrual hygiene), mass media and IEC activities so as to achieve a stable and sustained status.

Like a full-fledged flagship rural sanitation programme of *Total Sanitation Campaign* for the village areas of the state, now the programme for the urban areas that is *Swachh Bharat Mission (urban)* is launched.

This programme for urban sanitation in the state has special focus on the delivery structures, budget, guidelines, and monitoring mechanisms as for the rural areas sanitation. The value to invest in such a programme structure for urban sanitation is evident from the rapid acceleration that toilet coverage and open defecation free movement that has been achieved by the state of Kerala in the rural areas under *Total Sanitation Campaign*. There is a national programme of Integrated Low Cost Sanitation (ILCS) that largely responds to conversion of dry latrine to a sanitary latrine so as to ensure that the manual scavenging is eradicated. The scheme is funded in the following manner; Central subsidy (75 percent), State subsidy (15 percent) and Beneficiary share (10 percent).

The Government of Kerala had sanctioned 8,239 ILCS units with a total cost of Rs.6.28 crore. While the construction of the ILCS units is one aspect, putting them to use/disuse has been a major concern.

The Sanitation and Hygiene Advocacy and Communication Strategy Framework will meet the following broad objectives:

- Increase mass awareness levels and make the identified audiences

more conscious about issues related to the importance of sanitation and hygiene;

- To influence decision makers and opinion leaders to advocate for improved sanitation and hygiene standards, thus creating an overall positive environment; and
- Ensure that households especially women have knowledge of the linkages between sanitation, hygiene and health leading to increased public demand for quality sanitation services and adoption of hygiene practices.
- Orientations, competitions, rallies, recognition ceremonies are some of the events that can increase publicity and the media (TV, newspapers, radio,) shall need to be involved to timely and adequately over these events wherever possible.

5.5 Septage Management

About 97.43 percent of the households in the urban areas of Kerala state have a toilet within their residential premises. Almost 56.69 percent of them are connected to septic tanks, 21.87 percent to pit latrines while households having connection to the centralized sewer system are about 14.32 percent. There are both technical and institutional dimensions to the problem of septic tanks in the state of Kerala. The septic tanks design does not comply with the national guidelines with reference to planning, design and construction. Local masons are unaware of the existing design and construction guidelines to construct and design the septic tanks. There are multiple agencies involved in operation and maintenance of water and sanitation services in Kerala. Septage management is viewed as private provision with limited role of urban local bodies.

District level analysis: The districts with highest percentage of households using septic tanks are Kozhikode (69.51), Wayanad (63.20), Malappuram (62.30), Kannur (60.24) and Thrissur (60.10). Together, these five districts account for 50.38 percent of the total households using septic tanks in the state of Kerala.

ULB level analysis: About 50.78 percent of households in Census Towns use septic tanks for the purpose of fecal sludge management at the household level. Municipal Corporations and Municipalities have 29.40 and 19.82 percent respectively of the households having septic tanks.

The *Census Towns* of Cherukunnu (91.26), Thenhippalam (87.11), Kunnummal (86.40), Eramala (85.50) and Kottappally (83.99) have more than 70 percent of households using septic tanks as the means of fecal

sludge disposal. Whereas in the *Municipal Corporations Kochi (70.71)* is the only Municipal Corporation more than 70 percent of households are using septic tanks.

The SLB benchmark is to ensure that all households have access to sewerage connection so as to ensure that the fecal sludge is safely disposed and treated at the Sewerage Treatment Plant (STP).

This calls for an immediate set of policy and programme interventions on septage management by the Government and ULBs to mitigate public health risks. Another set of reasons cited for urgency in taking up septage management is the occupational hazards for emptying the septic tanks. The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013¹⁰ has expanded the definition of workers engaged in such sanitation works by including the practice of septic tank emptying and manual handling of such fecal sludge. The revised Manual Scavenging Act¹¹ will require states to gear up the Municipal bodies in discharging their responsibilities effectively. A roll out strategy¹² is developed in due course of time upon notification of the referred Act by the State Government.

There is growing intellectual capital that suggests that the energy and nutrient aspects of the septic tank fecal sludge should be kept in perspective while developing a strategy around septage management.

The comprehensive attention to the subject matter will be provided through a State Plan on Integrated Septage Management that takes in to account the entire value chain of the septage management and development of appropriate guidelines at the state level considering the dimensions of social, legislative, technical, institutional- governance and financial issues to be considered.

The state plan on Integrated Septage Management shall include a survey to assess number of septic tanks, pit latrines and other technical

10 Gazette published dated 19 September 2013

11 "As per 2013 Act, manual scavenger means "a person engaged or employed, at the commencement of this Act or at any time thereafter, by an individual or a local authority or an agency or a contractor, for manually cleaning, carrying, disposing of, or otherwise handling in any manner, human excreta in an insanitary latrine or in an open drain or pit into which the human excreta from the insanitary latrines is disposed of, or on a railway track or in such other spaces or premises, as the Central Government or a State Government may notify, before the excreta fully decomposes in such manner as may be prescribed, and the expression "manual scavenging" shall be construed accordingly.

12 As per 2013 Act, state governments are required to undertake the notification within three months of Gazette publication

details associated with them. It will also include the awareness regarding necessary regulation and standard operating measures.

5.6 Water Supply

The Kerala Water Authority (KWA) is responsible for the design, construction, execution, operation and maintenance of most of the water supply schemes in the state and for the collection and disposal of the waste water. KWA is implementing water supply and sewerage schemes in both urban and rural areas and sewerage schemes in urban areas only. The source of water supply in the state of Kerala was primarily from surface water and groundwater. Surface water sources are primarily reservoirs / dams, rivers and canals and groundwater through wells.

