

UPSCALING SANITATION

Instruments and Initiatives Across India

The Road to 100% City Sanitation



SUPPORT TO THE NATIONAL URBAN SANITATION POLICY

IMPRINT

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Support to the National Urban Sanitation Policy II (SNUSP II)

2nd Floor, B5/2 Safdarjung Enclave

New Delhi 110 029, India

T +91 11 49495353

F +91 11 49495391

I: www.urbansanitation.org

www.publicsanitation.org

Responsible:

Dirk Walther

Project Director

Support to the National Urban Sanitation Policy Programme II

E: dirk.walther@giz.de

Author and Editor

Soma Biswas, Inga Mareile Luehr and Radhika Viswanathan

Contributed by

SNUSP Team and GOPA Worldwide Consultants

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foreword



DIRK WALTHER
Project Director
Support to the National Urban Sanitation
Policy (SNUSP) GIZ-India

Sanitation remains a critical issue in growing cities, across the globe. In the context of developing countries like India it poses opportunities and threats. Rapid growing population in cities makes it difficult to cope with providing quality services to all its citizens and thus maintain healthy, environmental friendly and livable cities. However this vision is what Government

of India has envisaged in its National Urban Sanitation Policy (NUSP) in 2008. The NUSP is a comprehensive policy framework to improve municipal sanitation systems in a sector-oriented and holistic manner. To reinforce its commitment towards improved sanitation, the Government of India in 2014 launched various flagship programmes such as Swachh Bharat Mission (SBM), AMRUT and Smart Cities with the aim to make the cities a better place. For India with its large and diverse population this is a very challenging task.

The well drafted NUSP framework convinced the German government under the guidance of German Federal Ministry for Economic Cooperation and Development (BMZ) to supporting the implementation of this policy and mission programmes aiming towards 100 per cent open defecation-free, healthy and sanitised cities. In 2011, GIZ and MoHUA, under Indo-German partnership programme, joined hands and started the project ‘Support to the National Urban Sanitation Policy (SNUSP)’. This brochure provides comprehensive information on the strategy and findings of the 2nd phase from 2014 to March 2018.

SNUSP II emphasised on the state, due to India’s federal structure in the sanitation sector. Moreover under the new focus of the national

Government of India, which is Sanitation, the state is expected to play a critical role in improving its sanitation facilities and services. SNUSP II supported the states in preparing strategies, roadmap and framework for quality implementation. The project also supported cities to strengthen its capacities in planning and implementation of projects. The focus of the support by GIZ was to improve systems and processes of the existing government system so that sustainable quality projects can be made possible on the ground.

This impact brochure introduces the reader to the main objectives and interventions of the project and highlights hands-on experiences from the ground. The brochure has been divided into three sections –

1. **Overview section** – to give an overview of the sector and project across 5 states in 4 years.
2. **Project factsheets** of National Ministry and States.
3. **Impact Stories** – These are stories depicting the ground realities that gives us the glimpses of the support provided by SNUSP and its impacts on lives.

The main focus of this brochure lies to showcase the impact of the project SNUSP II on people living in cities, institutional processes such as sanitation planning and policy making at national, state and city level.

Sanitation has now gained a new political momentum in India, becoming one of the main priorities of the government. We at GIZ are excited about these recent developments and feel proud to be associated in its crucial phase of implementation. GIZ contributed to support the Government of India in implementing the National Urban Sanitation Policy and SBM at improving lives in urban spaces. We will continue to work with ministry and contribute in the sector to achieving healthy and livable cities for the benefit of all urban citizens through the new sector programme on Sustainable Urban & Industrial Development.

– DIRK WALTHER

project overview



Background

URBAN SANITATION: A GLOBAL CHALLENGE

Today, half of the world's population lives in cities. That is 3.5 billion people – and this trend is rising. Strikingly, this 50% inhabits merely 3% of Earth's landmass. Yet, urban centres account for 60–80% of all energy consumption and 75% of the planet's carbon emissions. Estimates indicate that by 2030, six out of 10 people will be city dwellers. Close to 95% of this urban expansion will take place in the developing world. Rapid urbanisation is exerting pressure on fresh water supplies, sewage, flora and fauna and public health. Rapid urbanisation leads to congestion with basic services, housing and infrastructure unable to keep pace. Already, 30% of the world's urban population lives in slums. In sub-Saharan Africa, more than half of all city dwellers are slum dwellers. Death from diseases associated with inadequate water supply, sanitation, and hygiene is soaring, with millions of people – most of them children – dying every year.

Half of the world's population lives in cities. More than 30% of the urban population do not have access to adequate and sustainable sanitation. In particular, the management of wastewater and solid waste, as well as open defecation, all pose serious hygiene, health and environment threats.

The Sustainable Development Goals (SDGs) have committed the international community to expand cooperation and capacity building on water- and sanitation-related activities and programmes. The following goals are especially relevant:

6 CLEAN WATER AND SANITATION



Support local communities in improving water and sanitation management

11 SUSTAINABLE CITIES AND COMMUNITIES



Making cities and human settlements inclusive, safe, resilient and sustainable

Urban centres face a series of challenges, especially:

- **Lagging sanitation infrastructure and facilities:** Unprepared for the explosion in size and population of cities, the construction and maintenance of sanitation infrastructure and facilities lag way behind.
- **Open defecation:** Many citizens, especially those residing in slum areas, do not have access to toilets. Toilets are either non-existent or poorly equipped, forcing citizens to defecate in the open.
- **Inadequate treatment of wastewater:** A large chunk of households remain unconnected to the sewage system. Black water overflowing into sewage drains, defunct pipelines, open drains, ineffective wastewater treatment and dumping of solid waste in open areas are all factors that pollute landscapes, surface and groundwater, leaving a foul stench across cities.
- **Severe health impact:** Citizens, especially women and girls, are severely affected by poor sanitation facilities and management. They suffer from corresponding hygiene, health and safety related problems. For instance, health-related diseases are often linked to defunct sanitation, such as open drains, overflowing septic tanks and untreated grey water. As a result, water as well as vector-borne diseases, such as cholera, jaundice, dengue and malaria, are rampant in poorly sanitized areas.
- **Lack of capacities and funds:** Urban centres worldwide lack innovation, know-how, capacities and finances to tackle the sanitation challenge. This explains why long outdated water based flush sewer systems from the 18th century that merely focus on the transport of faeces using water in deep sewer systems and these are still state-of-the-art technology used in water staved countries, have not been replaced by new and more adequate sanitation solutions.
- **Inadequate management of municipal solid waste:** littering, open burning, inadequate collection of waste; lack or non-existent processing of collected waste and large scale dumping are some of the issues prevalent in most cities in India. Burning, foul smell, leachate, uncollected littering in nalas, lakes, etc. all cause of air, water (surface and ground) and soil pollution resulting in an unhealthy living environment in cities.

SANITATION IN URBAN INDIA

The Government of India has long acknowledged the importance of sanitation. The National Urban Sanitation Policy (NUSP) is a comprehensive policy framework to improve municipal sanitation systems in a sector-oriented holistic manner. The policy guides states and cities by providing an overall conceptual framework, for planning and implementation of sanitation measures. Comprehensive sanitation planning is organised through state- and city-level planning instruments that facilitates cities in improving health and environmental conditions in the long run.

Moreover, the Government of India reinforced its commitment to sanitation under its “Clean India” campaign, introducing several flagship programmes that have a clear focus on sustainable urban development including urban infrastructure and services improvements and providing financial resources. An important regulatory step has been the publishing of the Solid Waste Management Rules, 2016.

The policies, public programmes and rules provide the overall framework for positive development. Yet, Urban Local Bodies (ULBs) have limited expertise, manpower and experience to implement and manage the public programmes. This particularly relates to the identification of

appropriate sanitation concepts and technology, attaining funding, effectively planning and managing sanitation projects as well as upscaling successful solutions. Subsequently, Indian cities continue to face critical infrastructure shortages and service gaps. To improve urban sanitation, ULBs have to master the following challenges:

- Identify citywide sanitation solutions for all citizens that are suitable to the locality and are sustainable in the long term.
- Design, implement and manage holistic infrastructure projects addressing black and grey water as well as septage.
- Adapt prevailing technology to the Indian scenario, with focus on efficiency and climate resilience.
- Understand how to attain funding to finance the sanitation infrastructure.
- Evolve with upscaling mechanism to mainstream successful solutions.

Building the capacity of state and city actors, while creating conducive framework conditions and processes need to be at the centre of the sanitation drive. Only then will a demand-oriented expansion, upgradation and maintenance of the cities’ sanitation infrastructure, which need to go hand in hand with a user-friendly and efficient service provision, become possible.

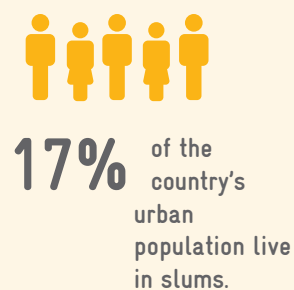
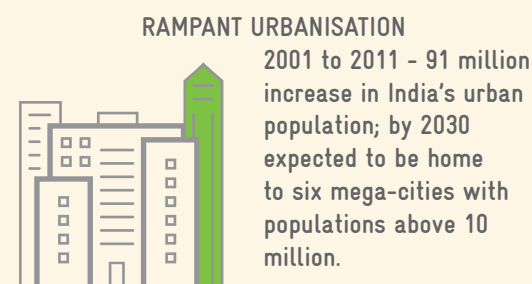
The National Urban Sanitation Policy (NUSP), launched by the Ministry of Housing and Urban Affairs (MoHUA), earlier known as Ministry of Urban Development (MoUD), in 2008 envisions:

- (1) All Indian cities and towns become totally sanitized, healthy and livable, and
- (2) Ensure and sustain good public health and environmental outcomes for all their citizens; with
- (3) Special focus on hygienic and affordable sanitation facilities for the urban poor and women.

Flagship Programmes under the MoHUA that are relevant for the sanitation sector:

- Swachh Bharat Mission (SBM), with the overarching objective of cleaning India;
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT), aiming to provide basic services such as water supply, sewerage, urban transport to households and related amenities to improve the quality of life for citizens;
- Namami Gange Programme, focusing on the rejuvenation of the River Ganga; and
- Smart Cities Mission (SCM), addressing challenges faced by urban spaces.

Sanitation Challenges In Urban Centres



Urban Local Bodies lack capacities and consistent planning to improve urban sanitation.

The Indo-German Support to the National Urban Sanitation Policy

ENSURING SYSTEMATIC PLANNING, PROCESSES AND CAPACITY BUILDING RATHER THAN QUICK-FIX SOLUTIONS

The Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been supporting the Ministry of Housing and Urban Affairs (MoHUA), earlier known as Ministry of Urban Development (MoUD), in the implementation of the Sanitation Policy since April 2011.

Under the Support to the National Urban Sanitation Policy (SNUSP) Programme (2011–2014), GIZ supported MoHUA in bringing to life the National Urban Sanitation Policy's planning instruments, namely the State Sanitation Strategies (SSS) and City Sanitation Plans (CSP). Additionally, the Programme also supported selected cities in preparing Detailed Project Reports (DPR), which are an important planning documents of the Government of India to identify funding and seek for technical and administrative sanctioning of infrastructure projects. Together with the Ministry, states and cities, the Programme designed high-quality, demand-oriented planning documents and provided corresponding guidelines on the respective planning steps, processes and tools to be followed that were in line with the Government's Flagship Programmes.

During the implementation of the SNUSP Programme, it became evident that ad hoc solutions do not reap sustainable results and that the Government's sanitation agenda can only be achieved when applying a holistic citywide approach. The urban sanitation system is complex and affected by many variables, such as population growth, migration, unauthorised colonies, industrial development, lack of capacities, funds, scarcity of resources, interdepartmental coordination and existing infrastructure and practices. Understanding the ground realities is a prerequisite to identify integrated, locally adapted and sustainable solutions.

India's federal system mandates sanitation decisions at the state level. However, this requires states to be stronger and their cities to have the

capacities to independently prepare and implement the respective high quality sanitation strategies, and infrastructure projects. States have to facilitate cities in preparing high quality CSPs and guide them in their implementation. Cities need to understand policies and regulations and convert them into tangible actions in the form of investment projects under the different government schemes. Yet, such guiding support from the state and central government authorities are limited, and investments for such activities still remains tiny fraction in the overall scheme. Hence stagnation and frustration among the state officers and ULBs remains most crucial factor hampering development when trying to translate sanitation-related policies and programmes into practice.



Signing of implementation agreement between MoHUA and GIZ

To support Indian states and their cities to independently plan and take effective measures against pollution caused by wastewater and municipal solid waste, GIZ and MoUD, now MoHUA, initiated the “Support to National Urban Sanitation Policy II” (SNUSP II) Project (2014–2018). The project built on the experiences and tools developed under its predecessor programme and took them to the next level – making the existing instrument functional and creating a system that ensures the institutional capacities to facilitate sustainable sanitation improvements.



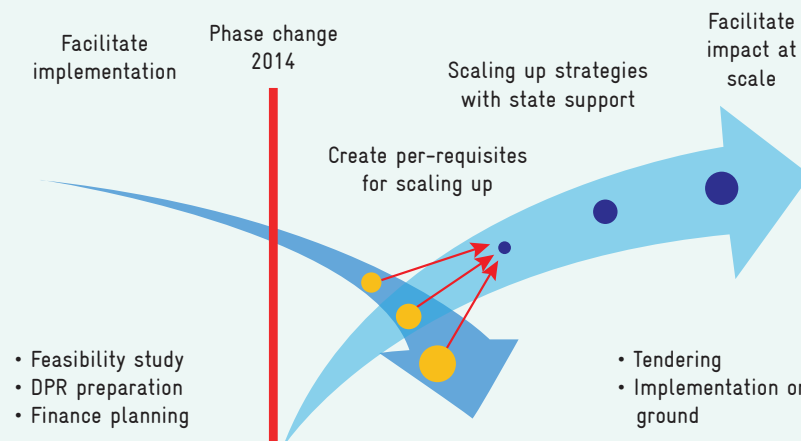
Signing of supplementary agreement between MoHUA and GIZ

Some of the key learnings from the first phase was that development of sanitation infrastructure does not follow a comprehensive planning and implementation approach. Consequently several aversive effects for sanitation infrastructure are observed:

- (A) Treatment plants are designed in isolation, without taking care of sewer systems or assuming that prevailing open drainages are taking care of the wastewater conveyance within the city premises (so called interception and diversion). This approach is neither in compliance with the Model Health Act nor with Environment Protection Act.
- (B) Sewer systems are designed without operationalising the connectivity to single households. Neither finances nor the regulatory enforcement mechanism are clarified in the forefront of project implementation.
- (C) Septic tanks are not designed for grey water treatment. Prevailing Government of India’s mission programmes focusing on septic tanks and septage or faecal sludge management excluding or notwithstanding that grey water is equally hazardous and affecting public health like black water and hence is integrative part of sanitation and has to be planned.

It was one of the important agenda points of SNUSP II to look into these prevailing technical misconceptions and come up with adequate advisories and technical solutions e.g., through it’s advisory on ‘Integrated Wastewater and Septage Management’; the non-conventional sanitation project in Kochi (receiver of Scotch Award, 2017); training for plumbers and manual for household connectivity.

Scaling up Strategy though State Level

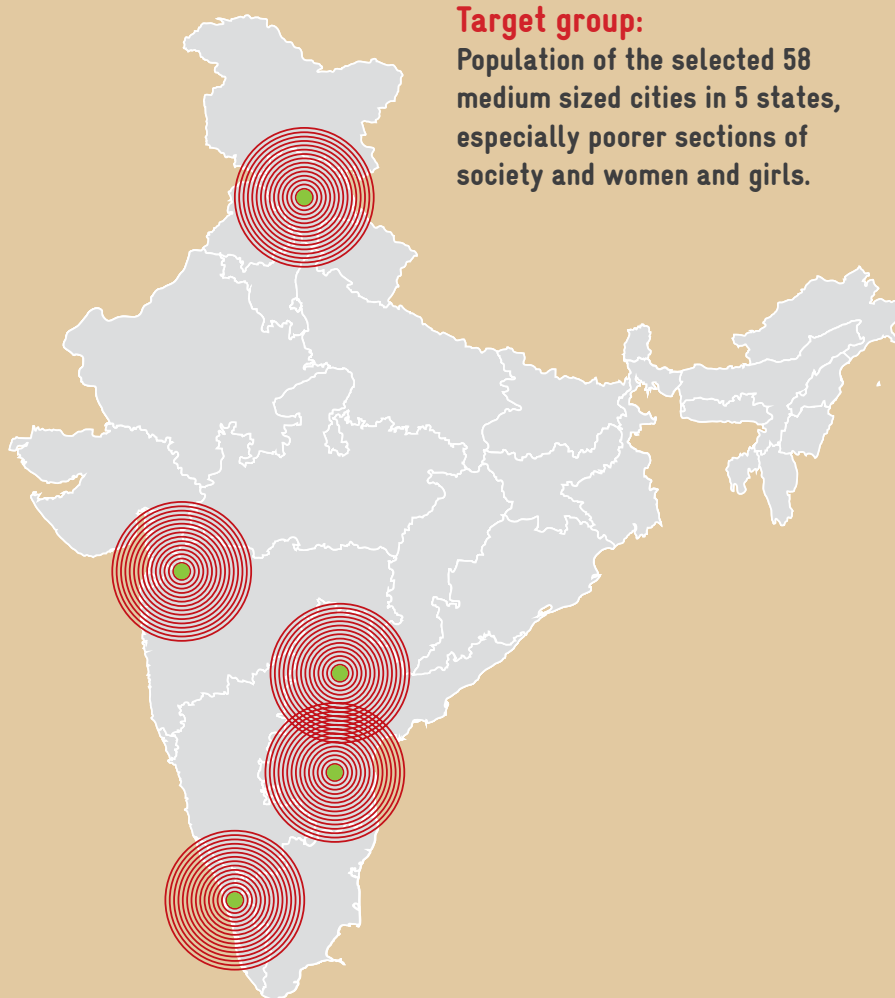


Making the existing instrument functional and creating a system that ensures institutional capacities to create a conducive and enabling environment for sanitation planning and implementation (upscaling & sustainability)

Project Scope

Interventions to improve the management of municipal solid waste, wastewater and public and community toilets are jointly planned and implemented with the 5 partner states. Four states have developed and piloted the CSP Training for 58 cities. Moreover, more than 30 investment projects have been supported in different cities across the 5 states. While SNUSP II main interventions focus on enabling the state actors to drive sanitation improvements across their urban centres, the national level is supported in providing the required framework. Knowledge sharing across all three intervention levels facilitates demand-oriented policies, guidelines and locally suitable sanitation solutions. To ensure coordination and upscaling, cells at national and state levels have been established.