The Central Public Health Environmental Engineering Organisation (CPHEEO), Government of India, has prescribed the following norms for estimating the water demands for planning & design purposes based on the type of town/city. The water supply norms are 40 lpcd (litres per capita per day) in case of public stand posts, 70 lpcd in case of towns without underground drainage and 135 lpcd in case of towns with underground sewerage system and 150 lpcd in case of metropolitan cities having population more than one million.

The state of Kerala has 58.89 percent of households in urban areas dependent upon wells for drinking purpose. This is significantly lower in comparison to the total state average of 62.03 percent for both rural and urban areas combined together. Out of these 58.89 percent, 15.03 percent of the urban households dependent upon covered wells while another 43.85 percent dependent upon uncovered wells. As per SLB notification¹³, the city of Muvattupuzha (94) and Palakkad (93) are reporting less than 100 percent coverage of households with water supply connection.

District level analysis: There are 6 districts with urban households dependent upon covered wells having percentage more than the state's average. The district with highest percentage of household dependent upon covered well is Kottayam(34.98). The district of Wayanad has the lowest coverage with 2.99 percent.

ULB level analysis: Amongst *Census Towns*, Kottapally (62.99), Cherpu (58.23), Panachikkad (56.53), Kalady (52.67) and Puzhakkal (52.58) have the highest percentage of households dependent upon covered wells for drinking water purpose.

13 Kerala Gazette Notification, March 2012

Across *Municipalities*, Irinjalakuda (43.14), Adoor (42.11), Changanassery (41.44), Chengannur (41.40) and Chalakudy (38.14) have the highest percentage of households dependent upon covered wells for drinking water purpose.

In conclusion, key emerging challenges with regard to drinking water are:

- **Degradation of water resources:** Despite of heavy rainfall water is lost to the sea and less water is left for infiltration, percolation and storage. Conversion of watershed areas has led to lowering of groundwater table.
- **Deterioration of water quality:** In the absence of efficient water treatment systems and solid waste management systems, untreated domestic and industrial wastes, and agriculture-runoff flow in to the rivers polluting the rivers in Kerala. Although at present the facility for pesticide testing is available at State Referral Institute in Kochi but this need to make available across all the districts. There has been wide spread bacteriological contamination of faecal origin in ground and surface water which relate to close proximity of increasing numbers of leach pit latrines, leakages from septic tanks, washing, bathing and other domestic activities.
- There is a need to focus on piped water supply rather than on handpumps / borewells and other sources.

5.7 Waste Water Treatment and Disposal

Wastewater disposal and treatment was a major problem in cities in Kerala. The waste water from toilets is been disposed through septic tanks and soak pits and grey form of wastewater from kitchen and bathrooms is directly discharged into the sludge drains without any treatment. As per Census 2011 45.45 percent of the urban households have “no drainage”. There are 14.32 percent of the households connected to centralized sewerage system. Although centralized sewer system is of minor importance and disposal of sludge is a problem.

5.8 School Sanitation

There are total of 15,310 schools in the state of Kerala out of which 2,346 are in urban areas¹⁴. Provision of sanitation in schools is one of the primary needs for the holistic development of a child during school education years. The sanitation facilities should be age-set and gender appropriate

14 District Information Systems for Education (DISE) [2011-12] Elementary Education in Urban and Rural India

through development of such relevant norms. Children's participation in management of sanitation facilities with respect to design, siting, upkeep and maintenance requires constant encouragement.

The percentage of drinking water and toilet facilities in the schools in the state of Kerala is showing a good coverage. However, there are certain issues that have an implication on the overall management of school sanitation from the perspective of facility access and use in the state of Kerala:

- Functional status of the toilets.
- Operation and maintenance issues.
- Hygiene curriculum.
- Role clarity for urban schools and their administrations amongst municipal bodies, district board, education department (SSA), management of private schools.
- Design of school drinking water, sanitation, waste water and solid waste disposal require linkages with the urban nature of city infrastructure such as sewage connection.

A "State Action Plan on School Sanitation for Urban Areas" will be jointly developed by Education and Urban Development department.

5.9 Storm Water Drainage

The percentage share of Census Towns (69.24) with "no drainage" in the state of Kerala is highest and decrease in Municipal Corporations (12.84) and Municipalities (17.91). Census Towns with the highest percentage of households with "no drainage" facilities are Maniyat (91.74), Pallippuram (84.90), Kurumathur (82.58), Ajanur (80.52) and Perole (79.96).

- Kerala is one of the densest states of India.
- The state has large number of rivers, backwaters and ponds but most of them are polluted due to bacterial contamination.
- Due to low coverage of sewage treatment facility, there is direct discharge of wastewater into the water bodies.

5.10 Municipal Solid Waste

The analysis of this section is based on the information for Kerala. The provision for solid waste management services is the main responsibility of local self-government institutions in the state of Kerala. It has been found that 70 % of the waste generated is bio-degradable in the state

followed by recyclable (15%) and inert material (10%)¹⁵.

Another source of information on MSW and performance of the services is the SLB gazette¹⁶ that is periodically updated through self-reporting by the urban local bodies. An analysis of the SLB report shows that coverage of households for solid waste management services in Ponnai (90) and Aluva (80) is less than 100 percent benchmark indicator. Cherthala, Kayamkulam, Angamaly, Eloor, Maradu, Perumboor, Mattantur, Kanhangad, Kasargod, South Paravoor, Kottayam, Vatakara, Kottakal, Perinthalamanna, Chittur and Kalpeta do not have coverage of households with solid waste management services. In terms of efficiency of collection of solid waste North Paravur, Irinjalakuda and Kothamangalam have 100 percent collection efficiency. Thalassery (2.5), Kunnankulam (6) and Pathanamthitta (8.4) have lowest percent of collection efficiency of solid waste. Manjeri, Th'puram, Irinjalakuda and Attingal are the ULBs with more than 80 percent of segregation of waste. Ottapalam is the only urban local body with 100 percent recovery of municipal solid waste. Th'puram and Kunnankulam have 100 percent scientific disposal of solid waste.

- None of the ULBs maintains any record of the quantity and composition of waste generated and the quantum of waste collected.
- There are no designated waste collection points in the urban local bodies.
- Lack of solid waste infrastructure such as public bins is not in place.
- Absence of door to door collection of waste.
- Lack of adequate staff for operation and management of solid waste management services.
- There is no scientific treatment facility in place.
- Lack of proper dumping site.

In accordance with the Draft Municipal Solid Wastes (Management and Handling) Rules, 2013¹⁷ all the states should develop a comprehensive state level municipal solid waste management strategy.

The ULBs will need to take adequate measures to reduce, reuse and

15 Presentation on "Solid Waste Management: Way Forward for Kerala", by Dr. George Chackacherry, Executive Director, Suchitwa Mission

16 Kerala Gazette Notification, March 2012

17 Draft of Municipal Solid Wastes (Management and Handling) Rules, 2013 as published vide Gazette dated 2 July 2013 as accessed on MoEF website

recycle (eg. plastic waste management) in order to minimize the costs for waste management for each ULB as well as the land requirements for the regional facilities. Options of composting for organic waste; co-processing of dry fractions of municipal waste in cement/ power sectors and/ waste incineration for energy production would need to be explored as part of the strategy. Financial sustainability for the ULBs for the solid waste management sector through user charges and property tax are also included in the strategy. Adequate measures such as strengthening the legal provision and institutional structure of ULBs will lead to the development of an environmentally compliant and sustainable system for the ULBs in the state. The strategy also looks into state level institutional arrangements and program support. The strategy will look into short and long term plans for urban local bodies to handle municipal solid waste.

6. INSTITUTIONAL ARRANGEMENTS FOR URBAN SANITATION

With established trends of growing proportion of population in the urban areas, it is imperative that the institutional structures for the delivery of urban sanitation services are streamlined. The urban sanitation sector can learn from counterpart rural area programming such as Total Sanitation Campaign (TSC), National Rural Health Mission (NRHM), *Sarva Shiksha Abhiyan* (SSA), Integrated Child Development Services (ICDS) in establishing such institutional structures with clearly laid out roles and responsibilities.

The role of state level agencies should be of a facilitator, regulator and handholding ULBs through technical assistance, capacity building and finances from its own budgetary resources or from GoI, External Support Agencies (ESA) and innovative mechanisms. Until ULBs develop their robust capacities, it is desired that the technical support is extended in planning, designing, implementation and O&M of urban sanitation services. Active involvement of local NGOs, community organizations, self-help groups of women will be ensured through awareness creation and community mobilization for increased ownership of the overall sanitation agenda at the local level. Promotion of active support to *Area Sabhas* at the Ward level with primary focus in eliciting women participation will be paramount to the achievement of the goals of the State Sanitation Strategy.

In line with the letter and the spirit of the 74th CAA, there will be four tier institutional structures;

6.1 State Level

- a) **State Mission on Urban Sanitation:** comprising of a i) Governing Body headed by the honorable Chief Minister with membership of relevant Ministers of the corresponding line departments ii) Executive Committee headed by Chief Secretary with membership of relevant Secretaries of the line department. The governing body, chaired by the Hon'ble Chief Minister, providing overall guidance and policy direction to urban sanitation initiatives in the state, and overseeing the planning and implementation of the state strategy.
- b) State level Nodal Agency on Urban Sanitation (SNUS): led by Suchitwa Mission and supported by a dedicated Urban Sanitation Cell or any other existing department may be formulated. The Suchitwa Mission to function as the Nodal Agency to support the operationalize the different components of the sanitation under the guidance of the SLSC and the state sanitation cell led by the Executive Director to provide technical, managerial and professional support in planning and implementation of state sanitation strategy.

6.2 Regional Level

- c) Regional Urban Sanitation Committee headed by such mechanism at the RDMA level and supported by Regional Cells respectively located in the regional office. The committee shall review the progress of sanitation activities, supervise and provide guidance.

6.3 District Level

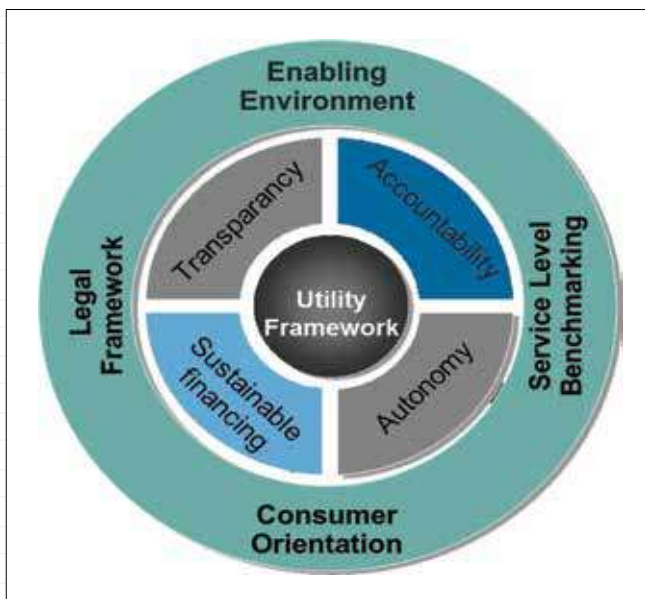
- d) **District Sanitation Mission:** headed by District Collector/ Magistrate under Nirmal Bharat Abhiyan (NBA) to be restructured by bringing in the urban sector in the purview and expanding the membership to the Mission and district level Executive Committee.