GIZ Intervention Areas



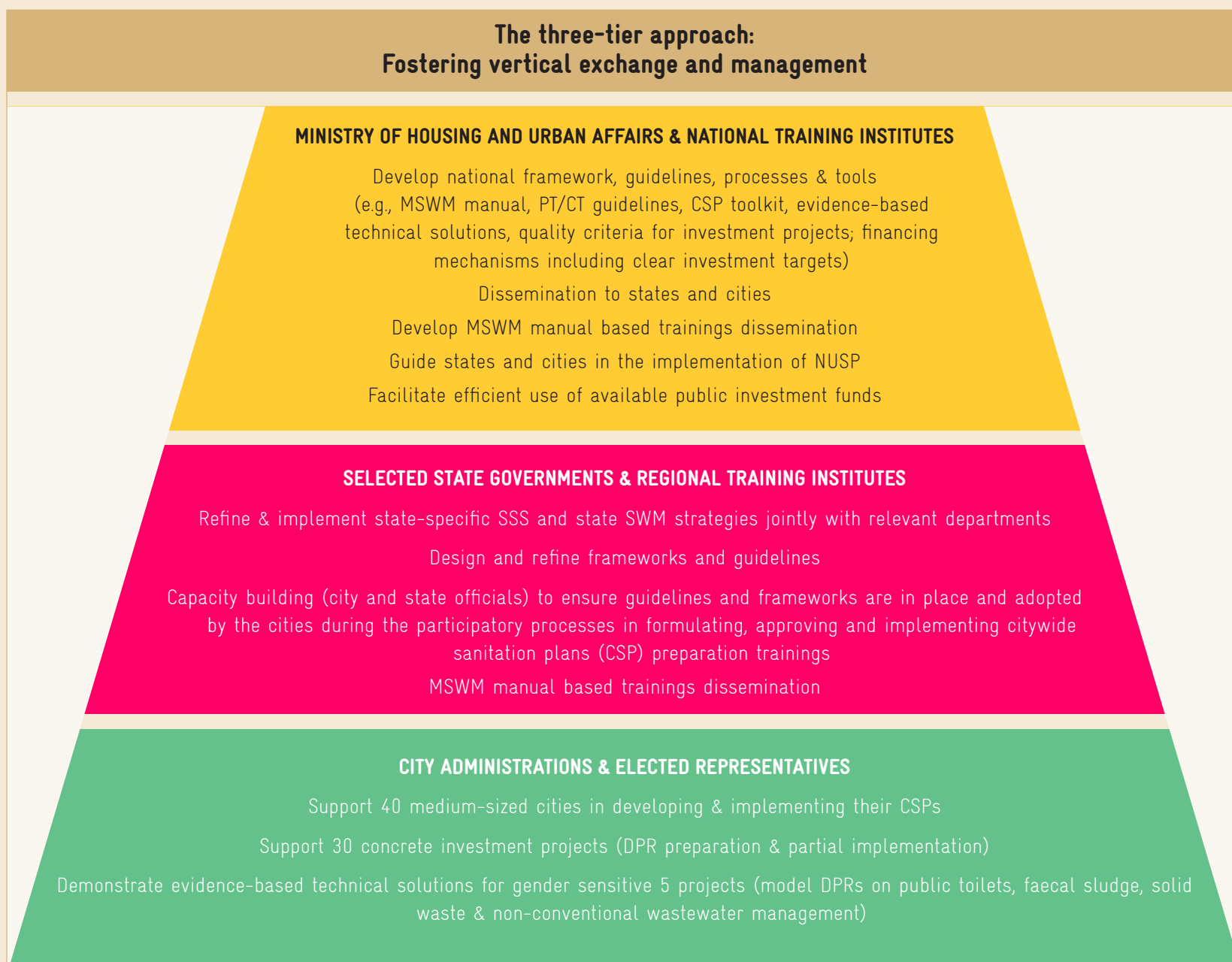
CONSISTENCY IN APPROACH: MAINTAINING THE PROGRAMMATIC LOGIC

The SNUSP II Project focused on upscaling successfully demonstrated and proven urban sanitation solutions and tools in municipal waste, wastewater as well as public and community toilets for broad impact. To ensure a holistic sanitation approach that exploits the synergies and funding opportunities under the new public programmes, SNUSP II was expanded to Uttarakhand (focal state of the Government's Namami Gange Programme) and to include solid waste management (formerly supported under the Indo-German Environment Partnership Programme). The Project focused on building the capacities of key stakeholders in creating a conducive and enabling environment for sanitation planning and implementation (e.g., capacity building, knowledge exchange, administrative regulations, financing mechanisms, promotion of innovative technical solutions through preparing and partially implementing specific investment projects). The system of capacity building and knowledge sharing has been institutionalised and anchored at the state level, providing all Indian states and cities with the tools, approaches and skills required to a fully clean and sanitized urban India. At the same time, process and implementation-related best practices, experiences and demands were fed back at the policy level. The systematic and process-oriented approach enabled SNUSP II to build the foundation for effective wastewater and solid waste management in India. As a result more than 40 sanitation projects could be facilitated and are being replicated across India rather than simply handholding a few selected cities over a period of 4 years.

UPSCALING AND REPLICATION: SUCCESS FACTORS

The Project uses upscaling mechanisms to ensure the application of SSS and CSP instruments including related guidelines, tools and processes developed by the predecessor Programme across the country. Upscaling mechanisms have been integrated in the project design and management, namely –

- (1) the three-tier approach, fostering vertical exchange and management;
- (2) capacity development and knowledge management, key to accessing and effectively using funds; and
- (3) embedding consistent processes and accessing public programme funds.



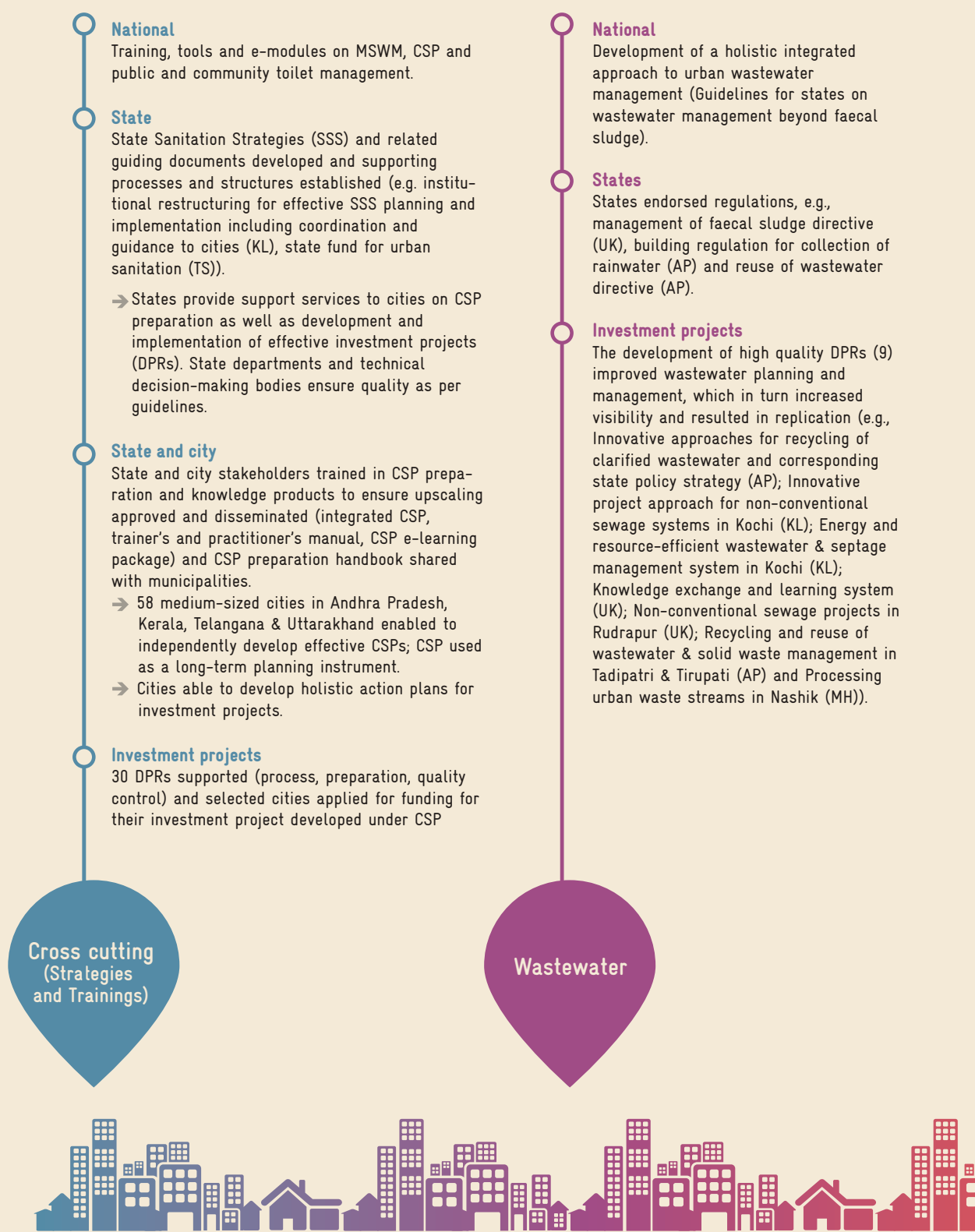
OVERALL ACHIEVEMENTS

The implementation of NUSP enhances the access to sanitation.

The appropriate wastewater disposal improves the cities' hygiene situation and reduces water pollution.

Subsequently, the living conditions of the population improve. The Project's pro-poor focus ensures that especially the poor in under-served urban areas benefit from the Project activities through participatory planning and implantation methods. The impact of the infrastructure projects, which are initiated and supported through SNUSP II, will take several years of planning and implementation, thus, only occurring after the completion of the project.

The main achievements of SNUSP II are summarised below:



National

Preparation and dissemination of MoHUA's MSWM manual.

The MSW based advisories on compost, MSW technologies, extended producer responsibility, best practices, templates for tenders as well as trainings by MoHUA and e-modules on SBM platform guide states and cities in MSW.

MoHUA and state departments integrated evidence-based technical solutions and applied, upscaled and customized their guidelines, regulations and frameworks.

All states were provided SWM manual based training impacting all the cities in the country including 41 state training institute.

→ Bridged knowledge gap.

States

Five states integrated SWM manual based training, enabling their municipalities for improved MSWM.

MSWM policies and strategies guide states and cities in planning and implementing integrated MSWM.

Maharashtra & Uttarakhand endorsed the MSWM policy and the strategy, has translated them into concrete investment projects.

Maharashtra trained municipal technical staff & technical consultancy companies on SWM project preparation (including quality control).

→ Decreased land and water pollution & improved urban sanitation.

→ MSW strategy in the 2 states will impact the total population in these states.

States and cities capacitated in adopting participatory processes for formulating and implementing DPRs in line with SWM Rules 2016.

Investment projects in cities:

Preparation & implementation of DPRs as per SWM Rules 2016.

→ Effective project preparation and implementation improved MSWM management (e.g., solid waste management in Tadipatri; SWM and dumpsite rehabilitation in Kalyan Dombivli, Nashik; processing urban waste streams in Nashik).

Bio-CNG project in Tirupati.

118 DPR prepared by state of Maharashtra for MSW impacting 347 DPRs that will be prepared by the state for all ULBs.

Perfect investment project for MSW resulted in leveraging funds worth of Rs. 150 crore.

Soild Waste
Management

National

National Guidelines for PT&CT management and national directive on the construction and operation of gender-appropriate public toilets.

States

All states published and disseminated the guidelines for PT&CT Management. SAC empaneled operators.

TS endorsed a public toilet management directive and prepared an action plan to abolish open defecation. AP endorsed a management of public toilet directive.

Investment projects

Tirupati and Shimla implemented 5 gender-sensitive PT&CT projects and female users confirmed improved hygiene and safety.

Public Toilets
(Gender Sensitive)



Road to 100% sanitized, green & clean cities

Implementing Partners

National Partner

- Ministry of Housing and Urban affairs, Government of India
- Central Public Health and Environmental Engineering Organisation (CPHEEO)
- Centre for Science and Environment (CSE)

Andhra Pradesh

- Municipal Administration and Urban Development Department, Government of Andhra Pradesh
- Commissioner & Director Municipal Administration, Government of Andhra Pradesh
- Swachha Andhra Cooperation, Government of Andhra Pradesh

Kerala

- Local Self Government Department, Government of Kerala
- Suchitwa Mission, Local Self Government Department, Government of Kerala
- Kerala Institute of Local Administration (KILA), LSGD, Government of Kerala

Maharashtra

- Swachh Maharashtra Mission, Urban Development Department, Government of Maharashtra
- Maharashtra Environmental Engineering Training and Research Academy (MEETRA),

Uttarakhand

- Urban Development Directorate, Government of Uttarakhand
- Doon University, Uttarakhand

Telangana

- Municipal Administration and Urban Development Department, Government of Telangana
- Commissioner & Director Municipal Administration, Government of Telangana
- Regional Center for Urban and Environmental Studies (RCUES), Hyderabad

Others

- Ecosan Services Foundation
- All the cities who partnered with SNUSP

Steering structure to ensure effective implementation

- NoC with partners states with clearly defined objectives, steps and responsibilities
- Project Steering Committee (PSC) regular programme review and assessment
- Planning workshop at national and state levels

project factsheets



SNUSP II at National Level



PARTNERS

Ministry of Housing & Urban Affairs (MoHUA),
Government of India

ACCESS TO TOILETS

7.9 million

do not have access to toilets



MUNICIPAL SOLID WASTE

52

MILLION TPA



Per capita waste generation in Indian cities ranges from 200 grams to 600 grams per day.

43

million TPA
collected

11.9

million
treated

31

million
dumped in
landfill sites

80%

municipal waste
gets collected

22-28%

waste is processed and
treated

Total Area

3.2
million
sq. km

Population

1.236
billion
sq. km

Source:
Census 2011

Urban Population

377
million in 2011
Projected to increase
to 600 million by 2030

Statutory towns

4,041
in 2011

Census towns

3,894
in 2011

Urban Agglomerations

3,894
in 2011



Objectives of Swachh Bharat Mission:

- Elimination of open defecation
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioural change regarding healthy sanitation practices
- Generate awareness about sanitation and its linkage with public health
- Capacity Augmentation for ULB's
- To create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance).

Coverage under SBM is for all 4041 statutory cities in the country with the population of 377 million.

SNUSP II SUPPORT AT THE NATIONAL LEVEL

Support to MoHUA for SNUSP-II was started in April 2014 and the component of municipal solid waste was added in 2016. SNUSP II supported MoHUA on the subjects of waste water management and municipal solid waste management (MSWM).

1. **Support for MSWM Manual, 2016 of MoUD & CPHEEO:** The MSWM Manual

is the national level technical guideline for cities to support them in municipal solid waste implementation of the SWM Rules, 2016. The work for revision of the manual had started in 2013 and was finally completed under the GIZ-SNUSP-II project in 2016. This task was undertaken with support of an Expert Committee for revision of the Manual. The manual which is based on learnings of 16 years from 2000, is a 1000 + pages document with 32 case studies. It is divided into 3 parts – Part I gives the overview of the manual for decision makers; Part II is for senior and technical staff of ULBs, practitioners and consultants who would be implementing MSW in ULBs; Part III contains international cases, rules, Standard operating procedures and design specifications. On the behest of MoHUA,

the Manual was also peer reviewed by ADB. The MSWM Manual was launched by the Ministry in August, 2016 and is available on the websites of MoHUA, SBM and CPHEEO.

2. **MSWM Manual, 2016 based Training of Trainers (TOT) for SBM empanelled institutes for wider outreach of the manual:** MoHUA with support of GIZ developed a training of trainers that was conducted in 4 regions in the country covering all states. 41 training institutes from all over the country were finally trained as part of the ToT. The training was executed in 2 GIZ states through state funding and in collaboration with state training institutes. In one state it was part of the CSP trainings and two states executed the training on their own.



Hon'ble Minister of Housing and Urban Affairs Shri Venkaiah Naidu launching Municipal Solid Waste Management Manual alongwith the Country Director of GIZ Mr. Wolfgang Hanning.

3. SBM e-learning platform support through development of e-modules for MSW and WW: Several e-modules were developed for the e-learning platform. The MSWM related modules include; 4 bi-lingual e-learning module based on municipal solid waste from Vijayawada, case studies Panaji, Kochi and Mumbai (Gorai); 1 module for MSWM Manual; 2 modules were on Public & Community Toilet guidelines; 1 module on City Sanitation Plan preparation and 1 on integrated waste water management.

4. Public Toilet and Community Toilet management advisory: The advisory has been developed based on the guideline that had been issued in Andhra Pradesh and on-ground learnings from the SNUSP-II project support in Tirupati and Shimla. The advisory has been submitted to MoHUA for dissemination.

5. Development of operational framework and guidelines for Extended Producer Responsibility for MSW: As a step towards



implementation of the SWM Rules, 2016, GIZ supported MoHUA in the development of an operational framework and draft guidelines for managing recycled packaging material through an extended producer framework. The framework has been developed after a stakeholder consultation with all relevant government, public and private players in municipal waste management. This has been submitted to MoHUA for consultation with MoEFCC and CPCB as next steps.

6. Field study of Compost Policy Roll-out in 4 States and preparation of advisory for improved compost production & usage: An extensive field study was carried out in 4 states of Maharashtra, Tamil Nadu, Karnataka and Gujarat. The study included meetings with state urban development departments, swachh missions, agriculture departments, fertiliser departments, forests departments, state pollution control boards, fertiliser companies including site visits to 9 cities and 15 compost plants. The findings of the study have been collated in the form of an advisory for improvements in compost production and usage at national level and submitted to MoHUA for furthering.

7. Aid to decision making tool for MSW technology selection: Cities usually ask ministry the question – how should they choose a MSW processing technology. Based on this need, GIZ has supported MoHUA in developing an excel based tool that can be used by cities to make the selection of MSWM technologies for processing and disposal. This tool can also





be used by cities to check the Detailed Project Reports prepared for MSW for environmental compliance and green house gas emission savings. The tool has been submitted to MoHUA for further use.

IMPACT



Impacts all manuals, advisories guideline that have disseminated by the ministry to all 29 states & GUT's will impact the functioning of the states and cities. This will result in improving the municipal solid waste and wastewater conditions in the country leading to environmental sustainability of the cities and improvement in quality of life in cities.

HIGHLIGHTS & SUCCESS FACTORS OF THE SNUSP



The Municipal Solid Waste Management Manual, 2016 was launched by the H'ble Minister Shri Venkaiah Naidu during the Swachh Sarvekshan event in 2016 and hard copies were disseminated to all 500 AMRUT cities. For the launch, His Excellency, the Ambassador of Germany to India, Dr. Martin Ney also gave a video address that is available on the SBM Youtube channel.



MSWM Manual based trainings: 41 training institutes from all over the country were trained as part of the Training of Trainers. The training was executed in 2 GIZ states of Telangana and Kerala through state funding under SBM and in collaboration with state training institutes, RCUES & KILA, respectively. Both training institutes had been trained as part of the ToT. In Maharashtra, AILSG has also begun executing elements from the training through SBM funds from Govt. of Maharashtra.



E-modules are an effective tool for case study documentation and dissemination. These case studies will help cities get a different perspective to management of waste and waste water in other cities and should inspire them to improve conditions on the ground.