6.4 Urban Local Body Level

- e) **City Sanitation Task Force:** : a multi stakeholder comprising of representatives from shops and establishments, sanitary workers unions, educational institutions, women groups, contractors, NGO's, line departments, political and eminent personalities to be led by the Mayor along with the Executive head of the ULB shall be constituted . The City Sanitation task force shall be duly

supported by a City Sanitation Cell (CSC) that is staffed with relevant human resources. The cell shall be responsible for preparation and implementation of the city sanitation plan. The City Sanitation Task Force will be mainly responsible:

- Launching the City 100% Sanitation Campaign
- Generating awareness amongst the city's citizens and stakeholders
- Approving materials and progress reports provided by the implementing agency, other public agencies, as well as NGOs and private parties contracted by the Implementing Agency, for different aspects of implementation
- Approving the City Sanitation Plan for the city prepared after consultations with citizens
- Undertaking field visits from time to time to supervise progress



- Issue briefings to the press / media and state government about progress
 - Providing overall guidance to the Implementation Agency
- f) **Area Sabha Sanitation Committee:** to be led by the concerned Ward Councilor and membership of a representative from the Urban Health, Nutrition and Sanitation Committee (set up under Urban Health Mission), women SHGs and Ward / Zone level

Officials responsible for provisioning of water and sanitation services.

The above mentioned institutional structure will strengthen the urban development department for the purpose of functioning as a Sanitation Nodal Agency with a dedicated Sanitation Cell. The Cell shall function as part of the Suchitwa Mission organization set up with the responsibility to draft terms of reference of various tiers proposed here including roles and responsibilities. The ULBs will be responsible in 'letter' and 'spirit' for implementation of all the functions delegated as per the relevant Municipal Acts namely, Kerala Municipal Corporations Act, 1960, Municipalities Act, 1994 including (i) water supply (ii) sewerage, (iii) solid waste management and (iv) community health and (v) protection of the environment. ULBs will be responsible for planning, execution and operation and maintenance of all works related to water supply, sewerage, solid waste management and sanitation works.

Water & Sanitation Utilities: Clause 243-W and 243-X of the 74th CAA provides for the transfer of responsibilities and powers of providing water supply and sanitation services in urban areas to the respective urban local bodies.

GIZ's advisory¹⁸ on Indian Water & Sanitation Utility (IWSU) has recognized that the importance of building innate institutional capacities with the ULBs for effective and efficient delivery of water and sanitation services. This requires the creation and ring fencing of an Utility within the ambit of ULBs that is built on the core principles of autonomy, accountability, transparency and financial sustainability.

The overall responsibility for service provision remains with the ULB even where parastatals and other state level agencies are involved in service delivery. Departments and parastatals currently discharging these responsibilities will be accountable to the respective ULBs (including for example, receiving payments on certification by the ULBs).

As ULBs have the final responsibility for ensuring service delivery and to achieve sanitary and environmental outcomes it is important that effective monitoring mechanisms will have to be put in place.

18 Technical Advisory Committee (TAC) headed by Dr. N.C. Saxena

7. PLANNING FOR URBAN SANITATION

The urban planning deficit in the water and sanitation services in the country is widely recognized leading to urban infrastructure in the cities that are ad hoc, disjointed and lacks a long term perspective focus. The High Power Expert Committee report (March 2011) was the first such attempt at the national level to provide a long terms perspective to urban infrastructure in the country. It is desired that on similar pattern a state level high power committee is constituted to prepare a state level business / investment perspective plan for urban water and sanitation.

This State Sanitation Strategy (SSS) for the state of Kerala will be operationalized through an implementation framework led by SNUS (State Level Nodal Agency on Urban Sanitation) that develop a state level implementation plan, specifying clear responsibilities, resources, time frame, finances, operational components and guideline-sets.

In the recent years, NUSP, CPHEEO Draft Manual 2012 and Draft Municipal Solid Wastes (Management and Handling) Rules, 2013 and National River Conservation Directorate (NRCD) have all institutionalized the role of City Sanitation Plan (CSP) as the primary instrument of water and sanitation sector planning by the Municipal Authorities that covers all the relevant sub sectors (solid waste management, sanitation, water supply, storm water management, waste water management) in an integrated approach. In the state of Kerala, 20 cities have prepared their city sanitation plans namely; Attingal, Varkala, Pathanamthitta, Kottayam, Thodupuzha, Aluva, North Paravur, Kodungallur, Chalakudy, Guruvayoor, Kalpetta, Thaliparamba, Kannur, Kanhangad, Thalassery, Thrissur, Ponnani, Perinthalmanna, Tirur and Koyilandy. The city of Kochi has demonstrated this approach by preparation and development of a City Sanitation Plan.

8. DATA AND INFORMATION MANAGEMENT

The state shall build urban information and database baselines in line with the guidelines recommended under the National Urban Information System (MoUD 2006). This guideline is based on common denominators and Survey of India (SoI) standards and shall be applied (utilized) uniformly across all urban sector programmes and schemes. City officials are trained to make available latest state of art SoI maps of adequate resolution (1:10,000 and better) and uses WGS84 (World Global System 1984) as the datum for all their spatial information. Such an information system shall make best use of the GIS and MIS platforms that are rapid to access and retrievable for use in planning for urban infrastructure, creates compatible data formats and transforms MIS information (e.g for property mapping, census etc.) into spatial geo-referenced GIS files for further analysis and interpretation for all the important sectors (e.g water, waste water, solid waste, storm water)

The normative environment of the water and sanitation sector is defined by plethora of design, specifications and standards as issued time to time by CPHEEO, BIS, CPCB, MoEF, MoUD and others. SNUS will initiate a study of the water and sanitation sector normative environment available through repository of such documents and upon analytical assessment prepare technical guidelines that are relevant, appropriate and suitable for the topography of urban areas of the state.