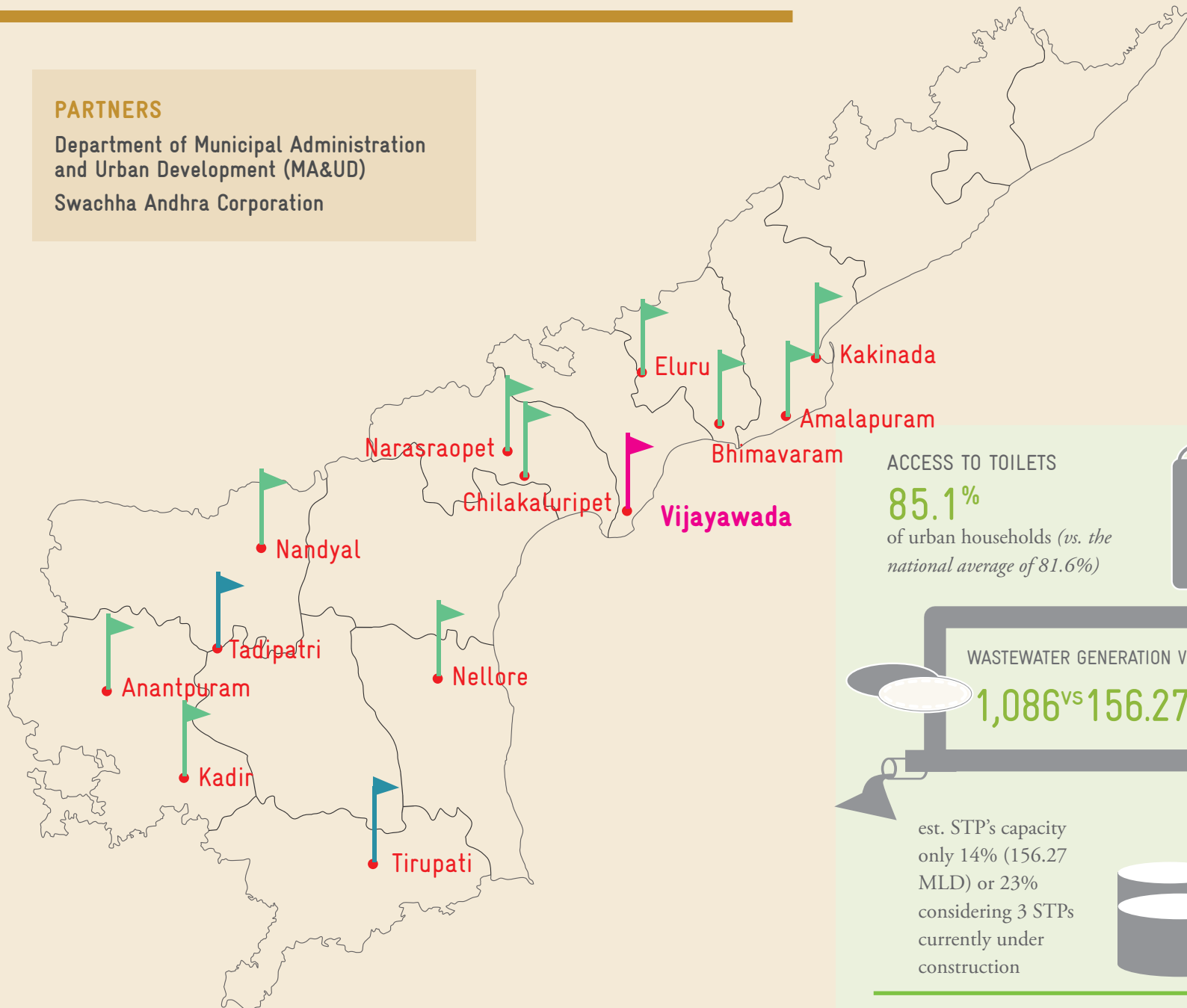
Several relevant advisories and tools in the fields of municipal solid waste and public toilets have been submitted to the Ministry for furthering as guidance to the states and cities for on-ground improvement of both services.

SNUSP II in Andhra Pradesh

PARTNERS

Department of Municipal Administration and Urban Development (MA&UD)

Swachha Andhra Corporation



ACCESS TO TOILETS

85.1%

of urban households (vs. the national average of 81.6%)



WASTEWATER GENERATION VS. CAPACITY

1,086^{vs}156.27 MLD

est. STP's capacity only 14% (156.27 MLD) or 23% considering 3 STPs currently under construction



SOLID WASTE MANAGEMENT

6,440 MT



of waste per day, equal to 0.3–0.4 kg per person, growing by 5% annually; collection efficiency is above 90%

Total Area

160,205
sq. km

Districts

13

Population

49.38
million

30%
in cities

ULBs

110

SNUSP II has been supporting Andhra Pradesh on its road to become a state that is 100% sanitized, clean, healthy and liveable, ensuring sustainable public health and a clean environment for its citizens. The Project focused on hygienic and affordable sanitation for urban poor and women, providing solutions suitable for the different topographies of the state (bay to

hill areas). GIZ had a Note of cooperation with CDMA under the SNUSP Project and signed an additional MoU with Swachha Andhra Corporation to take the sanitation agenda for municipal solid waste forward. The main achievements have been the development and implementation of State Sanitation Strategy (SSS) and City Sanitation Plans (CSP) that both facilitate the

state and Urban Local Bodies (ULB) in steering the sanitation agenda and supporting the effective provision and management of sanitation infrastructure and services. The SSS has become a prerequisite to attain funding under Swachh Bharat Mission (SBM).

CONTRIBUTION

Interventions at the state level

SNUSP II supported the state of Andhra Pradesh in preparing the SSS and has begun its implementation along the predefined action plan. SNUSP II supported the implementation and creation of a conducive framework, especially:

- Formation of a State Level Sanitation Committee (SLSC) to further refine the SSS and take the sanitation agenda forward

Selected guidelines proposed in the State's Sanitation Strategy have been developed and approved by the respective authorities at the state and city level:

- Guidelines for sustainable management of public and community toilets
- Policy document for recycle and reuse of wastewater for ULBs
- Revision of building bylaws for rainwater harvesting 2017
- Policy and guidelines for Integrated wastewater and septage management guidelines
- Supported the state for development of model contracts for outsourcing ward level contracts and template for funding proposals
- Technical support as part of the state technical committee for MSW projects.

Intervention at the city level

States were supported in capacitating their cities to develop and implement quality CSP:

- Training and handholding programmes by the state to establish a process that facilitates cities to independently prepare their CSPs
- Manuals and Toolkits on "Preparing the CSP" based on the training were prepared and shared with the state for dissemination.

Supporting investment projects

- Supported the city of Tirupati in implementing gender-sensitive public toilets
- Developed innovative approaches for the recycling of clarified wastewater (e.g., recycling and reuse of wastewater and solid waste management in Tadipatri and Tirupati) and developed a corresponding state policy strategy that has been shared with the state's cities for replication.
- Supported the city of Tirupathi in development of an innovative MSW project for Bio-CNG.



IMPACT

Development and implementation of SSS helped the state government streamline the sanitation activities in the state and helped guide the cities take positive action. The SSS guided the cities to take positive action on ground.

The quality SSS helped the state leverage the funds from National government's schemes like SBM and AMRUT

- Upscaling of CSPs. A total of 110 ULBs took part in "CSP Roll out" workshop held on 22 December 2016, where they were also provided with the CSP tool kit
- Commissioners from 10 ULBs shared their experience pertaining to the CSP training and preparation as well as their adoption of concrete action points

The model contract will help the ULBs manage the solid waste issue in a much streamlined manner. Wardwise management system will impact all the 110 ULBs of the state and citizen of each ward.

The Bio CNG plant in Tirupathi is estimated to impact the entire city of Tirupathi as the plant will treat and process the organic waste of the entire city.

The public and community toilets (PT&CT) operational and management guidelines are being used by all 110 ULBs to ensure the effective management of toilets. SAC has empaneled the operators. SNUSP II supported Tirupathi in implementing 5 PT&CT projects (concept development, DPR, contracting), which provide approximately 1,000 citizens access to toilets per day.

The PT Management guideline will help all the cities of AP to take proper and effective steps towards improved public toilets leading to a cleaner city.

Developed innovative approaches for the recycling of clarified wastewater (e.g. recycling and reuse of wastewater and solid waste management in Tadipatri and Tirupati) and developed a corresponding state policy strategy that has been shared with the state's cities for replication.

HIGHLIGHTS & SUCCESS FACTORS

Interventions under SNUSP II focused on upscaling and achieving long-term improvements for the sanitation sector by promoting a holistic sanitation approach, establishing processes, systems and creating supportive framework conditions. Examples are:



A State Level Sanitation Committee (SLSC) was formed to develop the State Sanitation Strategy, take the sanitation agenda forward and support funding proposals under SBM or similar schemes. SLSC comprises of experts from different departments such as the Commissioner & Director of Municipal Administration (CDMA), Swachha Andhra Corporation (SAC), Health, Education, Railways, Andhra Pradesh State Road Transport Corporation (APSRTC), etc. This ensures unique consultative and participatory approach in the development and finalisation of strategies as well as in the formulation of planning and funding of documents.



To facilitate and strengthen the CSP process, GIZ in cooperation with the Centre for Science and Environment (CSE) developed a training and handholding programme on the Preparation of City Sanitation Plans (CSP). Andhra Pradesh nominated 10 small- and medium-sized towns to participate in three training modules and one review workshop. The modules are aligned with the steps of CSP preparation to enable the cities in independently preparing their CSP and the state to support this process. To do so, between each of the training modules, ULBs were asked to complete a specific task (e.g. formation of City Sanitation Task Force, drafting of Status Report, development of Action Plan, etc.). GIZ and CSE provided handholding to the sanitation team at state level. The hand-on innovative approach ensures the development of capacities and achievement of concrete results on the ground, while it enables states to become the driving upscaling agent in the sanitation sector. More than 200 personnel attended and benefitted from the CSP preparation trainings.



Establishment of the Swachha Andhra Corporation (SAC) to ensure the implementation of SBM across the state. The focus of the organisation is to implement the sanitation agenda. SNUSP II provided institutional capacity building support. The presence of SAC helped in taking the sanitation agenda forward on a priority basis.



In line with the SSS recommendations, SNUSP II supported the establishment of the Urban Fund for Sanitation and Sewerage Projects.



A wastewater recycle and re-use policy for use of reclaimed water in industries has been published. Urban local bodies are expected to work towards achieving the target of recycling and reusing at least 300 MLD of treated wastewater by year 2020 through either upgradation of existing, or development of new, wastewater treatment facilities.

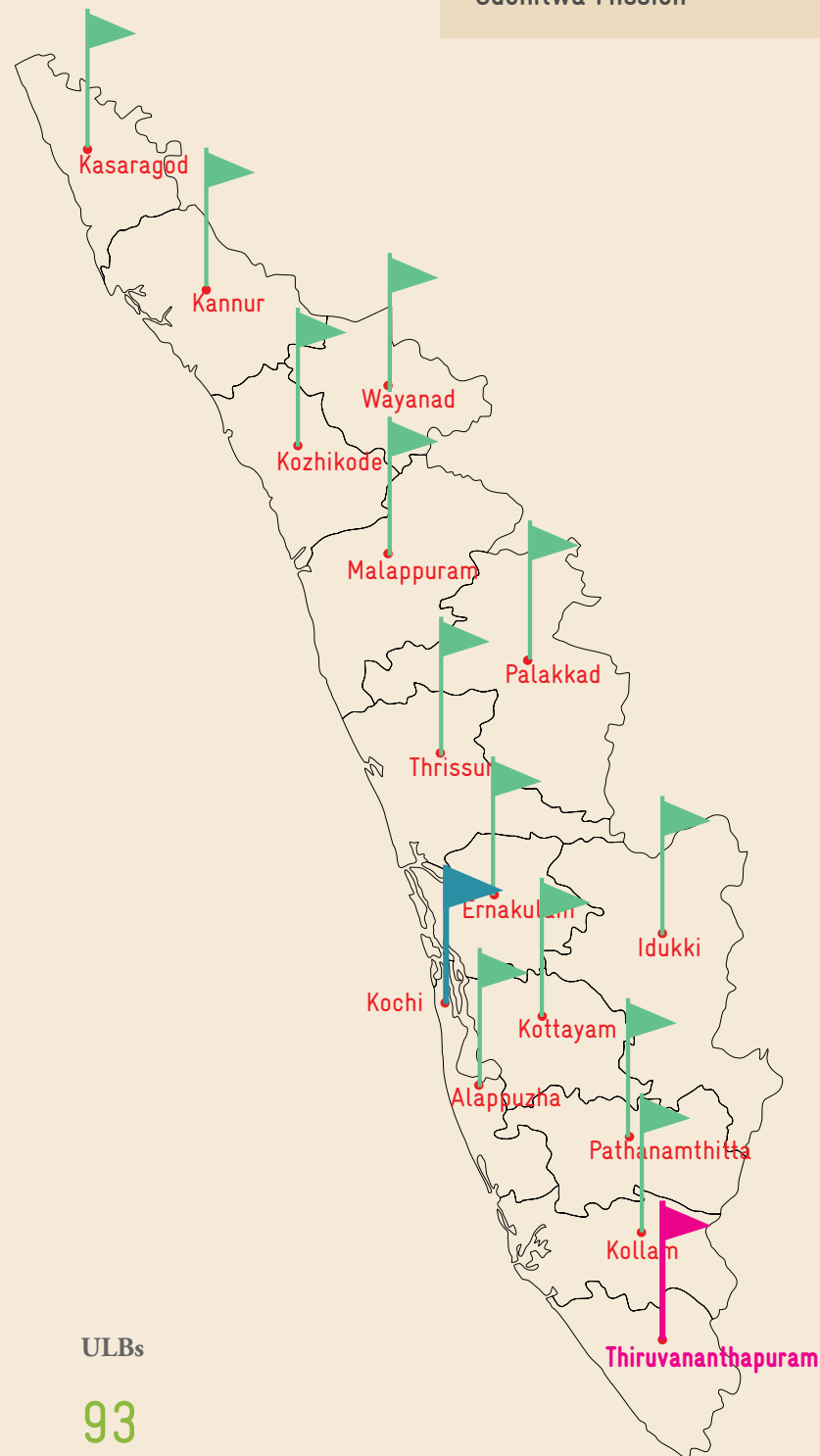
SNUSP II in Kerala

PARTNERS

Local Self Government Department,
Government of Kerala

Suchitwa Mission

SNUSP II has been supporting Kerala in becoming a state that is 100% sanitized, clean, healthy and liveable, ensuring sustainable public health and a clean environment for its citizens. The Project focused on hygienic and affordable sanitation for urban poor and women, providing solutions suitable for the different topographies of the state (backwaters to hill areas). GIZ signed a MoU with the Suchitwa Mission to take the sanitation agenda forward. The main achievements have been the development and implementation of State Sanitation Strategy (SSS) and City Sanitation Plans (CSP) that both facilitate the state and Urban Local Bodies (ULB) in steering the sanitation agenda and supporting the effective provision and management of sanitation infrastructure and services. The SSS has become a prerequisite to attain funding under SBM.



Total Area

160,205
sq. km

Districts

14

Population

34.8 million | 48%
in cities

ULBs

93

CONTRIBUTION

Interventions at the state level

Kerala adopted the SSS in 2014 and has begun its implementation along the predefined action plan. SNUSP II supported the implementation and creation of a conducive framework, especially:

- Guidelines on integrated wastewater and septage management
- Development of a guideline and operational framework for promoting material recycling in ULBs
- Technical support for tendering the waste characterisation study for the state.
- MSWM manual based training for ULBs was conducted through funding from Suchitwa Mission and with support of KILA. 21 ULBs participated and 22 officials (Secretaries, Assistant Engineers and Health Inspectors) were trained on the SWM Rules, 2016 and MSWM Manual.
- Preparation of an action plan to become open-defecation free
- Capacity building of ULBs in sanitation planning and effective implementation
- Strengthening and building capacities of existing institutions at state and city level and professionalisation of the Suchitwa Mission
- Technical support for the empanelment and DPR preparation in the areas of liquid waste and solid waste management

Intervention at the city level

States were supported in capacitating their cities (ULBs) to develop and implement quality City Sanitation Plans (CSP):

- The training and handholding programme serves as a system through which states can facilitate cities to independently prepare their CSP
- A total of 28 ULBs from across the state took part in the “CSP Roll out” workshop held in January 2017 and were provided with a CSP tool kit
- The commissioners from 10 ULBs shared their experience pertaining to the CSP training and preparation as well as the adoption of concrete action points

Supporting investment projects

- Development of a non-conventional sanitation system for the city of Kochi



IMPACT

At the state level, the Project established Kerala as a knowledge hub for septage management which will help all the cities in managing their septage in a more efficient manner.
At the city level, the successful implementation of the CSP training has helped state strengthen its systems and replicate the training through KILA to remaining cities of the state

- The MSWM Manual and SWM Rules, 2016 based training enabled 21 ULBs and their officers in the latest information in the sector, thereby empowering them to prepare the ULBs MSWM Plans and DPRs. KILA will continue the training resulting in all ULBs in the state receiving the training.
- The guideline and operational framework for promoting material recycling with support of informal sector will enable ULBs in the state to effectively utilise the dry waste collected in the dry bins after segregation. It will enable the state to collate information on recycling and to provide direction for taking corrective action for decreasing waste entering landfills.



Established a process for technology approval in liquid waste and solid waste management. Which will help in significantly improving the quality of the DPRs. This will ensure sustainability of the projects on ground.

Established a sanitation cell and fund (Suchitwa Mission) that plans, coordinates and implements sanitation-related initiatives across the state. This will help in streamlining the sanitation activities in the state, this will lead to fulfil the state's vision of making the state cleanest and healthiest in the country.

HIGHLIGHTS & SUCCESS FACTORS

Interventions under SNUSP II focused on upscaling and achieving long-term improvements for the sanitation sector by promoting a holistic sanitation approach, establishing processes, systems and creating supportive framework conditions. Examples are:



Sanitation mission established Kerala as knowledge hub for septage management. As part of this measure, the state has initiated work on the preparation of guidelines for integrated wastewater and septage management. A technical review committee, constituted by the government, reviewed and recommended the guidelines for approval. The final approval by government is under progress.



The state is actively involved in preparing various centralised and decentralised SWM projects like supporting the partner agencies in achieving their objectives on source segregation, source level treatment, waste minimisation, recovery and recycle of waste, integration of informal sector, etc.



GIZ supported the state-level committees responsible for liquid waste and solid waste management in empanelling consultants and service providers, the preparation of the request for proposal as well as the technical review of the DPRs.

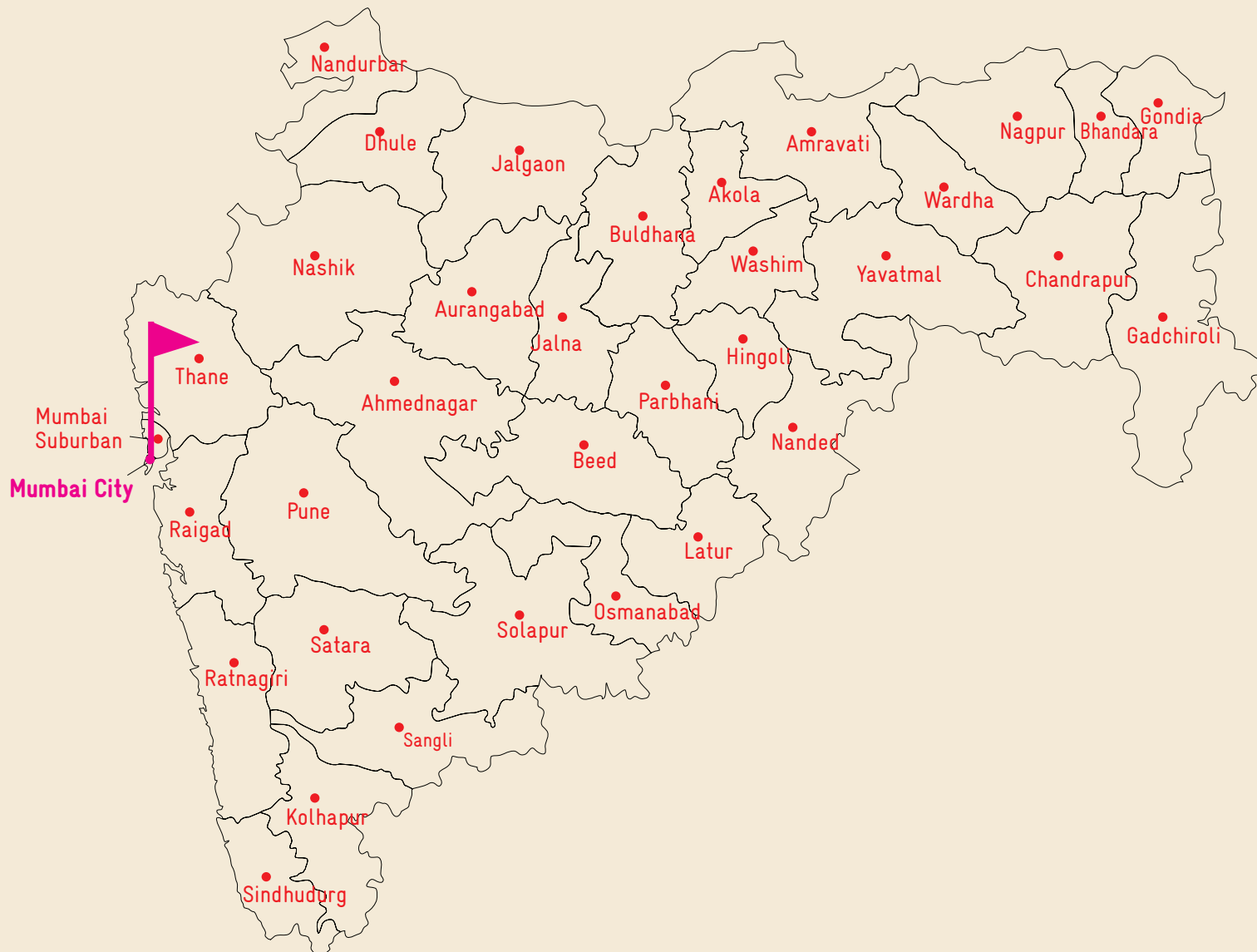


Rural Kerala was declared open-defecation free under the Swachh Bharat Mission on 1 November, 2016. The state is also working towards ensuring there is no open defecation in urban areas, and is expected to shortly be declared fully open-defecation free.

SNUSP II in Maharashtra

PARTNERS

Swachh Maharashtra Mission,
Urban Development Department



Total Area

307,713
sq. km

Districts

36

Total Population

112,374,333

Urban Population

5,10,00,000
45% of total
population

ULBs

384

CONTRIBUTION OF SNUSP-II IN THE STATE

The Support to National Urban Sanitation Policy, Phase (SNUSP-II) program in the state of Maharashtra started in April 2016 with an objective to provide technical and handholding support to Urban Development Department, Swachh Maharashtra Mission and ULBs towards taking effective measures to avoid pollution caused by municipal solid waste.

AREAS OF COOPERATION/ PROJECT COMPONENTS

A. Support for State Municipal Solid Waste Management Strategy:

Technical support has been provided to the Urban Development Department and SMM in developing the State Solid Waste Management Strategy in compliance with SWM Rules 2016, MSWM Manual, 2016 and NUSP, 2008 and several Government Regulations based on the SWM Policy of state. The strategy and the policy is being used by the state as a guiding document.

B. Support for preparation of DPRs for all ULBs

Support was provided for the appointment of the divisional consultants for preparing DPRs for 384 cities (The consultants will be preparing DPRs for all 384 cities).

C. Capacity building and training support for quality improvement of DPRs:

- DPR template for preparation and quality improvement of DPRs for SWM was prepared based on the government approved templates.
- Provided training to consultants appointed

for preparation of DPRs and selected ULBs in the requirements for quality DPRs.

- Trainings were conducted for 60+ MJP engineers for technical sanction of SWM DPRs. This was done jointly with SMM and MEETRA.

D. Capacity building and training of training institutes for upscaling:

In addition, several state training institutes from Maharashtra were trained as part of the Training of Trainers for conducting the training based on the revised MSWM manual, 2016 & SWM Rules, 2016.

E. Technical support for review of DPRs

GIZ did a detailed review of 15 DPRs either prepared by the ULBs and or by the state appointed DPR consultants. Detailed comments were provided, this resulted in the general improvement of the quality of DPRs prepared.

F. Support for improvement of compost quality and HARIT brand:

Support has been provided to UDD and SMM for improvement of compost quality and roll-out of the HARIT brand.

- Preparation of Road map for improved production and usage of compost in Maharashtra including HARIT branding.
- Developed a handbook for compost production customised for Maharashtra. The handbook details the technologies that are best suited for the state for production of compost.
- GIZ has also supported the preparation of a checklist and evaluation mechanism for the state in order to assess a city's status and readiness for achieving HARIT quality of compost production.



IMPACT

The state strategy for solid waste management will help provide guidance to the state for steering all 384 ULBs in the state and resulting in a systematic approach for MSW management.

- The appointment of DPR preparation agencies and the strong steering by the state will ensure that all cities have a DPR that is in conformity with the population and size of the ULBs resulting in timely project implementation and improved management of solid waste in all cities in the state.
- The targets for solid waste management under SBM will be achieved as part of the state seven-step approach "Saptpadi Swachtechhi" for all ULBs in the state positively impacting the environment and living conditions in cities.



- Training and capacity building of engineers from MJP staff will result in technical experts readily available with the state.
- Roll-out of the MSWM Manual and SWM Rules, 2016 based training through AILSG under SBM funds will result in capacitating technical staff from all ULBs in the state.



The roadmap for improved compost production and usage will impact the offtake of the "HARIT" brand developed by the state.

HIGHLIGHTS & SUCCESS FACTORS



Establishment of Swachh Maharashtra Mission by state enabled the state to push the sanitation agenda with a clear focus on SBM. The state also established a 7-steps approach, "Saptapadi Swachatechi" to provide a direction to the sanitation agenda.



The state strategy support provided the requisite guidance framework for the state to frame related government regulations strengthening the implementation of SWM services within the state. As the strategy is based on the SWM Rules, 2016 and the MSWM Manual, 2016, it will ensure scientific management of waste in all 384 ULBs in the state within the coming years.



The support to the state for developing the tender documents for DPR preparation and the subsequent appointment of 5 consultants for preparing the DPRs for all small and medium towns in the city will ensure timely utilisation of the Swachh Bharat Funds by the state.



The quality control of the DPR preparation mechanism including DPR template preparation; trainings for DPR consultants, MJP engineers, SMM divisional staff and ULBs will ensure that all DPRs have the basic minimum quality as required by the SWM Rules, 2016 and the MSWM Manual 2016. Benefits are already visible with approximately 120 ULBs having prepared quality SWM DPRs through consultant support. It is expected that by end of March 2018 all 384 ULBs in the state will have good quality DPRs for SWM.



The training of trainers programme has enabled the state training institutes to further disseminate the training based on the MSWM Manual 2016 and the SWM Rules 2016 to all tiers of staff in the ULBs and in the local language. All India Institute of Local Self Government (AIILSG) is rolling out one such training programme within Maharashtra with SBM funds.



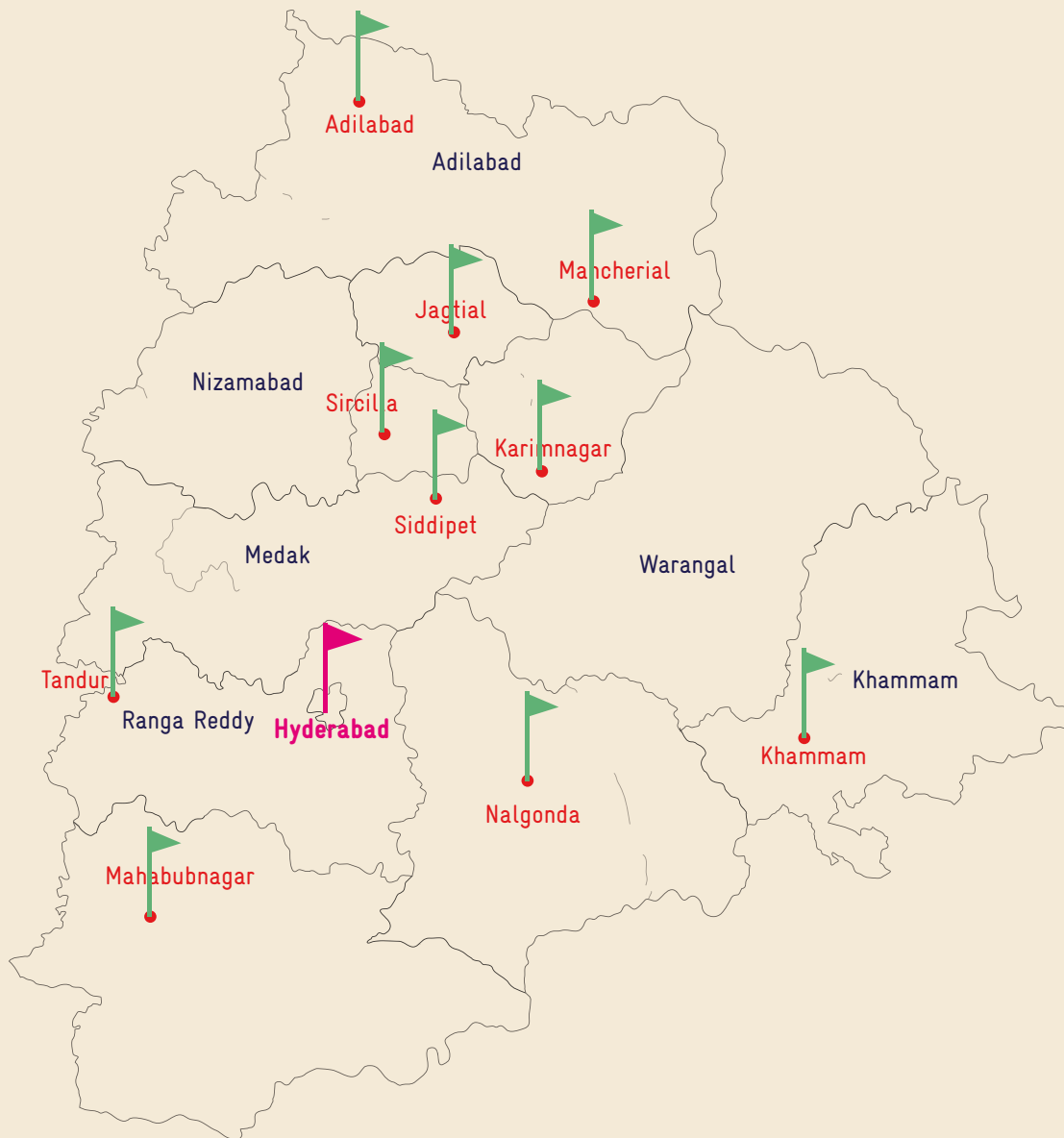
The state officials understood the importance of source segregation and that it is a pre-requisite for achieving quality production of compost. The state therefore initiated the process of 100% source segregation and collection of waste to produce 'HARIT' quality compost that would be FCO 2009 compliant. GIZ support in the preparation of a roadmap for improved production and usage of compost, handbook for compost technologies and checklist and evaluation of Harit towns will further ensure the offtake of the HARIT brand.

All above efforts led the state to honor the partnership between the state and GIZ by felicitating the GIZ-SNUSP program through the hands of the President of the Government of India, on October 1, 2017 in Mumbai.

SNUSP II in Telangana

PARTNERS

Commissioner & Director of Municipal Administration (CDMA)



Total Area	Districts	Population	ULBs
112,077 sq. km	31	35.19 million	73
		39% in cities	

ACCESS TO TOILETS

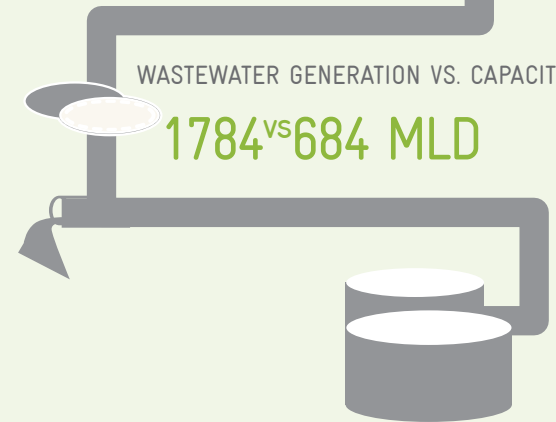
100%

of urban households (vs. the national average of 81.6%)



WASTEWATER GENERATION VS. CAPACITY

1784^{vs}684 MLD



SOLID WASTE MANAGEMENT

7,287 MT



of waste per day, equal to 0.45 kg per person, growing by 5% annually; collection efficiency is above 90%.

Telangana state has put integrated approach to sanitation at the centre stage to ensure the state's cities become totally clean, sanitized, healthy and liveable, improving public health and environmental outcomes for all citizens in the long term. Special focus is on hygienic and affordable sanitation for the urban poor and women, paying particular attention to the diverse topography of the state and its implications. To achieve this, the sanitation project has been supporting the Department of Municipal Administration and Urban Local Bodies (ULB) since April 2014 in improving the sanitation service levels by effective planning and identification of appropriate measures for better sanitation infrastructure and service delivery solutions.

CONTRIBUTION OF SNUSP II IN THE STATE

Interventions at the state level

SNUSP II supported the development of various policies and guidelines:

- Support the state in development of State Sanitation Strategy for Urban Areas
 - Facilitated the constitution of State Level Sanitation Committee involving various state level departments
 - Consultation meetings and workshops with all the relevant stakeholders on developing a vision for sanitation
 - Finalisation and roll out of the State Sanitation Strategy and Implementation road map
- Guidelines for Public and Community Toilets for effective planning and management in ULBs
- Support in preparation of guidelines for effective implementation of components under the Swachh Bharat Mission to make cities Open Defecation Free
- Hand book on integrated wastewater and septage management
- Report on the framework of establishing a State Urban Sanitation Fund for funding sanitation interventions on priority basis
- Preparation of model SWM Byelaws to facilitate the implementation of the provisions in the solid waste management Rules 2016
- State Level Advisory Board and the SWM Tender Committee

Intervention at the city level

- Training and Handholding support to 10 ULBs to develop and implementation of quality City Sanitation Plans (CSP) of the state i.e, Adilabad, Jagityal, Karimnagar, Khammam, Mahabubnagar, Mancherial, Nalgonda, Siddipet, Sircilla and Tandur
- Support states and cities in preparing requests for proposals and review of DPRs on SWM
- Support to cities Mancherial, Sircilla and Khammam for preparation of pre-feasibility studies and DPRs for wastewater management



IMPACT

Guidelines and study reports have been published, namely Guidelines on SWM, Handbook on integrated wastewater and septage management; Report on the establishment of the Urban Sanitation Fund along with a road map for implementation. The SWM by-laws guidelines for public and community toilet management were disseminated by CDMA among all the 72 ULBs of the state.



30 ULBs and 8 training institutes were trained on CPHEED's SWM Manual. The training is proposed to be taken forward by RECUES through SBM funds for all ULBs in state in the regional language.



All the 73 ULBs in the state are declared Open-Defecation Free.



The Telangana State Sanitation Strategy was disseminated to all ULBs in Telugu and English. At the city level, 10 ULBs have prepared their City Sanitation Plans in a systematic manner. Moreover, 31 Detailed Project Reports on SWM management have been approved by the State's High-Power Committee. One DPR on septage management and one on decentralised wastewater are in the process of preparation for Sircilla and Mancheriel Municipalities respectively.

HIGHLIGHTS & SUCCESS FACTORS

Interventions under SNUSP II focused on upscaling and achieving long-term improvements for the sanitation sector by promoting a holistic sanitation approach, establishing processes, systems and creating supportive framework conditions. Examples are:



Formation of City Sanitation Task Force as part of the City Sanitation Plans are upscaled to all the 72 ULBs for monitoring sanitation activities in the ULBs.



Feasibility reports have been initiated for treatment of wastewater and septage management in 10 ULBs



Holistic approach for integrated wastewater management in the ULBs



Knowledge products developed by GIZ have been circulated to all ULBs and are hosted on the official website



30 ULB officials have been trained on the CPHEEO manual on solid waste management



Resource pool of trainers have been created on City Sanitation Plans and Solid Waste Management



SHE toilets for women have been constructed in ULBs to ensure privacy and dignity for women

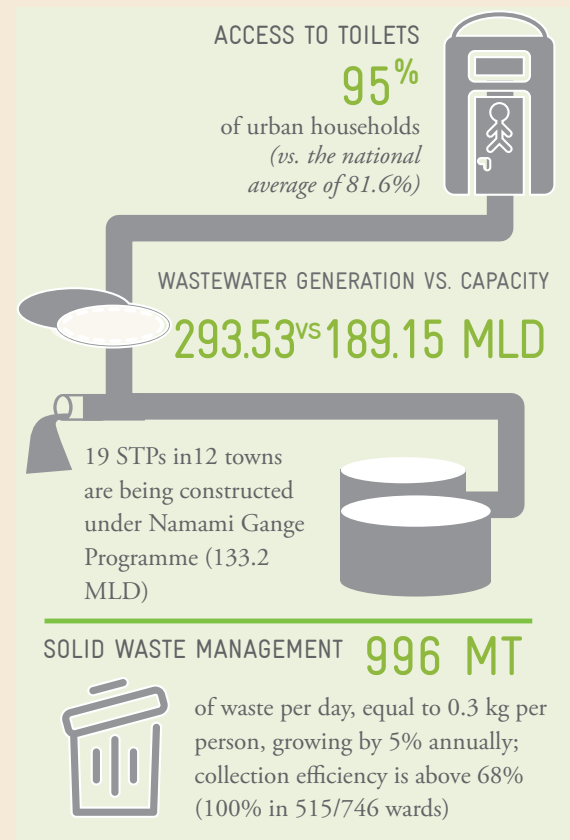
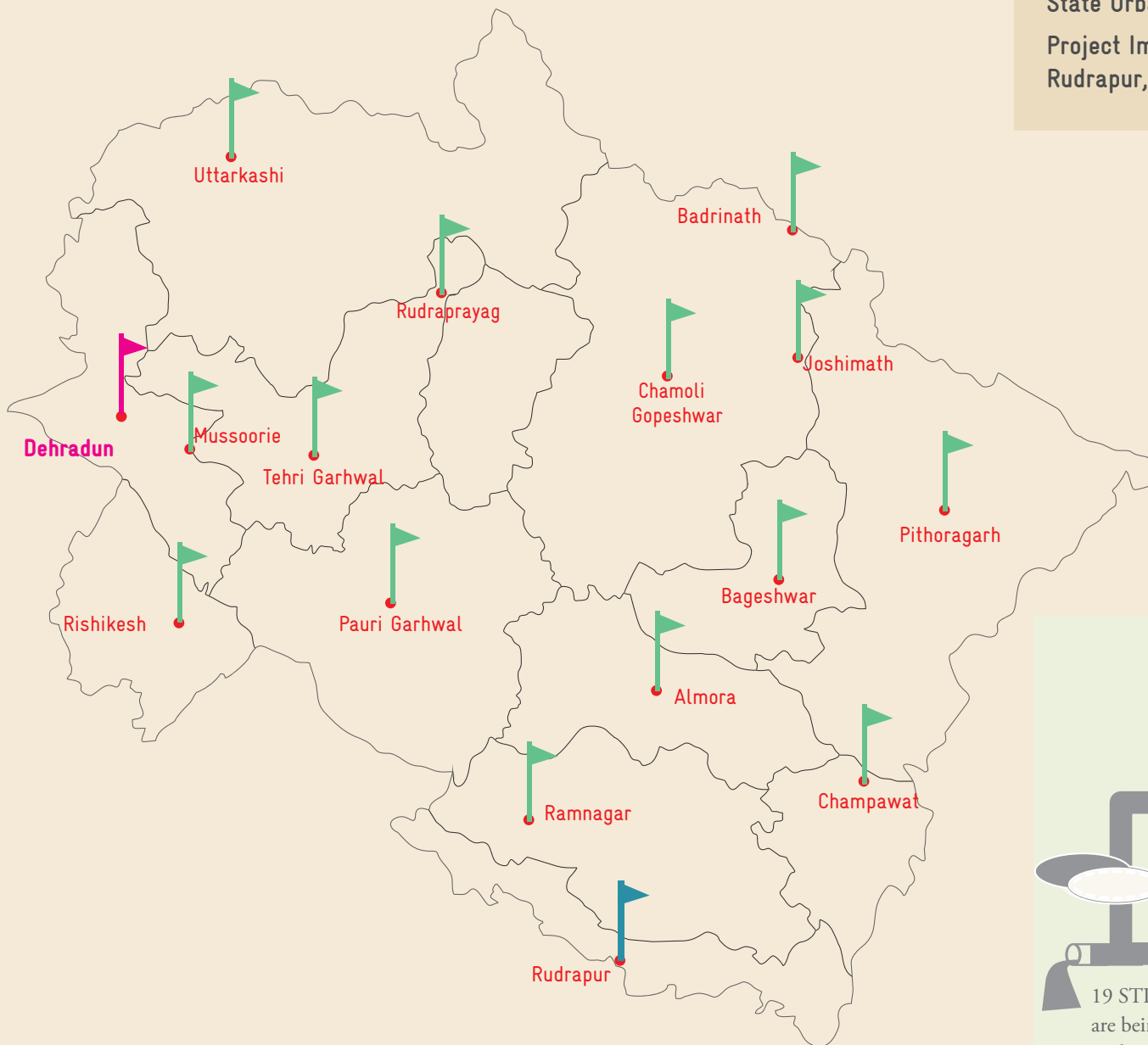
SNUSP II in Uttarakhand

PARTNERS

Urban Development Directorate,
Government of Uttarakhand

State Urban Development Agency

Project Implementation Unit,
Rudrapur, Uttarakhand Jal Nigam



Total Area

53,483
sq. km

Districts

13

Population

10.09 million | 30%
in cities

ULBs

92

Uttarakhand has put integrated development of urban areas at the centre stage to ensure that the state's cities become vibrant and clean and rich in heritage; and economic centres provide gainful employment and good living conditions. To achieve this, the Sanitation Project has been supporting the Urban Development Directorate (UDD) and Urban Local Bodies (ULB) since April 2016 in taking effective measures to avoid pollution caused by wastewater and municipal solid waste, especially through the identification and establishment of appropriate sanitation infrastructure and service delivery solutions.