Since ULBs have the final responsibility for ensuring all service delivery achieves sanitary and environmental outcomes therefore it is necessary that the state is refining and complementing existing national standards wherever adaption to the regional settings is required if and when required. The state shall provide proper training to the technical staff of the Municipal Authorities and in those technical guidelines that specifically cater to the needs of the state of Kerala. It would also require greater coordination with parastatals such as KWA and other state level agencies which are involved in service delivery.

Benchmarking of service levels based on 28 indicators as identified by MoUD serve as the basis of gazette notification by the state government on Service level Benchmark (SLBs). Benchmarking involves identifying industry best practices, measuring and comparing one's own performance against others, identifying key areas for improvement and upgrading to match the best. The self-reported status on performance on water and sanitation services has proved to be a useful tool to incentivize the

KOCHI CITY SANITATION PLAN: *Learning Experiences*

The learnt experiences from the Kochi City Sanitation Plan will be used to develop state level guidelines by SNUS (State Level Nodal Agency on Urban Sanitation) for use by all Municipal Authorities to prepare their City Sanitation Plan within the time period of two calendar years.

Prepare City Sanitation Plans at each ULB with short, medium and long-term actions for sanitation that will address current back-log and future demand. The CSP would be the primary documents for providing road-map to achievement of the sanitation goals in accordance with Sanitation Strategy.

SNUS will consolidate the CSP requirements into a state level CSP implementation plan specifying the time frame, finances, operational components and guideline-sets for these components, to enable the state to earmark resources.

Undertake Proper feasibility studies for projects including improved and comprehensive DPR system are available for sanitation projects that are based on community involvement where ever possible and address issues such as demographics, geotechnical, social, capacities, financial, institutional, technology choice, governance (local) mechanisms, operation and maintenance.

Priority should be given slums in addressing the issue of open defecation through individual and community toilets

Special emphasis will need to be given to urban centres that attract floating population seasonally (tourism) or sporadically (religious/cultural occasions) for planning.

Primacy should be given to zero – low cost interventions of the CSPs so as to improve the sanitary environment of the urban areas. Also, appropriate environment-friendly solutions would need to be incorporated for these locations.

Municipal Authorities in self-awareness and setting baselines for financial grants from national finance commission and state finance commission. The potential of SLBs for use in the public discourse has not been fully tapped. DWSMs (District Water and Sanitation Mission) will monitor the regular dissemination of the SLB performance. SLBs and its data management particularly on the improvement of the reliability scoring have not been given adequate attention. SNUS in cooperation with Regional Cell will help Municipal Authorities in preparing management plans for strengthening city level data base to improve the reliability scores for SLBs.

9. FINANCING OF URBAN SANITATION INVESTMENTS

A higher dependence on State Government for revenue income and the quantum of income which is uncertain poses financial management challenges to the local governments. The timing of the income and uncertainty of the quantum will not facilitate ULBs and / or service providers to do any kind of multi-year budgeting for meeting expenditure obligations. All financial planning will tend to be very short-term based and constrained by limited visibility in the revenue income.

The current urban financing framework relies significantly on the idea of resource transfers from the State Government to local Government Institutions by way of grants to fill the gap between the expenditure demand and the revenues demand. This takes away the advantage of buoyancy in revenues.

The local government revenue mix will need to have greater share of own-share income. It is observed that the powers of taxation of the local governments as defined by the respective acts have several constraints and limitations. These have also been major contributors in restraining the revenue bases of the ULBs. There is a need for a greater degree of freedom to allow the ULBs to raise taxes and duties and existing statutes may be amended to provide such powers.

The enhancement of the own revenue income needs to be achieved by optimizing income from existing assigned sources and adding new sources of income added such as a consumption-linked income source like a local body tax. A revenue-income base for which local governments are more responsible for rather than being considerably dependent on the State Government for fiscal transfers is desired in the long-run.

- i.** A dedicated State Urban Sanitation Fund (SUSF) may be set up under the budget of Suchitwa Mision with outlay from the state budget, supplemented by any provisions from MoUD, GoI. The proposed SUSF will be utilized for urban sanitation, and will focus on assisting the ULBs in the management – planning, communication, monitoring, etc. - aspects of urban sanitation. Guidelines for access and use of this fund would be framed and the SNUS will advise the department on the approval and sanction of ULB proposals. It will be mandatory for ULBs to commit to prepare the CSP for accessing this fund, and subsequent fund flows will be conditional with the implementation of the CSP.
- ii.** The consolidation of ULB City Sanitation Plans (anticipated over the 2014-2018 period) at the state level would indicate financing requirements for implementing total sanitation in the urban areas of the state.
- iii.** A portfolio of funding sources - funds available through schemes like JnNURM, BSUP, IHSDP, UIDSSMT, ILCS and RAY; funds committed through externally aided projects, PPP options with private or corporate sector – and possibilities of partnerships with NGOs, private sector and other sanitation sector participants would be explored by the SNUS and clear guidelines issued to the ULB on the nature and modalities for accessing these.
- iv.** Suchitwa Mission will earmark a certain percentage of its annual budget over three succeeding financial years (from FY 2014-15 to FY 2017-18); towards soft components-behavior change communication, technical support and administrative cost, which is essential to set the strategy in place and implement action plans.
- v.** The ULBs concerned will earmark a certain percentage of their own resources to be spent on creating and maintaining vital sanitation infrastructures in the city on sustainable basis; with objectively verifiable results thereof. This will be adjudged as an initiative towards ODF status.
- vi.** Providing access of households to a variety of micro-credit options through self-help groups (SHGs), microfinance institutions (MFIs), credit cooperative societies or the new housing finance companies being set up with a focus on small loans
- vii.** Greater focus is needed on mobilising local resources, as well as evolving innovative ways such as results-based funding and grants, and creating avenues for funding by CSR and social investors through new instruments