CONTRIBUTION

Interventions at the state level

- Revision of state's solid waste management strategy and action plan. Gaps were identified and strategies incorporated in line with the national SWM Rules 2016
- Technical support to state in formulating Protocol for Septage Management. The Septage Management Protocol has been issued by State government in May 2017

Intervention at the city level

States was supported in capacitating its cities (ULBs) to develop and implement quality City Sanitation Plans (CSP):

- Training on CSP preparation and exposure visits, focusing on the Ganga river basin through an integrated approach of sanitation, solid and liquid waste management

Supporting investment projects

Supported Rudrapur Municipal Corporation and Jal Nigam Rudrapur in the preparation and review of the Rudrapur Septage Project DPR to provide technically viable and cost-effective solutions for areas where conventional sewerage are technically unfeasible



IMPACT

The state's revised solid waste management strategy and action plan will guide the state and cities in ensuring a holistic SWM approach and translation into concrete investment projects.



The septage protocol guides the states and cities in ensuring scientific septage management. The state endorsed a directive on the management of faecal sludge.



14 urban clusters (24 Urban Local Bodies) have prepared their CSPs. This will impact the cities wastewater and solid waste practices leading to improved environment in cities an decreased pollution of the river Ganga.



A knowledge exchange and learning system has been established and the city of Rudrapur developed a non-conventional sewage project (septage treatment system for its 1,25,000 citizens). DPR prepared and has been approved and its being taken up under AMRUT.



HIGHLIGHTS & SUCCESS FACTORS

Interventions under SNUSP II focused on upscaling and achieving long-term improvements for the sanitation sector by promoting a holistic sanitation approach, establishing processes, systems and creating supportive framework conditions. Examples are:



GIZ partnered with the state's Urban Development Directorate (UDD) to support the Urban Local Bodies in preparing their City Sanitation Plans (CSPs). Focus was on the Ganga river basin by ensuring an integrated approach of sanitation, solid and liquid waste management. To ensure sustainability, capacities of the state department and Doon University were built so that they can guide and facilitate the cities' sanitation drive in the long term, especially in regard to the selection of useful investment projects.



Integrated urban planning was ensured by establishing a multi-stakeholder City Sanitation Task Force (CSTF), managed by the ULBs of the 14 clusters and approved by the respective District Magistrate. Representatives from all relevant departments viz. Jal Nigam, Jal Sansthan, Health as well as stakeholders from the civil society, market associations and the private sector are involved in the task force. In addition, a District Level Monitoring Committee has been set up under the chairmanship of the District Magistrate to ensure better coordination among the different departments at the local level. At the state level, a Steering Committee has been constituted to ensure effective coordination with the line departments.



The state's revised solid waste management strategy and action plan is in line with the SWM Rules 2016. It broadly identifies the key strategies to eradicate the existing solid waste management deficiencies by year 2021. As such it enables the state to handhold the 92 ULBs in holistic and scientific waste management, including the formulation of concrete investment projects.



The state's septage management protocol guides the state and cities in ensuring scientific septage management. The clear guidelines of the protocol enable the state and city officials in upgrading their septage management and identifying concrete investment projects. For instance, the exposure visit to Kochi that was organised by SNUSP II helped ULB and Pey Jal Nigam (PJN) officials in planning and developing the Rudrapur Septage Project, which was taken up under AMRUT.

impact stories



Introduction to Impact Documentation

How do we imagine impact?

Classic impact studies will capture the before and the after; the intermediary milestones of getting people together, creating dialogue between departments and agencies, helping draft locally appropriate solutions, and building ownership within local tend to fall through the cracks. Yet, these are often complex milestones, that involve a steadfast adherence to the participatory process and are vital efforts that contribute to the richness of every project's narrative.

How do support states streamline sanitation efforts? How do innovative ideas get seeded and take root? Who were the key champions that steered the projects towards fruition? How can institutions support their teams to think holistically and sustainably? What does it take to generate that spark that drives a local functionary to embody the philosophy of sustainability?

The impact stories captured in this section therefore showcase the complexity of urban sanitation, and endeavour capture the underlying processes and efforts required to successfully enable urban sanitation.

They illustrate in particular GIZ's particular three tier approach, of working simultaneously with the Centre, the State governments and the Urban Local Bodies to create vertical synergies that ensure a seamless transition from planning to implementation.

For the agencies, from the multilateral to the bilateral and national, to the institutions, the cities, and its citizens, these impact stories hopefully inspire the upscaling of ideas and solutions across geographies, institutional systems and cultures.

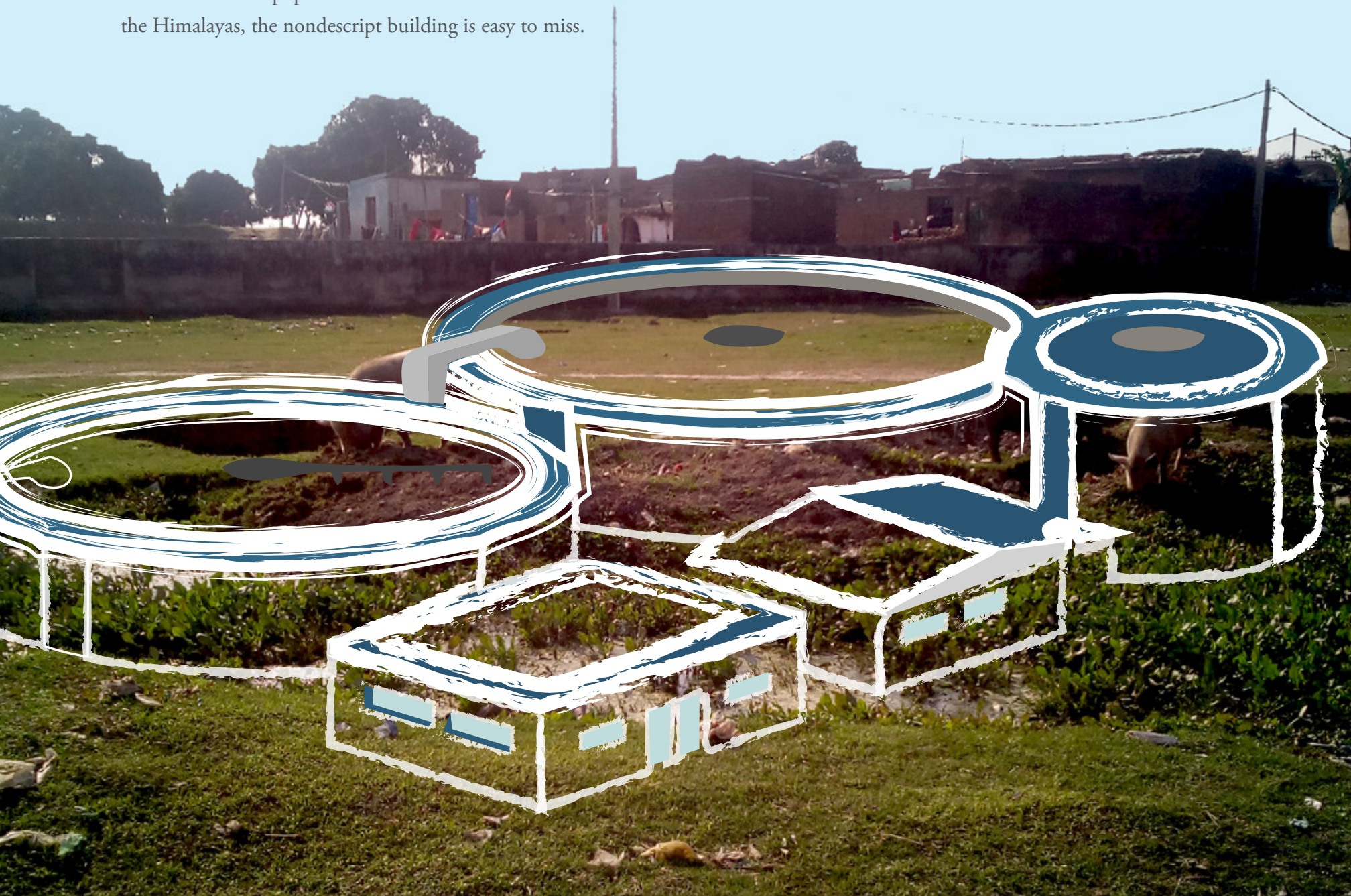
List of SNUSP II Stories of Change

	What is the story about	How to upscale	Cutting across
1	Piecing the Puzzles: Septage Management in Rudrapur	Creating evidence	Environmental protection
2	Enabling Systems for Effective Solid Waste Management	Capacity development & institutional mechanisms	Poverty reduction, gender & climate
3	State Sanitation Strategy: The Road Towards Improved Sanitation	Institutional mechanisms	Environmental protection
4	Seven Steps Towards Solid Waste Management	Creating evidence & institutional mechanisms	Environmental protection
5	Toilets for Her and Him	Creating evidence & institutional mechanisms	Gender
6	Local and Innovative Waste Water Solutions	Creating evidence	Environmental protection
7	The Story of a Map Tracer	Capacity development	Environmental protection & poverty reduction

PIECING THE PUZZLE

Septage management in Rudrapur

The Uttarakhand PeyJal Nigam (Department for Drinking Water), Government of Uttarakhand, has its office in Kashipur. The small bungalow is just off the main Moradabad-Kashipur Road, alongside fields and rows of poplar trees. In these fertile flatlands at the foothills of the Himalayas, the nondescript building is easy to miss.



Rudrapur was selected as one of the 500 eligible cities (those with a population of over 1,00,000) covered under the newly launched national AMRUT Mission – the Atal Mission for Rejuvenation and Urban Transformation. Since then, work at the PeyJal Nigam office has become very busy. The Ministry of Urban Development has issued guidelines and funding criteria for infrastructure projects under AMRUT. The PeyJal officers comb through the few pages to understand and identify all aspects they have to comply with when planning, designing and executing the region's water and sewerage systems. For the first time in a mission document the concept of septage management has been integrated. This comes as a surprise when having been trained for years to focus all efforts on designing and implementing underground sewerage systems. "What does that mean for our future work?" asks the Executive

Engineer of PeyJal Nigam – who tends to call himself a career-sewerageist. He also knows that even the municipal officers absorbed the longstanding training: "There is one mindset – sewerage, sewerage, sewerage, sewerage, sewerage – be it feasible or not, there is no other option other than sewerage."

The idea of new solutions to the well-known problem of disposing untreated wastewater into open overflowing drains that lead to the Kalyani and Begul rivers appeals to the officers. The wastewater situation in Rudrapur is not only a big headache for its officers but also for its citizens that are facing environmental and public health risks. Nobody is comfortable with the situation, not the PeyJal Nigam, not the municipality, nor the state government. And the wastewater management challenges are only to get worse. Rudrapur is the capital of the Udham Singh Nagar district. The thriving agro-equipment, automobile,

wood and fast moving consumer goods industries spurs economic growth and attracts more people, transforming the city landscape. The mid-sized town with a population of approximately 1,50,000 is mushrooming into a large city that by 2029 is expected to house more than 2,00,000 residents.

The officers also know too well that conventional solutions of the past have not always worked. The Executive Engineer of the Peyjal Nigam recalls, "We are in a high-water table zone and in the foothills of the Himalayas, which poses a big problem for us. When it's raining, the water comes up to one, two, three metres.... Once we installed a sewer in Kashipur, a similar but smaller town, and it flooded. It failed. We couldn't install it properly. The trunk sewer wasn't functioning and what worried us was our inability to find a viable solution."



Like many towns in Uttarakhand and in the region, Rudrapur sits on an undulating topography with water tables reaching as high as two to five metres below ground level in many areas. This makes it challenging to install deep sewers that do not damage the ecosystem and do not run into disproportionately high cost. The PeyJal Nigam team has struggled to find solutions for Rudrapur's wastewater problem for years. Solutions need to be financially viable for the small state of Uttarakhand. Everybody knows that "the Government will never spare 3 billion Rupees on one town", as confirmed so many times by the Additional Director of the Urban Development Directorate of the Uttarakhand government.

So there they were, the engineers of PeyJal Nigam of the Kashipur Division and the officials of Rudrapur Nagar Nigam. Suddenly seeing opportunities unfolding under AMRUT. Feeling the pressure from the Central Government as well as its citizens to implement solutions under the new missions. Knowing about the limitations of past projects. Feeling an internal and external resistance to embark on new solutions without knowing what the implementation entails.

Around the same time, an invitation letter from Urban Development Directorate reached the offices of PeyJal Nigam and Rudrapur Nagar Nigam, inviting officers to join an exposure visit on septage treatment to Kochi in Kerala. The exposure visit was organised by the Government of Uttarakhand and GIZ, the technical development organisation of the German Government. GIZ had been working with the Government of India on urban sanitation for the past eight years and had recently started their collaboration with the Government of Uttarakhand. The Executive Engineer saw the invitation as a

BOX 1: THE PROBLEM OF WASTE IN RUDRAPUR

Rudrapur is a mid-sized industrial town located in the Indo-Gangetic plains of North India. It's a fertile region that has high groundwater tables – between 2 to 5 metres, depending on the season – and a tropical climate with temperatures ranging from 9 to 40°C and receiving 1,302 mm of annual rainfall. Rudrapur is the fifth-largest city in Uttarakhand by population. The city plans to increase its water supply from 11% (49 LPCD) to 53% (87 LPCD) by 2021.

Rudrapur generates approximately 79 cu.m. of septage per day, which is estimated to increase to 114 cu.m. per day by 2029. Rudrapur-Kashipur has many times tried to install networked sewers in the past – without success – which explains why 80% of Rudrapur's households still rely on septic tanks. They desludge their septic tanks as and when they fill up, approximately once every five to eight years. The septage is emptied by private operators and unscientifically dumped on open land and water at the outskirts of the city. For instance, the liquid effluent overflowing from the septic tanks is simply released into open drains, from where it flows into the Kalyani river. The unsafe disposal has been found to cause innumerable safety and health hazards. With the city growing and open land availability shrinking, citizens are increasingly face and oppose dumping of effluent near their homes.

much needed opportunity to learn from those that had already implemented new solutions and collected evidence and arguments to support innovative ways to deal with sewage in Rudrapur. He happily embarked on a journey to the other side of the country. To his surprise, he found Kochi facing very similar conditions to Rudrapur and he took the opportunity to learn as much as possible about the already commissioned septage treatment plant.

In early 2017, another invitation was extended to participate in FSM4, the fourth international Faecal Sludge Management conference, held in Chennai. The PeyJal Nigam officers realised that septage management has become a real alternative in India. It was more than just a suggestion under AMRUT. Present at the conference were think-tanks, technology providers and operators working on this issue in search of good localised solutions. The Executive Engineer recalls, "The first time I heard of septage was last year, when I went on my first

AMRUT training... it all began in Kochi, when we went and saw the technology for the first time in India. When we attended FSM4 the technology was validated by international players and we learnt where all it had been implemented...I thought it might be a good option for our urban areas... At first, everyone's mindset was still fixed on the old – why are they saying septage instead of sewerage? Septage was a new concept for us; we had to explain it to everyone in the department – one by one. Share what we learnt. Explain the difference. It took a lot of effort to make them understand the shortcomings of sewerage systems in the Terai belt, marked by high water tables... it took a long time."

Despite the effort and barriers, he was convinced he would be able to take the next steps. Knowing that he had the support from the state government encouraged him to move forward. The examples from Kochi and the various sessions at the FSM4 came in handy when discussing with and getting on board his



colleagues and the officials of Rudrapur Nagar Nigam.

“It was high time to look at sanitation in a more systemic manner,” as the experts from GIZ had put it in their first meeting. At that time he had not been completely clear as to what this meant. With the help of the GIZ teams in Delhi and Uttarakhand, the picture slowly emerged. There was a joint understanding that in the case of Rudrapur, it was required to break the sanitation challenge into smaller parcels – work packages, as they called it – while keeping the bigger picture in mind. The problem needed to be addressed at

two levels. The most urgent and larger issue at hand was the open disposal of untreated septage from septic tanks. A second step was the transport and treatment of liquid effluent from the septic tanks. Only in combination would the entire wastewater management work together.

But how could they actually implement it? Would it be financially feasible? All these questions were asked when mentioning the new concept. To kickstart the project, Rudrapur Nagar Nigam provided the first piece of the puzzle – the land required for the construction of the septage treatment

plant. The door for the implementation of the first septage management pilot project in Uttarakhand was opened. The Additional Director of UDD conveyed the significance of this project in one of the steering meetings with GIZ.

“This was the right time to think of something new and cost-effective ... we are piloting this project for a fraction of the amount – 80 million versus 3 billion Rupees.... In a state that is always short of funds, innovations like that are always welcome.... Experiencing the change and reaping the benefits changes the way we think about sanitation.”

BOX 2: SEPTAGE MANAGEMENT IN RUDRAPUR

Septage management refers to the comprehensive management of septic tanks from desludging, transporting, treating and disposing septage. The compost or fertiliser that is produced following the treatment can be used in agriculture or horticulture. In Rudrapur, a 125 KLD septage treatment plant is being piloted under AMRUT. The project costs approximately 110 million Rupees. The cost is shared 90:10 between the centre and the state. The plant will be operational by end-2018. For the first time, three key agencies are involved: the Rudrapur Nagar Nigam (management, monitoring and evaluation), the PeyJal Nigam (project implementation) and Uttarakhand Jal Sansthan (operation and maintenance). Private operators will be engaged for the desludging. Mechanisms ensuring regular desludging of tanks (every 2–3 years) will be incorporated into the city's bylaws. To close the cycle, the Nagar Nigam is planning to sell the fertiliser to local farmers.

Rudrapur Nagar Nigam has already allotted land for the plant. GIZ supported Jal Nigam through a preliminary assessment study to strengthen the detailed project report (DPR) and project tender documents. Once the state government approves the DPR and allocates the funds, the open tender processes for the construction of the plant can be started. The entire process from idea to operability is estimated to take 36 months (2016–2018). Learnings from the exposure visit and the FSM4 Conference, both supported by GIZ, will become informative in the planning and implementation of the project.



The officers felt the tail wind carrying them forward, inviting them to think big: the Rudrapur plant can become a model for other cities in the region. The Urban Development Directorate supported their courage.

“This is the first pilot project for Uttarakhand and I believe this has the potential for replication in other hilly towns... we are planning a cluster approach to make septage management feasible for Uttarakhand’s many smaller towns with a population of 4,000 to 5,000. Individually, it may not be viable for them to install a septage treatment plant. I feel that joint septage management is a good alternate solution. It is a small initiative and we are quite hopeful and confident that with the support of GIZ, we will succeed to a reasonable extent.”

This is echoed by the city-level project implementation unit: “There is a new way of thinking now. I think it is quite replicable since septage has been included in the national policy, giving it a major push. If we can prove the model is a partial solution in the context of high water tables, then it can be a complete solution for low water table scenarios. There is a lot of hesitation to be the first to try something out... but when it works, you’ll get people who will come and say, let us build and maintain the plant.”

ENABLING SYSTEMS FOR EFFECTIVE SOLID WASTE MANAGEMENT

The headquarters of the Ministry of Housing and Urban Affairs (MoHUA), 'Nirman Bhavan', is a maze of buildings and hidden away somewhere in this warren of corridors and offices is the Central Public Health and Environmental Engineering Organisation (or CPHEEO). The past three years since 2013 has been very busy for the CPHEEO. There has been a steady stream of stakeholders, a flurry of meetings – everyone it seems, is busy addressing various issues in municipal solid waste management.

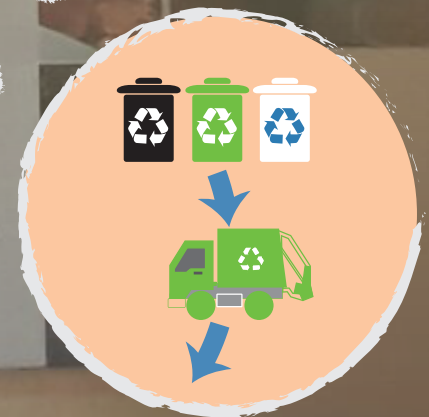


Training on
Municipal Solid Waste Management
Manual, 2016

14-16 November, 2017 • KILA, Thiruvananthapuram, Kerala

organised by
Suchitwa Mission, Government of Kerala and
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, New Delhi

In association with
Kerala Institute of Local Administration (KILA), Kerala



India's solid waste conundrum

India has over 4041 urban local bodies, covering 377 million citizens in 2011¹, and this is expected to hit 600 million by 2031². This population produces 62 million tonnes of municipal solid waste annually (and is expected to rise to 165 million tonnes by 2030³), 82% of which is collected, but only around a fourth of all solid waste is treated and the remaining three fourths is simply disposed⁴. All this poses grave penalties for the environment, public health, not to mention India's productivity⁵.

Urban local bodies spend major portions of their budget on solid waste management, mostly on collection and transportation and very little is spent on scientific treatment and disposal. While the ULBs are expected to design integrated solutions, the limited terms of the Commissioners / Executive Officers is an impediment. Added to this is the management of expectations and conflicts from the elected municipal council, which the ULB is answerable to. Within these limitations, they need to figure out financing models, engage PPPs, build leadership, identify appropriate technologies, manage contractors and ensure operations, coordinate between departments... in short, a whole lot of challenges, with little time or resources.

1 Census of India, 2011

2 Livemint, Sep. 17, 2014, India on the brink of urban revolution: report
<http://www.livemint.com/Politics/ttmdJkvrqNAyqtq4o80RVI/India-on-the-brink-of-urban-revolution-report.html>

3 <http://pib.nic.in/newsite/PrintRelease.aspx?relid=138591>

4 GIZ MSWM factsheet

5 GIZ MSWM factsheet

Certainly, the launch of the Swachh Bharat Mission in 2014 lit the fire in everyone. With its launch, for the first time in India there is a heavy focus on sanitation with a timebound mission and ambitious sanitation targets. But the MoHUA, and the CPHEEO in particular had been working hard on improving the municipal solid waste management (MSWM) manual well before the Swachh Bharat Mission. Their efforts concluded, coincided and aligned with the revised Solid Waste Management Rules that were introduced by the Ministry of Environment, Forests and Climate Change in 2016. Aligning the Manual with the SWM Rules was a much needed document but definitely an ambitious project and was completed only after innumerable rounds of revision and a peer review by the Asian Development Bank (ADB).

Somewhere in the middle of these corridors sits the Advisor (PHEE). There is a knock at his door, and someone walks in with a heavy set of three blue books. "Sir, the final version

of the revised solid waste management manual is here, says the delivery man."

The Advisor, (PHE) looks at the three sets of books his team has been working on for the past three years. He picks up the first one. "Municipal Solid Waste Manual" – the title doesn't do justice to the revolutionary ideas in the book, he thinks to himself. "Very good, he says. Assemble the team. It has been a real team effort, don't you think?"

Indeed, the manual is revolutionary, and it has been a long time in the making. India's cities have always struggled to manage their solid waste – go to any city and you're likely to see garbage lying around. The problem has always been in enacting the rules and guidelines, and this is something the CPHEEO, as the nodal technical agency of the then Ministry of Urban Development is supposed help cities with, and The Advisor (PHEE) has always been acutely aware of this responsibility. In his professional years at the CPHEEO he has noticed a recent change in India, with

The Revision of the MSWM Manual through an Expert Committee (2013-2016) with 22 members including GIZ, was culminated with its publication and launch in August 2016. The revised manual was in fact rewritten (with a few sections retained from the older version) and includes 16 years of learnings on the ground in India. The Manual, that is aligned to the SWM Rules, 2016, is of approx. 1000 pages and is divided into 3 parts. Part-I: "The Overview", includes the salient features of the manual for decision makers (60 pages); Part II: "The Manual", includes guidance for cities of varying sizes in order to plan, manage and execute a technically sound municipal solid waste management system following the SWM Rules, 2016 (550+ pages), including 32 Indian case studies; Part III: "The Compendium" includes rules, detailed technical specifications, standard operating procedures, international cases (350+ pages).

Prepared as a 'ready-reckoner', to support a range of stakeholders including policy makers, administrative staff, technical staff and those engaged in service provision in this sector in implementing integrated municipal solid waste management, including consultants and technical universities. The revised manual was produced by CPHEEO with support from GIZ under two projects – initiated under the GIZ-Indo-German Environment Partnership Program (IGEP) the ambitious project was finally completed under the GIZ Support to National Urban Sanitation Policy Phase II.



increased citizen awareness and demand for better systems across cities in the country today. Everyday someone with a new cutting-edge technology knocks on his door, and there's a buzz amongst his staff to see change on the ground quickly.

The Advisor (PHEE) thinks back to that day in 2013 when the CPHEEO was discussing how best to achieve their Ministry's mandate. At that time, it was clear that they could make progress only if the ULBs had a clear framework to guide them to make context specific solutions. Thus, the Ministry and CPHEEO had decided to revise the manual to reflect contemporary challenges and priorities. After long discussions within the Ministry & CPHEEO, GIZ had been asked to support the revision of the manual. It actually turned out to be a herculean task, the committee had to go through many iterations, consultations and revision process to get to

this stage. This process was also accompanied by the simultaneous revision of the Municipal Solid Waste Management & Handling Rules, 2000 of the Ministry of Environment Forests & Climate Change, that was finally renamed and published as Solid Waste Management (SWM) Rules in 2016. The Manual was then aligned to these rules before publication, resulting in the book taking approximately 3 years for completion.

Coming back to the present, the Advisor (PHEE) congratulates his colleagues: "It's been a whirlwind of change", he tells them, now seated around him. These past few years have seen so much momentum, "but this manual will help achieve SBM targets in a focused and time bound manner. Whether for technical assistance, for planning, or for end to end solutions, now there is a single document with all this information: the manual. And we've managed to design it using a

participative approach. If you remember, it was no easy task. Firstly, we had to constitute an Expert Committee. Secondly, there were so many presentations coming from different quarters, and we had to take views, process and present them in a way that is acceptable to the reader, it was not a small job. Thirdly, Swachh Bharat Mission was at full speed so things were changing every day, whatever we were doing, within the next fifteen days it was obsolete. I find it is really remarkable, the pace the country has picked up, we had to complete [work] against that tide, get comments from all the stakeholders, get acceptance and launch. I think that is a challenge that we have successfully overcome." It was a really mammoth team effort that took three years, which has paid off.

Flipping through the manual his colleague, Mr. Rohit Kakkar, the Deputy Advisor (PHEE) conferred. We are still at base camp,

though, and yet to scale the mountain, he thought. “But it’s not over Sir. We still have to take this manual to the 4041 towns and cities across our country.”

The GIZ technical expert within the core team responsible for preparing the manual responded, “Yes. The true test, will be how successful we are at training our cities to use the manual. Our task is set out for us. Give me a plan.”

Sitting 1500 kilometres away in Hyderabad, Telangana, the Director of the RCUES (Regional Centre for Urban and Environmental Studies) was conferring with the Additional Director (AD) from the Directorate of Municipal Administration (DMA). The AD had been reviewing the swachh survekshan indicators for municipal solid waste management. The numbers were not good, and the pressure to step

up improved systems was very high. For her, it was clear that the ULBs needed help. Everyone thought municipal solid waste management was a simple matter, of collecting and disposing of garbage. But not many realised that there was a huge industry behind it, so many people involved, that a single functionary without any knowledge or support of guidelines could not do anything on his own. In her mind, it was clear. Her city managers needed help.

Serendipitously, that was when Director of RCUES’ phone rang. It was the state GIZ office, calling about the new municipal solid waste management manual GIZ had sent to their offices. Had they seen it? Absolutely they had. It had inbuilt a planning process that would force her teams to think of appropriate technology solutions, and identify pathways for financial viability through revenue generation and private sector participation. GIZ

had designed a series of ‘trainings of trainers, and RCUES was selected to participate as a regional training hub. This was just the opportunity Telangana’s towns needed.

The expected outcome of the GIZ training of trainers will be that the institutes will function as knowledge hubs and subsequently impart a holistic and applied understanding of solid waste management to ULBs in the local language. The whole experience of learning the significance and utility of the manual and being trained on integrated municipal solid waste management has been designed to be catalytical for India’s functionaries.

This is clear from a 3 day long of training at the RCUES institute where master trainers with GIZ have been training ULBs in Hyderabad in May 2017. The Additional Director (ADMA) attends last day of the training on CPHEEO manual. She sought the feedback from some of the participants and is satisfied with the progress. “I am very clear on what I to do and what steps need to be taken to handle the solid waste operations”, says one of the Municipal Commissioner. Unlike many typical trainings and workshops, this training imparted by GIZ were very interesting and interactive. “The matrix session on issues and challenges was very important for me. The matrix formation was very close to my field situation. What can the municipality do about segregation? Composting? What are the ways to compost? We were able to learn many technical aspects and how to apply them locally to our city context”, said another participant.

“Urban Local Body officers feel more confident in understanding the solid waste management planning process. The CPHEEO manual would guide them on the systematic stepwise approach they need to undertake in handling solid waste management more effec-

LAUNCH & DISSEMINATION OF THE MSWM MANUAL

The Municipal Solid Waste Management Manual, 2016 was officially launched in a grand event of Swachh Survekshan 2017 on 6th August, 2016 at the National Media Centre in Delhi in the presence of The Hon’ble Minister for Urban Development, Shri Venkaiah Naidu; along with Mr. Rajiv Gauba, Secretary MoUD; Dr.Wolfgang Hanning, Country Director GIZ and many others. His-Excellency Dr. Martin Ney, German Ambassador to India, also gave a recorded video address for the launch of the manual.

Approximately 1000 hard copies of the MSWM manual were disseminated to all State Principal Secretaries, Urban Development Departments; Swachh State Missions, 500 AMRUT cities and selected ULBs, training institutes or sent to the Ministry for circulation. Soft copies of the manual can be accessed on the Ministries and CPHEEO’s website. 4 e-modules in form of case studies from the manual were developed (Panjim, Kochi, Gorai-Mumbai, Vijayawada) and are uploaded on the SBM e-learning platform, more are planned.

Another form of dissemination was through MSWM Manual based Training of Trainers (ToT) and trainings of ULBs. The training was developed by GIZ: Four regional ToTs were conducted between October 2016–January 2017, training 41 institutes of the 63 SBM-accredited training institutes. Demand based trainings were conducted in 2 GIZ partner states (Telangana and Kerala) through direct funding from the states and in collaboration with state institutes, trained under the GIZ-ToT program, and GIZ.

To reach all of India's 4041 ULBs situated as far and wide across the country as possible, CPHEEO and GIZ designed a series of trainings to train a number of key trainers from regional institutes as master trainers. These 'trainings of trainers' would build capacities of these regional institutes as regional knowledge and training hubs that could further train, build capacities and support ULBs within their regions on municipal solid waste management. Four zonal trainings (north, west, southern, eastern and north-eastern India) of trainers were conducted by GIZ, effectively training 41 institutes that were a mix of government empaneled institutes and other institutes of repute. In addition, a few direct trainings of ULBs in GIZ partner states were also conducted.

GIZ employed the 'Harvard Case Method' for the trainings which provided an immersive training wherein participants analysed solid waste management problems at the heart of selected ULBs and were forced to devise and defend solutions. Training of trainers were supported by the Swachh Bharat Mission at the national, while the ULB trainings were supported through state SBM funds and GIZ support.

tive in compliance with the solid waste management rules 2016. The training has provided the insights of manual in an organised and more methodical manner. The manual would

serve them as ready reckoner in streamlining the solid waste management operations says P.Anuradha, Additional Director Municipal Administration.

The Additional Director (DMA) is pleased. "Urban local commissioners feel that if they were in the guise of the manual, if they were to enforce something, mera abhi kuch bigadega nahin [I wouldn't get in trouble], because tomorrow legally no one is going to question me... it gives them a pathway. The manual plays a major role...for me, the manual brought about a change in me. I felt that my guys, they do have a stand, maybe in their own crude way, it just requires us to help them and guide them and push them and they will understand, the next step, the final step, as per the guidelines. It is a wonderful piece of work."

The Director of the RCUES adds that "With these trainings of trainers RCUES becomes to be a knowledge hub for solid waste management. The manual is fine, but it has to be translated into vernacular languages. When





it is translated it will permeate down. Even an environmental engineer or a clerk or even the municipal commissioner will keep it on his table and will use it. This will be critical and we are ready to take this up. We will translate it and only then our objectives will be reached. Otherwise it will be an unfinished task. And we are ready to do it.”

GIZ’s particular engagement in this project has been multipronged, both at the central

policy level and at the implementation level. With a pulse at the top and an understanding of the ground realities, GIZ was able to offer practical support in the revision and rollout of the manual. GIZ was also able to train trainers across India. At a time where the pace of change in India is extremely swift, all these inputs have been critical. Moreover, GIZ’s novel training interactive methods have been successful at training local functionaries on the contents of the manual.

The Municipal Solid Waste Management Manual is the new guidebook for all cities on how to improve their waste management. Different States of India are using the contents of the SWM Rules & MSWM Manual in myriad ways, e.g., Uttarakhand used the manual as a basis for drafting the State Strategy and Action Plan on Municipal Solid Waste Management; Maharashtra is preparing Detail Project Report (DPR) for Municipal Solid Waste Management for 384 cities in the state based on the Rules & the Manual; while, Andhra Pradesh (AP) has used these documents for developing tenders.

The manual also serves as a base for consultant agencies and the technical committees for preparing and approving DPRs and hence is used actively as an implementation support.

Back in Delhi, the work is not over. The CPHEEO team have big plans. Apart from the hard copies of the manual, CPHEEO, and the states now have to translate this manual into local languages to ensure its deeper diffusion. There will also be an e-module version of the manual. Through this panoply of trainings, modules and outreach methodologies, the ethos of solid waste management will get diffused from the Centre right down to the individual households. Until then, they will continue toiling away.

STATE SANITATION STRATEGY

How SSS process unfolded and the road thereafter...



The Executive Director from Suchitwa Mission looks around her in the meeting room and just realises that for the first time in a long time, so many colleagues from various departments are sitting around a table and discussing about sanitation situation in the state. There are several colleagues from the environment department, a new colleague heading the engineering and public health department and even the heads of the education and revenue departments have joined for the meeting. When the team from GIZ first proposed the formation of a multi stakeholder State Level Sanitation Committee (SLSC) with representatives from all relevant departments for formulating and endorsing the State Sanitation Strategy, the Suchitwa Mission was hesitant to form yet another committee which would inevitably mean more meetings blocking their calendar.

As a technical expert from one of the partner

states explains, *“It isn't simply about preparing a vision document. The strategy has to be embedded within the heart of government, with ownership across all relevant arms of government and society. So, an integral part of the SSS process was the establishment of a state level sanitation committee, or SLSC, which would function as a multi stakeholder committee involving all departments, line agencies, representatives from civil society, urban local bodies etc all working on improved sanitation and anchor the entire SSS process.”*

But this perspective changed quickly and she was glad that GIZ persisted with this idea. She now proudly states that this engagement through SLSC actually provided a valuable platform and opportunity to discuss about the state's vision for sanitation improvement and how to reach there. It frees her mind to look at sanitation from a more holistic perspective, acknowledging ground realities

in the cities instead of just focusing on mere targets and investment plans. When the State Sanitation Strategy was introduced in 2008 as the state-level planning tool of the National Urban Sanitation Policy, most states needed some time to understand what would be the added value of such document. There was no doubt that a state like Kerala was in dire need to improve their urban sanitation systems to reduce the environmental and health burden in the current scenario and prepare for the growing urban centers of the future. But the pressure was so high, that many departments involved in sanitation services felt the need to start implementation as quickly as possible and a time-intensive strategy development process was not on the priority list.

At the heart of the SSS are the principles of sustainable sanitation, affordability and access. With these cornerstones of urban sanitation, each state therefore has to identify



different instruments – financial, technical and institutional – to reach their end goals, prioritising their requirements based on where they are on the sanitation spectrum, from unimproved to improved. All in all, a comprehensive strategy allows states to integrate expectations from environmental, public health, public works, education, financing, ULBs and other key departments. This in turn supports states to meet service level benchmarks, identify pathways for growth, and leverage funds from flagship urban development programmes and missions: AMRUT, Swachh Bharat, Smart Cities etc. If upscaled and properly implemented, upscaling will be all the easier, and these linkages will be reflected in improved rankings (such as Swachh Sarvekshan) and will even help cities access performance based grants (such as some 14th finance commission grants). To further

incentivise states, the completion of the strategy has been linked to key fund flows, such as the AMRUT urban rejuvenation and renewal scheme (and earlier linked to the JNNURM). States need to have SSS in place if they are to access key schemes and funds.

At this point the first discussions between the Suchitwa Mission and GIZ took place for supporting the state in implementing the National Urban Sanitation Policy in Kerala. The team presented a very systematic and participatory process for the preparation of SSS. Once the process was initiated and Suchitwa Mission was leading the entire preparation of the SSS and the advantages of SSS were realised like collating all relevant state level data on sanitation in the state, improving visibility through an overview on all the ongoing sanitation related activities in the state. Further, the SSS also enabled

the state to set priorities to which all the different departments including agencies like Kerala Water Authority, health, environment department could work together and prioritise the need and interventions required.

In 2014, when the Government of India launched the Swachh Bharat Mission and the Atal Mission for Rejuvenation and Transformation in the following year of 2015 and the state was happy as they already had the Draft State Sanitation Strategy, she realised that the state was already much ahead in adhering to the requirements under both the missions and some of the goals identified such as safe treatment and disposal of wastewater, improved institutional governance, solid waste management etc. of both missions were already put forward by the state much earlier. The director, had the clarity that one of his priority would be to get the SSS endorsed by

BOX 1: AN URBAN SANITATION FUND FOR TELANGANA

Vision: All cities and towns in Telangana to become totally clean, sanitised, healthy, livable, 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.