10. SECTOR REGULATION - MONITORING AND INCENTIVES

Sanitation ratings and ranking exercise conducted for few ULBs in the state of Kerala during last sanitation ranking. This will be extended to cover all the ULBs in the state of Kerala and they will be used to establish reward scheme. The participation of primary stakeholders i.e. users of services will be encouraged. Also, a Clean School Campaign that is used for establishment of annual award schemes will be set up.

There is a need to institutionalize incentives schemes that encourage the Municipal bodies to prioritize sanitation on the pattern similar to *Swachh Bharat Abhiyan (gramin)* for the rural areas.

The state needs to provide a regulatory role in promotion of the 74th CAA while undertaking the monitoring functions. The state will need to enforce achievement of the defined benchmarks and can use this tool for monitoring performance by linking funding with progress towards achieving service level benchmarks. ULBs are encouraged to participate in 'third party assessments' that will help in bringing about required modifications in approach to service delivery for holistic outcomes. Therefore, the state will have to introduce citizens' report cards, citizens' monitoring committees, self-assessment system, inter-city competitions, concurrent evaluation and third party assessments as monitoring tool for improving urban governance of water and sanitation services.

11. CAPACITY BUILDING

In the context of this strategy, it is recognized that there is a need to improve the efficiency of the state departments and the ULBs across the state through a systematic approach, of which training is an important component. It is understood that capacity development is a long-term process that requires systematic and continuous effort at state as well as ULB level, both from the demand and supply perspective of service delivery.

Currently, Kerala Institute of Local Administration (KILA) and Administrative Staff College of India (ASCI) are the apex training institute at the state level offering training on a wide range of subjects for various government programmes and departments. The other training institutes include the RCEUS NIUM. However, it does not have a dedicated centre

for the urban sector as in the other states such as YASHADA, ATI etc. To support the implementation of SSS in Kerala it is necessary to have a dedicated Centre with adequate domain expertise to address the training needs of the state department as well as 520 ULBs across the state. The state will therefore tap funding opportunities that are being offered by MoUD to the maximum possible to establish State Institute of Urban Development (SIUD) or restructuring existing insitutions.

The provisions for training and capacity building with appropriate state training policies for the sanitation sector and Annual Action Plans for Urban Development Department, KWA and ULBs will be defined. Further training should be linked to development of competencies of individuals and to career progression as well as suitable amendment of service rules etc. The ULBs may be strengthened through adequate staffing ensuring all relevant posts in the various departments are filled. A dedicated training cell with a training manager may be created within SNUS and the municipal corporations within the state. Dedicated funds for training and capacity building activities may be provided.

As ULBs have final responsibility for ensuring all service delivery achieves sanitary and environmental outcomes, it is therefore prudent to establish innate capacities within the ULB. Since urban local bodies are required to provide better urban services to the citizens and also to ensure planned development of the urban areas, there is a need to have a dedicated Municipal Cadre to meet the requirement of functional domain of the urban local bodies. Significant increase in urban population as well as financial transactions of ULB and implementation of urban reforms along with centrally sponsored/externally aided projects are added responsibilities of ULBs. These challenges necessitate separate municipal cadres in administrative, accounts, engineering and other technical services. Creation of Municipal Cadre will help in improving the performance of the urban local bodies and attract qualified people to the services. A Cadre will facilitate career opportunities for the persons working in the municipalities and sharing of experiences across cities. A scoping study on establishment of the municipal cadre will be required to build strong foundation for the Municipalities.

The sanitation has experienced significant skills flight and now has a lack of capacity at all levels. Lack of skilled staff to manage this function adversely impacts the service delivery. Recognizing limitation in finding quality technical human resources, a long term view to the challenge is through gearing our technical institutes of higher education as well as vocational training to tailor courses of global standards

The actions shall include:

- Assessment of training capacities for sanitation related skills.
- Creation of Municipal Cadre will help in improving the performance of the urban local bodies and attract qualified people to the services. A Cadre will facilitate career opportunities for the persons working in the municipalities and sharing of experiences across cities. A scoping study on establishment of the municipal cadre will be required to build strong foundation for the Municipalities.
- Establish sufficient capacities in Higher Education that enables state and city departments to execute sanitation obligations in the field of Environmental Management, Environmental Engineering, Water Resource Management and other related fields.
- Establish sufficient capacities in Vocational Training that enables state and city departments to execute sanitation obligations in the field of household plumbing, network plumbing and any other related skills for sanitation operation.
- Develop a sector capacity development frame work, clarify the scope and nature of capacity needs through a comprehensive sector capacity needs assessment.
- Refresher courses and long term courses such as the post graduate diploma in sanitation, operator training programmes
- Professional skills strengthening through short targeted courses and regular refresher courses for the staff in sanitation.
- Review of training curriculum against the needs of the water supply and sanitation sector on conducting a Training Needs Assessment
- Capacity building programs will also need to target artisans (builders, pump mechanics, well sinkers), planners, community mobilizers, hygiene promoters, and community leaders. Guidance on good business practices will be needed for local entrepreneurs, NGO and private sector institutions involved in component supply chains.

12. CLIMATE CHANGE AND WASH SERVICES

Climate change is recognized as one of the defining challenges for the 21st century. More frequent and intense extreme weather events

experienced through droughts, floods and less predictable rainfall and water flows, to name a few. These will place established water and sanitation services – and future gains in access and service quality – at real risk. Water supply and sanitation are affected by climate change and have an impact on climate change. The carbon footprint of water supply and sanitation such as energy used in pumping can be significant. The effects of climate impacts on sanitation may be direct – where water is an essential part of the technology process (e.g. sewerage) – or indirect – where the capacity of the environment to absorb or reduce the adverse effects of wastes is changed.

Climate change, manifested in floods, pose a potential threat to the sanitation and hygiene sector. Extreme events such as floods can damage septic tanks, waste processing facilities and sewerage systems, resulting in contamination of groundwater and increasing public health risks. Similarly, in drying environments, conventional sewerage systems, with relatively high water requirements are difficult to operate and maintain. Increasing urbanization results in issues of discharge of untreated sewage and solid waste will increase, thereby compounding the problem arising from climate change.

While there is evidence to generalize which technologies is more and less likely to be climate change resilient in a given region, we lack tools to assess the climate change resilience of a technology in a given specific location. Developing such tools is a priority. Also, building knowledge to review programming and operations to assess and increase the achievement of resilience of climate change will be pursued.

In line with National Action Plan on Climate Change (NAPCC), Government of Kerala will make a commitment to address the “challenge of urbanization”.

Even though Climate change poses a threat to sanitation but not yet been integrated into regional and local level planning.

- Sanitation needs to be factored into climate change responses at regional and local governmental levels as part of disaster management response.
- The state to act on climate change through facilitating the integration of climate change adaptation into regional and local planning.

The state to develop action plan for a rapid response to climate change disasters like flooding, to reduce the impact on people, infrastructure and sanitation in coordination with the disaster management team at the district level.

Suchitwa Mission will work on establishing a Working Group on Sustainable Urban Habitat (WGSUH) to prepare State Plan of Action on Urban Climate Change in line with the National Mission on Sustainable Urban Habitat.

13. IMPLEMENTATION FRAMEWORK OF SSS

Based on forgoing analytical discussions anchored in best available evidence, and covering all above mentioned issues the implementation of the Kerala State Sanitation Strategy should focus around two areas:

- (a) **Smart Kerala Campaign:** This will focus upon the planning and technical measures such as septage management, open defecation free state, all urban centers to be equipped with city sanitation plans, technical guidelines for services in sanitation sector.
- (b) **Institutional Strengthening:** The focus here will be upon strengthening of the existing institutions and capacity building.

The broad areas of recommendation as mentioned above have been detailed out under planning & financial, technical and institutional measures which are mentioned in detail below:

Planning & Financial measures:

- 13.1 State Urban Policy is developed that tackles the perspective planning for urbanization and urban growth in the state including the aspect of urban definition in the context of the state of Kerala within two years of Kerala SSS adoption.
- 13.2 All urban centers are equipped with City Sanitation Plans (CSPs) in next two years with technical assistance from the institutional structures and financial assistance from the Suchitwa Mission.
- 13.3 A State Urban Sanitation Fund (SUSF) to establish under the Suchitwa Mission for budget year 2014-15 onwards with an initial financial allocation of Rs. 10 Crores.
- 13.4 Sanitation rating and ranking is rolled out for all urban centers on pattern similar to national sanitation ranking and undertaken annually.
- 13.5 Annual Award Schemes are launched by the state government

on the pattern of *Nirmal Bharat Abhiyan* (NBA) for urban areas.

- 13.6 Citizens' report cards, citizens' monitoring committees, self-assessment system, inter-city competitions, concurrent evaluation and third party assessments as monitoring tool for improving urban governance of water and sanitation services are introduced.
- 13.7 On the pattern of HPEC Report at the national level, state government will develop a sector business / investment plan that uses relevant normative regimes for urbanization for cost estimates.

Technical Measures:

- 13.8 State Plan of Action for Septage Management is developed in next two years that considers the multi-dimensional facet of the problems to guide the municipal authorities in preparation of waste water laws and its implementation. Being a leading state in operation, design and production of septic tanks, Kerala state should take a lead to further improve its knowledge and develop solutions for city – wide application.
- 13.9 Develop State level Plan on Universalizing 24 X 7 Drinking Water in the state including the financial sustainability. To ensure the urban population have 100% access to piped water supply, mostly through individual connections.
- 13.10 State Strategy on Integrated Municipal Solid Waste, as endorsed is disseminated in the state in next three months and used to formulate city action plans by the municipal authority as well as regional concepts that aim to meet the relevant service level bench mark for all urban local bodies in next five years.
- 13.11 Universal access to sanitary toilet in all urban areas of Kerala is achieved within a year of SSS adoption and sustained for three years so as to be declared as having achieved status of Kerala state as open defecation free.
- 13.12 A state level action plan for promotion of universalizing gender sensitive urban sanitation in underserved areas, toilet blocks in public spaces and institutions such as market, schools, anganwadi centers and health posts (under National Urban Health Mission) is prepared in next two years. It would also

take into consideration that proper cleanliness and hygiene is maintained.