The State Sanitation Strategy for Telangana has identified the need for a dedicated fund within the MA&UD department for urban sanitation. A dedicated ringfenced fund will help urban local bodies focus on sustainable sanitation, and will help channel funds from the centre, the state, private sector, citizens, individual investors, multilaterals, banks and other funding sources. GIZ has helped the state put together a comprehensive proposal for the same.



SLSC and disseminated across the cities in the state to use the political momentum and show the commitment of the state to these sanitation missions.

Through the process it was realised that, internalising a holistic sanitation strategy for a state cannot be achieved overnight. It has been a long process of engagement, and over the years GIZ has been there to handhold and support the state in ‘addressing’ sanitation strategically.

At the same time similar process were followed in the unified Andhra Pradesh which was further split into two Andhra Pradesh and Telangana. All the three states of Kerala, Andhra Pradesh and Telangana had their state sanitation strategy approved by the SLSC which helped them in accessing funds under the national missions. Indeed, states that have not had these strategies in place have found themselves at the back of the line. *“The foresight of states like Kerala, Telangana and Andhra Pradesh in being early adopters of the SSS framework has meant that they have been able to leverage government funds better and in a timely manner. Essentially, they were prepared.”*, an urban expert tells us.

Back in Kerala after several rounds of stakeholders discussions in the SLSC, the executive director was proudly standing on the podium next to the Minister of Kerala, on a state event launching the endorsed SSS and sharing it with all ULBs. It was a significant achievement for the state, with the Minister stating that the state sanitation strategy needs to be the guiding document for the state before the large gathering of representatives from all the cities present in the event.

During the lunch break after the big launch, the commissioners and elected representatives

BOX 2: INSTITUTIONAL STRENGTHENING OF THE SUCHITWA MISSION

Kerala’s vision is to achieve an urban Kerala ensuring environmentally safe disposal of solid and liquid waste.

Kerala, home to over 34 million people, is well known for its culture and natural beauty. Kerala has long been conscious of need to consolidate all its sanitation efforts in the state into a single holistic strategy from early on. Kerala has a number of agencies involved in urban sanitation: Kerala SLSC has representatives from Suchitwa mission, Kudumbashree, city corporations, the education, health and family welfare and town planning departments, the state pollution control board, the Kerala Water Authority among others. The SSS process identified two priority areas from its list of recommendations: institutional strengthening and waste water management.

As a senior official from Suchitwa Mission explains to us, Suchitwa was set up in 2007, from the merger of the Total Sanitation Coalition and the Clean Kerala Mission. It was the first effort towards streamlining the state’s sanitation agenda, but Suchitwa initially struggled to go beyond being an agency that coordinates and facilitates, and become an idea and innovation hub for driving sanitation across the state. *“GIZ has supported Suchitwa Mission in sharpening its mandate, identifying its core functions and creating a framework of units and divisions that will optimise functionaries within the mission. Finally, the proposal included funding models that will help Suchitwa effectively leverage funds from government schemes and missions, international funding, and grants.”*

of a couple of cities walked towards her to congratulate her on the endorsement of SSS, but the cities were keen to know “what now” and “how are we going to get it on ground.” the director realised that this story was not over yet. The ambitious list of recommendations in the SSS, were not enough. They would have to be filled with real action and the state suggested to have a quick implementation plan which could act as a guiding document for putting the recommendation on to the ground.

It was not an easy task, agrees the ED, Suchitwa Mission. In many cases, bringing stakeholders – state governments, parastatals, city corporations, citizen groups and private players – on board in unison proved to be a challenge; in other the lack of data was a hurdle. However, the state realised that the

strategy offered the opportunity to model their sanitation goals based on their local requirements, and the strategy could tailor their regional and local needs to available funding and not vice versa.

Soon, the ED, requested the GIZ Technical Expert, who had supported the department on a day to day basis for last 5 years and asked him exactly this question on “what next”? and how GIZ could support the state in driving the sanitation agenda.

The roadmap and process for taking forward the SSS was to be rolled out next. In drafting the strategy document, the state level SLSC after completing the needs assessment, SSS came up with a list of 20 odd recommendations covering various areas of implementation. *“GIZ then helped prioritise these*

recommended actions or instruments, and then identified a few immediate instruments whose implementation GIZ would support the state with.”

With a vision document and a series of recommended actions stemming from the vision, state of Kerala could now incrementally implement each step and move progressively towards a sustainable sanitation paradigm. With support from GIZ, Suchitwa Mission and the SLSC shortlisted measures namely guidelines for integrated wastewater and septage management, mechanisation of septage management, institutional strengthening of Suchitwa Mission (see box) amongst other. The array of measures taken up for implementation by the

state are reflective of its sanitation agenda of achieving the broader societal goals of environmental protection, improved governance and a better quality of life for all citizens.

The SSS process was initiated and continued with similar steam in other two states of Andhra Pradesh and Telangana as well. Like in Kerala, Andhra Pradesh and Telangana, key technical inputs were provided from GIZ, their technical partner in urban development. Within the scope of bilateral cooperation, GIZ was supporting these states under the ‘Support to National Urban Sanitation Policy’ or SNUSP. It was clear for GIZ that an integral part of their mandate was to support their partner states strategise and prepare SSS.

In its first phase, this support extended to the preparing these strategies, and once prepared, in the second phase, GIZ has supported a few critical instruments of implementation, to demonstrate how states can upscale these ideas. The entire SSS process was anchored within the relevant state departments; the Municipal Administration and Urban Development Department in Telangana, and the Directorate of Municipal Administration in Andhra Pradesh. GIZ has been instrumental in bringing all the stakeholders together in each state, and creating a participatory model for sanitation. This has been appreciated by the respective state institutions: *“GIZ has worked closely with us continuously, through the document preparation, with workshops,*



BOX 3 WASTE WATER MANAGEMENT GUIDELINES FOR ANDHRA PRADESH, KERALA, AND TELANGANA

The vision for Andhra Pradesh is that all cities and towns become totally clean, sanitised, healthy, livable, 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.

Wastewater management emerged as a critical concern in all three states. In Andhra Pradesh, only 18% of the urban population is connected to a piped sewerage network, whereas in Kerala, cities like Kochi only 5% of the wastewater was being treated. Most of India's cities do not have integrated systems. As the technical expert puts it, "over half the urban population relies on ineffective and sub optimal septic tanks, where septage management operations are largely dominated by the informal sector, limited sewerage networks, resulting in the ad hoc disposal of sludge and untreated wastewater. In Kerala, for example 95% of untreated wastewater finds its way right into the backwaters." States desperately needed an approach that closes the loop. To this end, GIZ has worked with the states to prepare integrated wastewater and septage management guidelines.

echoed by state sanitation institutions. As one senior official from Kerala's Suchitwa's mission said, "*If you ask me, there was no focused attention on waste water management till now. Some corporations have selectively taken up wastewater management – Thiruvananthapuram for example, and now Kochi... and some others. But really speaking we had no strategy for liquid waste. So, it was an important recommendation in the SSS, which we picked up. So, with these guidelines we hope that we will have a definite strategic holistic approach to wastewater now.*"

with empanelling the service providers, DPR presentation... they have provided end to end technical support. They have also brought in a level of professionalism and built capacities of our urban local bodies on sanitation. This has been a great advantage for us at the state."

The appreciable aspect of the SSS process especially the upscaling of the certain priority recommendations was that all the three states chose variety of measures based on their requirements. For example, state of Telangana opted to delineate the scope for implementation of state urban sanitation fund, support in making their urban areas

open defecation free etc. While the state of Andhra was more inclined in developing a recycle and reuse policy for wastewater. In addition, both these states also developed guidelines for public and community toilets construction and maintenance.

Interestingly, wastewater and septage management emerged as a key concern for all the 3 states thereby leading to drafting of integrated wastewater management guidelines with support from GIZ. The growing concern for the issue of wastewater including septage is leading to states looking for solutions for its management. This is concern is

A VIEW FROM MAHARASHTRA

7 steps towards Solid Waste Management

“Urbanisation brings with it many challenges and providing quality basic services becomes a difficult task.” For the state of Maharashtra this statement has become a fact.

Maharashtra is the second most populous state in India, and has the largest urban population in the country – coming in at over 45% of the state’s population. With close to four hundred small and medium towns and a few larger cities, the state perhaps also leads others when it comes to urban sanitation, but this hasn’t always been the case. And it is growing continuously, every dayevery moment. But did this defeated the state or its ULBs in providing quality services and making their cities cleaner and healthier to live? No, never. Once the current Prime Minister of India said “We have taken urbanisation as an opportunity, as a means to give people opportunity”; similarly the state of Maharashtra taken this challenge as an opportunity to bring positive change. And today, in many ways they have achieved success. Let’s see how?



Many parts of urban Maharashtra are already open defecation free, their sanitation challenges are of a different nature, with many towns struggling to manage their solid waste. High level functionaries at the Urban Development Directorate in Maharashtra stated that while solid waste was a critical issue for the state's and the cities, it did not really feature in the state's list of priorities. Neither were the ULBs taking cognisance of the problem, instead opting more for technologies with high operating and maintenance costs which were inherently unsustainable in the long run. The entire planning process had little quality control, and the state dearly lacked a framework within which to plan and implement its solid waste management initiatives.

While Maharashtra's bigger cities – Nashik, Mumbai and Pune all report directly to the state, the urban development directorate is responsible for around 380 small and medi-

um ULBs that need to systemically plan and manage their solid waste. There had been no comprehensive strategies or frameworks to get all these urban agglomerations to achieve sustainable solid waste management.

Yet, one cannot forget that the Swachh Bharat Mission, has set lofty sanitation goals for the country and that too within a stipulated period of time – by 2019! For Maharashtra, this has definitely brought the spotlight to urban sanitation – and to solid waste management in particular. “It was only recently that the state began looking at solid waste management closely,” a senior level bureaucrat tells us. “It is also a subject close to the top echelons of government – the urban development portfolio for example, is held by the Chief Minister.” In 2015, the state launched a seven-step mission – the Swachhata Saptapadi – to curate all urban sanitation initiatives, given the state functionaries' ambitious targets and a tight time-

frame to achieve the state's sanitation goals. Indeed, the idea of introducing a ‘saptapadi’, a traditional seven step vow typically incorporated into weddings, in this context reflecting the state's commitment towards 100 per cent sanitation and cleanliness. This responsibility is with Swachh Maharashtra Mission (SMM), the apex body responsible for ensuring the state achieves all its sanitation goals.

It was quite a challenge to accomplish this task, but “at the same time, or a year later, GIZ began working with the state, and solid waste management was the core component of cooperation. GIZ brought in critical technical expertise in streamlining and strengthening the solid waste management agenda for the state.” In 2016, GIZ began working with the state under the “Support to National Urban Sanitation Policy’ Program (GIZ-SNUSP-II). It was mutually decided that GIZ would assist with a structured, strategic vision for the



Swachh Maharashtra Mission with an emphasis on municipal solid waste management and key areas of support would be advisory and technical support.

There was not much time, and the joint SMM-GIZ team set to work planning a multi-level strategy. Firstly, they helped the SMM in preparing a State Solid Waste Management Strategy. The state used this as an internal guidance document to initiate steps for improving the system. Several government orders were also notified based on this.

A critical factor in solid waste management was the poor quality of city level Detailed Project Reports (or DPRs) being submitted by cities. Coupled with this was the daunting task of preparing DPRs for close to 400 towns in order to achieve the state's sanitation goals? "Let us create a framework to streamline the DPR process," SMM officials decided. With GIZ's support, they decided to follow a unique divisional strategy that divided the nearly 400 odd towns into 6 divisions/ clusters of around 50-60 towns each. Each division would be supported by a nodal cell to drive the solid waste management agenda and private consultants would be identified through a normal bidding process and trained on preparing DPRs for all clusters. In parallel, engineers from the Maharashtra Jeevan Pradhikaran (MJP) and the nodal cells staff, who were supposed to technically approve and sanction these DPRs would be trained on quality control.

GIZ's series of capacity building and training workshops focused on sensitising key stakeholders on the regulation framework, guiding document i.e., MSWM Manual and important aspects relevant with regards to entire solid waste chain to be covered in good quality DPRs. The workshops were very practical, addressing questions such as what are the min-



imum requirements in a good quality DPR? What are the human resources necessary? What are the latest legal and regulatory frameworks? GIZ also prepared a DPR template for the state to follow, and also supported a few cities through the DPR process itself.

How did this actually help cities? Take Satara for example. It's city commissioner says, "Prior to SBM, the city had already become open defecation free, so people were already aware of individual or personal sanitation. With solid waste management, we had already begun door to door collection and segregation, and we already have a few wards that completely segregate their waste, and we have a chain that collect the waste and composts it."

Yet, Satara needed help. "Well, Satara already had a DPR ready for solid waste management, but there were quite a few gaps, to be honest. We couldn't sanction it. It didn't have the details required, say for example for collection

methods, the document had not studied the situation scientifically at all. There was no physical or chemical analysis...we're a historical city, with a big fort, and the DPR really had not taken this into account. How will the leachate from the waste in the landfill affect the fort? When GIZ came in, they definitely helped improve the document. They were conscious of the fact that Satara is a historical city and its local requirements, and GIZ really helped refine the DPR from collection to disposal, supported in identifying the systems we required. It was a good DPR, which was then sanctioned by the state, so we've been able to move to the tendering stage now.", the Commissioner of the city tells us.

What have we learnt? The Commissioner thinks. "Solutions have to take into account the local context- the geographical landscape, the local economy, whether for example, we're an industrial town, or a pilgrimage centre, or if, for example like Satara, which is close

to sugar factories... solid waste solutions depend on the local context. The city now has a systematic process for managing its solid waste effectively, and this really helps the city effectively work within the existing legal and regulatory frameworks for urban sanitation *bilkul, bilkul.*”

For the MJP engineers, GIZ brings in critical support. Engineers have been trained on the latest technologies and solutions available in solid waste management, and they really appreciate the support.

“We have a mandate now to make sure that less amount of waste lands up in a landfill,” the Deputy Engineer for Nashik region tells us. “But we need support in understanding the latest technologies, and the GIZ trainings have really helped every city understand solid waste management holistically. The trainings have really helped us, we’ve been able to clear all our doubts, learn about new technologies, what the latest rules and regulations are such as the 2016 SWM rules, understand the Swachh Bharat checklist... all this will really help us when the towns approach us with their DPRs for technical sanctioning.”

MEETRA, the public training institute was brought in to anchor the trainings and workshops. “MEETRA has been working with GIZ for over seven years in developing training modules, and under the SNUSP II partnership, they have been working closely with SMM on training the MJP engineers, who are responsible for the technical sanctions of DPRs. “These trainings have enhanced MEETRA’s capaci-



ties as a training institute and for myself as a trainer. I see a change after SBM, there’s a shift of focus away from simple awareness building to helping towns achieve their sanitation goals, with quality. MEETRA plays an important role as a catalyst or facilitator in the urban sanitation planning. Ensuring that the DPR meets a standard of quality is important, because once it is sanctioned nothing can be changed. So before sanctioning, the DPR should be a proper, complete document, then only cities can take the right decisions...”

What keeps them going? The trainer gives it some thought. “MEETRA as an institution is committed to enhancing the capacities of people working in the sector for the best of the people of Maharashtra. It keeps us going.”

What’s the next challenge for SMM? Well, the officials are quick to answer. “The philosophy of quality DPR has just now evolved, with GIZ’s support. In last 5 months, 200 cities have ap-

pointed experts for Swachh Surveksan & SWM. Now the ground is prepared, cities are ready to implement projects and to ensure sustainability, after the SBM we have ring fenced the grants already received to help maintain good quality operations and maintenance. We are now looking to integrate the informal economy into the system. We want to enhance peer learning and knowledge exchange within Maharashtra and outside as well. We’ve also begun to think of market linkages for the compost that is produced, and have created a HARIT brand to promote good quality compost.”

When it comes to Solid Waste Management, for the state of Maharashtra, it is only up from here. The state is focused to make its cities free of dirt and managing solid waste in a sound and scientific manner, making the cities cleaner and healthier.

TOILETS MADE AVAILABLE

For her and for him

It is 6:30 am as the Additional Commissioner of the Tirupati Municipal Corporation (TMC), Mrs. Sreedevi, scans the streets. For the city of Tirupati though, it is actually not very early. There are quite a number of pilgrims queuing up at the ticket counter of the bus stop that is right next to the public toilet. They are up early to catch a bus to the Tirumala temple.





Tirupati is a city in the state of Andhra Pradesh. The Thirumala Venkateswara Temple, besides other historical temples, makes it one of the holiest Hindu pilgrimage sites. It is also an important destination for medical tourism as the city boasts good medical facilities. This explains the city's huge floating population throughout the year. The Additional Commissioner is satisfied when seeing the queue outside the public toilet. It is gratifying to see men and women standing in line to use the facilities in a disciplined manner, talking to each other without covering their noses. She smiles while remembering the days when this bus stop did not have a clean, hygienic and

functioning public toilet. The city was ridden with open defecation, making it an unhygienic, unhealthy and unliveable place. The chaos and dirt left users, especially women, desperate for a clean, private and safe facility in close vicinity. Like the bus stand, there were many other public places across the city that needed attention till a few years back. As a woman, the Additional Commissioner could relate to the emotions and struggles of these ladies. She still cringes at the thought of it, bringing her back to the present. As she looks around, the quiet and peaceful morning calms her mind. The clean air welcomes her back. "This is how my city should always be... clean and hygienic...liveable for one and

all," she silently promises to herself. It is time to go to work. She restarts her car and drives towards her office.

It is 11am – peak hour at the TMC – and the building is pulsating with its usual hustle bustle. People are moving up and down the corridors, everyone carrying files. Fleets of cars come at a steady stream, dropping off and picking up people. The waiting room's benches are filled with citizens. In the Additional Commissioner's office, the Municipal Engineer is updating her on the evaluation of the recent monitoring of the city's Public and Community Toilets. The engineer tells her how the toilets are being maintained

and how the two toilets that were not functioning have been fixed. He informs her about the new feedback system that the city has installed. While updating her, the Municipal Engineer's eyes travel to a paper lying on her table re-certifying Tirupati's Open-Defecation Free (ODF) status. It reflects on the whole team's hard work, dedication and achievement – something surely to be proud of.

Becoming ODF certified was not a matter of days but took years of hard work to find suitable and sustainable sanitation solutions. It was a result of long-drawn teamwork between the TMC and its partners. Mr. Balaswamy, the Secretary of the TMC, remembers: “The city that you see today is the result of a long process of planning and systematic work. We spent almost two years planning. A lot of surveys were conducted to identify the OD hotspots, the most appropriate location for new Public and Community Toilets (P&C), the most suitable type of technology, etc. The thorough planning of each aspect made implementation quick, easy and sustainable.”



To understand this arduous journey, one has to go back to the years 2013 and 2014, when the issues of OD had become serious and demanded an immediate solution. Tirupati's City Sanitation Plan (CSP) had just been completed. It had been a detailed step-by-step process by TMC, assisted by GIZ, under the Indo-German cooperation. Instead of going for quick fix, TMC took on the challenge of finding a suitable

long-term solution. This required a proper planning process: starting with a baseline study, need assessment and feasibility study. OD hotspots were identified. This detailed planning demanded time but that did not deter the TMC team. Led by the Commissioner of TMC, Mr. Chevuru Hari Kiran, they decided to go for a manageable and demand-oriented solution. The toilets that were constructed or

SNUSP II promoted the mainstreaming of gender issues in five public toilet facilities. Gender needs were assessed and addressed. Gender awareness was introduced in the planning, implementation (infrastructure), operations (service provision) and monitoring. User surveys conducted in May and June 2017 in Tirupati and Shimla respectively confirmed female users' satisfaction, especially pertaining to safety, privacy, hygiene and accessibility. In Tirupati, three different toilet facilities were assessed:

- Pre-fabricated structure (Namma Toilet PT, opposite the Railway Station) sees a mix of tourist and regular users ranging from religious pilgrims general tourists, users frequenting Vishnu Sadan ,and bus passengers.
- Civic Structure (PT, opposite SV Medical College) has a mix of regular users from nearby residential areas who use the structure early morning, visitors on their way to Tirumala, as well as men and women working in nearby shops.
- E-toilet (opposite the parcel office and close to the subway) sees a mix of users ranging from workers and the public on their way to the railway station or bus stand.

refurbished were to be women-friendly. The planning and strategic implementation was supported by bilateral agencies such as GIZ. The Additional Commissioner summarises GIZ's support: "GIZ was walking along with us through the whole process, consulting relevant stakeholders, helping us conduct and assess studies, map peoples' needs and prepare a data monitoring system. GIZ also supported requests for proposals and provided recommendations to improve the implementation."