- 13.13** Scope for improved management of storm water drainage is fully understood with the perspectives of recovery, recycling and reusing through a scientific study in select cities.
- 13.14** An Integral Urban Information System (IUIS) is established in the Suchitwa Mission with data management protocol that is developed based on field level data and information need assessment with Municipal Authorities. The cutting edge technology is applied in making use of MIS and GIS for database archiving and retrieval functions.
- 13.15** Technical guidelines are developed on comprehensive range of services in the water, waste water and sanitation sector matching the needs of the physical characteristics of urban centers in next three years. The guidelines will focus on establishing normative framework that exceeds national standards to promote outcomes on public health, environment and quality of human life.

The technical measures will be undertaken as “short –term” measures intended to be completed within 5 years and “long-term” measures by 10 – 15 years.

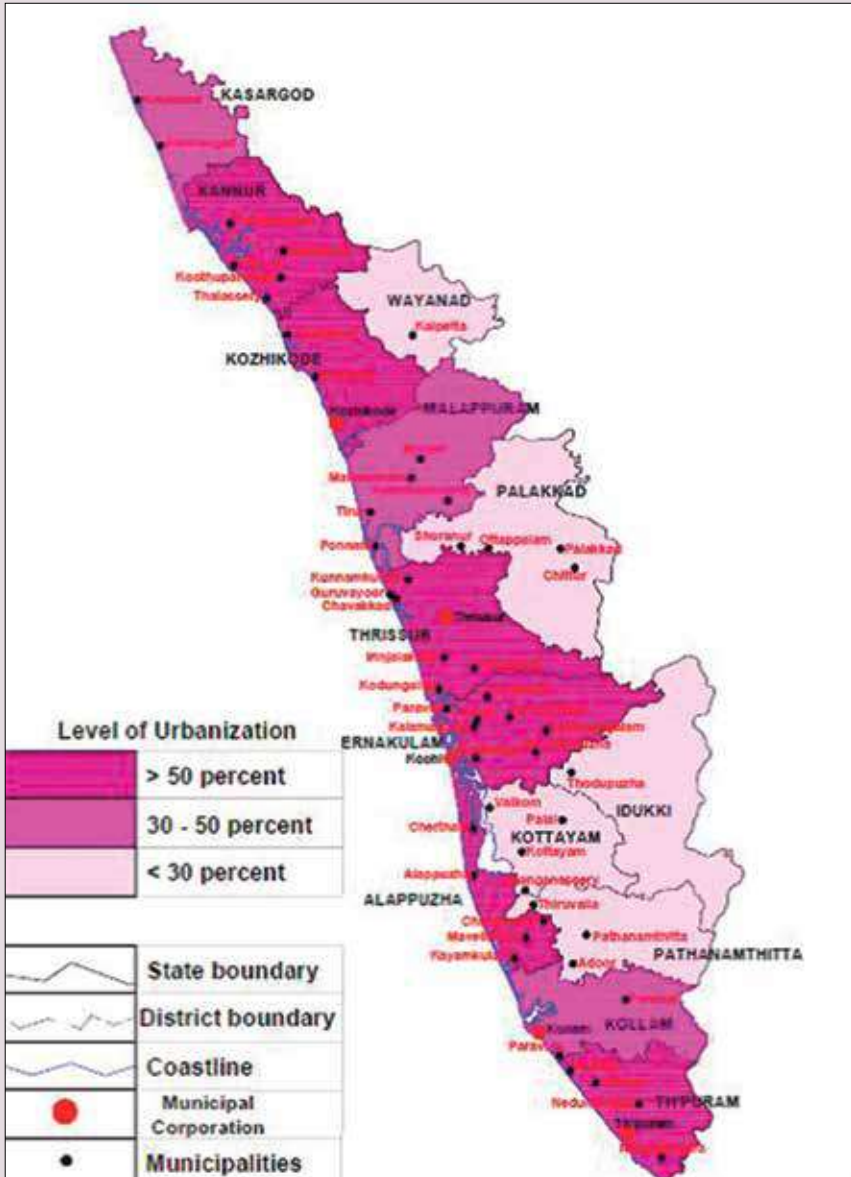
Institutional & Capacity Building:

- 13.16** Setting up of sanitation cell and strengthening of sanitation mission.
- 13.17** A regular review of the Kerala SSS will be required for the purpose of reviewing & monitoring the progress towards the goal and vision that translates in concrete outcomes in the lives of people living in urban areas but also to undertake mid-course correction in light of better insight in to the field level feedback coming from the citizens and Municipal Authorities.
- 13.18 (a)** State advisory on establishing effective, efficient and user responsive water and sanitation utilities for municipal authorities is issued through a government notification.
- 13.18 (b)** The institutional structures for delivery of urban sanitation in the state are established across tiers from state in light of 74th CAA to area *sabha* in next two years equipped with staff, budget and clear roles and responsibilities.

- 13.19** State government will harness the resources offered by MoUD in establishing State Institute of Urban Development (SIUD) that has a capacity development plan at the state level based on the training / capacity need assessment of the ULBs and stakeholders including the elected representatives.
- 13.20** A Working Group is established by Government of Kerala on Sustainable Urban Habitat focusing on climate change challenges of urban areas including the aspects related to water and sanitation that prepare a State Action Plan on Cities and Climate Change in Kerala.
- 13.21** State level Communication Plan for promotion of hygiene and sanitation in urban areas is prepared based on formative research and advanced research methods.

A wider dissemination of the Kerala SSS itself is also required amongst various stakeholders including the elected representatives of the Urban Local Bodies (ULBs) so as to ensure that the sector directions are coherent and directional for the state as a whole. The use of appropriate communication methods such as mass media, public contact programmes and advocacy campaigns will be used for popularizing the intent and purpose of the Kerala SSS.

Annexure 1: Level of Urbanization in Kerala



Annexure 2:
Percentage of urban of households practicing Open Defecation



Annexure 3:
Percentage of urban of households having
Septic Tanks