With Tirupati being an important pilgrim destination, the public toilet footfall is extremely high across all strata of society. This made it an uphill task to find solutions that are easy to use and maintain. GIZ introduced a step-by-step process. Together with the partners, it reviewed the public toilet management in Tirupati, as well as Shimla in Himachal Pradesh. They, jointly with the municipality and other stakeholders, devised and implemented strategies including new management models, technologies and crosscutting approaches that brought about sustainable improvements. GIZ identified the specific requirements to make toilets more inclusive and gender-friendly, particularly catering to women, handicapped people and children. The vision was to provide access to toilets to every person in the city.

The Commissioner says "The first phase of the project looked at providing 100% access to toilets, ensuring inclusiveness. However, this is not where it ends. As a next step, TMC wants to become a model city that provides the best public toilet facilities that

are gender-friendly.... To do so requires adopting better technology that provides cleaning, waste-management and hygiene solutions, and ensures facilities are spacious and safe."

Currently the community toilets are managed by Self-Help Groups (SHG). TMC is encouraging participation of women in the management of the public toilets. Women members manage and clean the toilets and collect user fees. They are doing an excellent job and with a little capacity-building, the management could be further enhanced. Other aspects that are integrated are digitised feedback systems, logbooks at the toilet facility, IEC to increase awareness on the new public toilets, encouraging their use and engaging other stakeholders such as the RTC, the Transport Department, SHGs, NCC/NSS, etc.

Earlier, maintaining public and community toilets was a major issue. Now, with the private agency "Suvidha" looking after the operations and management, maintenance has become much smoother and has relieved TMC of a big burden. Selected supervisors monitor the toilets on a weekly basis; and in high footfall areas, on a daily basis. The new monitoring system safeguards proper maintenance. TMC has institutionalised all the steps of the complete planning and implementation process. Roles of staff have been clearly defined and they are included in the planning of sanitation improvement plans.

The infrastructure and support services were set according to the demands identified in the gender-needs assessment. This assesses

aspects such as safety, privacy, hygiene and accessibility as well as the satisfaction of women and girl users. In May 2017, GIZ and its partners conducted an evaluation of Tirupati's three different public toilet facilities – civic structure, e-toilet, pre-fabricated structure – to see how users perceive the different structures as well as to assess their maintenance, especially after rain. Parameters like access, design (inside and outside the toilets) and cleanliness were assessed and translated into rankings to measure each facility's performance. Recommendations and strategies were formulated to deal with persisting issues with low ratings.

Improving sanitation facilities has become the TMC's priority area. The holistic and strategic planning and a step-by-step implementation process has paid off. The ODF re-certification of Tirupati confirms the city's effective sanitation management and maintenance. The Commissioner is optimistic that TMC will score high gender and environment rankings. Tirupati has also been selected to be one of the hundred Indian cities to be developed as a Smart City under the Smart Cities Mission by the Government of India. While this is surely a prestigious and proud moment for Tirupati, it also marks the beginning of a long road towards improving and maintaining the ODF status through sanitation. There are many plans under the sleeve of the Commissioner and his team towards making Tirupati an ideal state, with cleaner, healthier and safer sanitation facilities. And they are not ready to stop till they achieve all sanitation goals.

LOCAL AND INNOVATIVE WASTEWATER SOLUTIONS

When one pictures the backwaters of Kochi in the southern state of Kerala, one thinks of the vast swathes of green, the blue waterways and the iconic fishing nets. Nestled at the southern tip of the islands that make up Kochi, and a stone's throw from the better known historical neighbourhoods of Fort Kochi, are the three wards of Edakochi North, Edakochi South and Perumbadappu. These neighbourhoods or wards, are some of the oldest parts of Kochi.



At the office of the Edakochi Ward Councillor Office, the three councillors of these wards, Mr. Baisil, Mrs. Pratibha Ansari and Mrs. Jalaja Mani, along with the GIZ team are busy preparing for an impending public consultation. This group has been working hard to put together plans for a wastewater management system at the ward level that is considered the sustainable disaggregate unit of planning within a city. The culmination of months of work – of planning, surveying, interviewing and designing – is going to be a people’s consultation for a new decentralised wastewater treatment and management approach that has been in the works for a little longer than one year.

Councillor Baisil tells his colleagues, “We are meeting to fix the date and time for

the public consultation. Managing people’s perceptions has been the biggest challenge for us as councillors. We are planning to conduct a public consultation to get the people on board. This is where all the questions will be answered. We are planning to invite all elected representatives – the Member of Parliament, the Member of the Lower Assembly and all other relevant agencies.”

Councillor Ansari agrees, “People need to come to the public consultation. The technical team needs to explain to the people what this is all about in a language that common people understand. People need to be taken for exposure visits so they can see what a sewage treatment plant is like to overcome their apprehension on smell, cleanliness, etc.”

If it goes through, the system will benefit the thirty thousand people living in the three wards. At the meeting, the plans will be presented to them, they will be able to discuss them and finally give their go-ahead. But what are these plans? And why does Kochi need a “new” approach? To find answers to all these questions, we have to step back a few years, possibly, even ten years.

From wastewater to the backwaters: Kochi's wastewater management struggle

Kochi has long struggled to find sustainable solutions to its wastewater problem. It is a city of around 6,00,000 people, with a small, aging sewerage network that services only 5% of Kochi’s homes. The near total remainder –



95% of Kochi's households – rely mainly on septic tanks. Though Kochi can boast of an impressive coverage of on-site sanitation units, however improper design and construction, low functional efficiency and the sore sight of septic tanks overflowing and grey water from households draining directly into open storm-water drains dampens the spirits. This is further aggravated when realising that the wastewater flows into the backwaters, severely contaminating and polluting Kochi's surface and groundwater system.

One wouldn't imagine it, but as the Mayor of Kochi points out: "Kochi may be known as a water city built on a beautiful lagoon. Yet, the visible natural beauty is a foil. Kochi has high groundwater tables with open wells having water at two to four metres depth. Thus, the propensity of groundwater contamination from improper management of wastewater is high." The saying "water, water everywhere, not a drop to drink" holds true in the case of Kochi. The severe contamination from improper sanitation means that most of the city's water is highly polluted.

The situation in wards 15,16,17 was particularly dire. Councillor Ansari describes her ward: "It's a very dense ward. We have high water levels and get a lot of waterlogging. Many of our roads are less than a metre wide and with a low natural gradient the water tended to stagnate. We have open drains and we can see the wastewater stagnating. All this would create a lot of mosquitoes and other health problems for the densely populated ward. We really needed a solution to all of this."

The story is similar in the other two wards. Most households would use a private suction vehicle service to clean their septic tanks as and when they filled up. However, while

some households desludged their tanks every three to four years, others waited even up to ten years! Yet others had not done anything. Councillor Baisil highlights:

"Most households take up mitigation tactics. For example, in Kerala, everyone boils their water. This is a habit. So, the risk of drinking contaminated water is reduced. But how long can they do that? People wanted a proper solution to the wastewater problem. It was reaching a breaking point."

Well begun, half done: Earlier attempts to solve the problem

At that time, nearly ten years ago, the city had toyed with a conventional underground sewerage system, with approved plans and access to sufficient funds in their arsenal. With soaring spirits and hopes for realising their dreams of a universal coverage of

sewerage network in the city, the officials threw themselves into the implementation. They met little success even after a long period of struggle on the ground and as they looked back they realised one key shortcoming: not everyone was brought on board. Kochi's citizens are very aware, sensitised and take a keen interest in civic issues. When the system had to be implemented, the roads were dug up as conventional sewer systems requiring fairly deep sewers to be installed, causing a lot of disruption to daily life. These disturbances were considered public nuisance and mired the project in a lot of public agitation, negative public opinion and even some public interest litigations. People were up in arms and came knocking at their public representatives' doors with their grievances. It was quite difficult for the Mayor and the councillors to manage expectations and demands. The agitations stalled efforts and

A NON-CONVENTIONAL SEWERAGE SYSTEM

As part of the non-conventional sewerage system, it was suggested to use solid-free sewers for transporting wastewater from the households to the treatment plant. The solids like grit, grease, and sludge would be collected in the existing septic tanks. These tanks would function as interceptor tanks for solids, while their overflow and the grey water would be transferred to a connected solid-free sewer system. The solid-free sewers – only carrying the liquid portion of the wastewater – would be connected to the wastewater treatment plant. The septage – the solids from the septic or interceptor tanks – would have to be regularly emptied and treated to ensure the efficient functioning of the proposed non-conventional system.

Since the sewers will not carry solids, they can be laid at lower gradients, keeping in mind Kochi's flat topography. The interceptor tanks would provide some surge storage, decreasing peak flows. This means that the solid-free sewers could be of smaller diameter compared to the conventional sewers, reducing the digging and disruption in Kochi's narrow streets, while also avoiding hitting high water tables.

For Kochi, this solution turned out to be cheaper and quicker to implement. The whole project – from survey, design, implementation and finally service delivery – was calculated to take under three years. A pilot of this non-conventional system in three wards (North and South Edakochi and Perumbadappu) was started.



later led to their abandonment. Nearly five years of hard work was abruptly brought to a halt. The Mayor and the councillors had become ever more sensitive to the importance of people's participation and awareness and institutional strengthening. This time around, they were convinced they needed a participatory solution that brought everyone on board.

Around the same time, GIZ was working with Kochi's local administration to develop a City Sanitation Plan (CSP). It was confirmed that wastewater management was a pressing concern. The Mayor and the Kochi Municipal Corporation were under pressure to find an acceptable and viable solution for all citizens. GIZ took the challenge and started working with the city to find a locally suitable solution,

taking into account Kochi's cultural, social and geographic specificities. GIZ's technical expertise brought to the city's attention viable examples from other cities across the world that had experienced similar issues. The pre-feasibility studies highlighted why a conventional underground sewer network was so very difficult to implement in Kochi – the high groundwater table, narrow streets and a flat topography make it next to impossible. Thus, the technical team of GIZ started exploring other options – one being the possibility of a non-conventional sewerage system at a sub-city level.

Bringing everyone on board

How does a city initiate a new solution, which has not been tried anywhere in the state before? What is required to get all the

stakeholders on board, especially in light of the tight timeframe of the project? The Kochi Municipal Cooperation (KMC) and GIZ decided to create a participatory planning process that would focus on bringing all stakeholders on-board right from the start. A tripartite agreement was proposed between the KMC, the Kerala Water Authority (KWA) – the state's parastatal organisation for water supply and wastewater – and the Suchitwa Mission – the state-level nodal agency for sanitation.

How did the councillors and the Mayor manage citizen and stakeholder expectations? Using the tripartite agreement, the corporation constituted multi-stakeholder meetings that met regularly to collectively agree on every step of the planning process. It has not been

without difficulty but in the long run the participatory process will ensure the smooth implementation of the project. The Mayor explains:

“It is almost like a trade-off. Although the planning process has taken time in aligning the many stakeholders, I feel the implementation process will be quicker because everyone has been involved from the beginning and principally agrees on the project’s particularities. I will have to say it has been challenging for my office to manage this multi-stakeholder project. There are so many stakeholders involved and my office has had to push for every single step, with every step taking its own time. It has been a challenge getting all procedures to move as planned. Working under schemes like AMRUT has been helpful in shaping and pushing the project through.”

The KWA had never worked on a non-conventional sewerage system until now. Their major expertise lies in the domain of drinking water supply. If it were their choice and design, KWA would have opted for a centralised system. Aligning the diverging viewpoints was a challenge for the corporation. Here having a nodal agency in place and an elected council helped manage the corporation and steering of the project in conjunction with the public will. At the ground level, the councillors became the main interface between the technical teams and the citizens. Councillor Baisil explains:

“It is our role as councillors to manage people’s demands and complaints that relate to disruptions caused by construction, water quality issues, mosquito menace, etc. Right now, all the outlets flow directly into the backwaters. We are the interface between the government and the public. So naturally all the questions come to us”.

The technical teams together with GIZ and the Suchitwa Mission literally scoured and mapped every corner of the three wards. Councillor Mani remembers “we have been seeing them and their people regularly in the ward for some time now. There is an expectation that something will come and people are waiting for it.”

The Mayor agrees: “I really appreciate GIZ’s dedication to this project and their approach to take into account all local conditions, culture, people perceptions and local specificities to make a robust detailed project plan. GIZ has been able to survey and study every nook and cranny of the three pilot wards and was able to map all the local conditions, culture and requirements of the people. This is very unlike earlier projects.”

Coming back to the present, Councillors Mani, Baisil and Ansari are planning their meeting. Small details, like the time and day of meeting, language, communication tools, and other details, will go a long way in convincing the people. Conveying the possible impacts to the people will be a

challenge. The Mayor is sceptical. “How do we convey the social impacts, like health impacts, which can be seen only much later. How will we do that?”

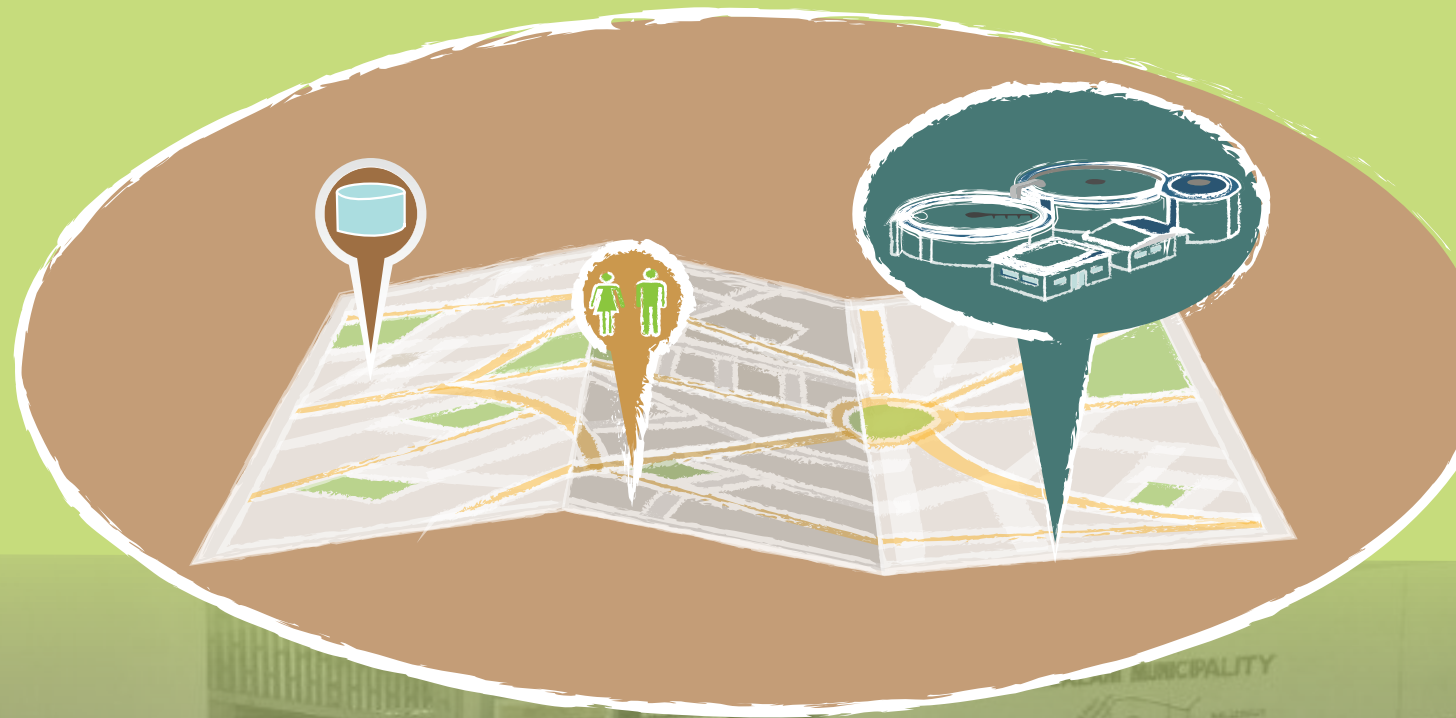
Councillor Ansari thinks of highlighting the reduced financial burden. According to her, “We must tell the people that nearly 75% of the planned and divisional funds go towards managing and repairing the drains as of now. If the system comes into place, a considerable amount of public funds can be saved. This will help in building our case.”

One hurdle remains. People want a solution for all their wastewater. Baisil points out: “There is a willingness to pay for a wastewater treatment service. As it is they pay 150 Rupees for solid waste. Compliance is around 50% but the real challenge is to provide a solution for all the waste. People do not care about the technical details. Convincing people for partial solutions is difficult. We must take this into account.”

Councillor Mani remains hopeful. “People are aware that “something is coming.” There have been so many people and external consultants visiting the wards. They are prepared for something new. So, we have to guide them through the details. We are trying something new and there is definitely prestige for the ward to be the pioneers. Let us hope for the best.”

THE STORY OF THE MAP-TRACER

Swamidas sat hunched over his desk. The evening light was still streaming in. It was an unusually quiet day at the Chittur Tathamangalam municipality – deceptively so. From a distance, as his silhouette glowed in the setting sun, one could have mistaken him to be a miniature artist. His gaze was unwavering, tracing the lines from the map underneath the drawing sheet.



It was the map of his city – his city for the past 10 years. A city where as the assistant engineer at the municipality, he had learned much about water supply management, storm water drainage and sanitation – not the most exciting phrases but essential for running any city. Perhaps the past few months had been even more instructive on this learning journey – being part of the training. But now everything seemed up in the air. As he traced the last few wards, he could hear the distant noise from the campaign trail. He couldn't make out which party it was. The municipal elections were less than a month away and if the ruling party changed, all their plans, all his efforts, all of the meticulous tracing could become part of yet another dusty file, waiting to be implemented.

But had the journey so far been worth it? He definitely thought so.

It had been a nippy December morning when Bini, Swamidas's municipal secretary, had called him with the news of the training regarding the City Sanitation Plan (CSP). The Suchitwa Mission had selected fourteen cities across Kerala and his city was also part of it. The training was to be conducted by GIZ.

“Isn't this great news?” Bini had shared excitedly.

Swamidas had heard about the CSP at the Kerala Institute for Local Administration (KILA), where he was a guest faculty on civic works. And what had caught his attention was the process of formulating this plan.

“You know, Bini, there is a task force which is generally formulated to steer this plan. I think it is calledSanitation Task Force.”

“Oh yes, yes... City Sanitation Task Force [CSTF]. I was reading about this online.

This agency has also helped Kochi city plan their CSP. And yes, the CSTF helped them formulate the plan. I think it requires a lot of people – municipal councilors, educators, businessmen, civil society – to come on board. So unique, no?” said Bini, with genuine wonder.

“Yes, I had heard about it. It can be a very interesting way to work and if I may suggest, do you think we can speak to the Mayor about formulating this body in the month ahead. I know that the training is far away but this will help people to get thinking about the issues. What do you say?”

“I think that's a great idea. Let's go over the documents once you are here in office, and then we can approach the Mayor.”

The Mayor, KA Sheeba, was a young lady of 31, much like Bini for whom, this too was her first job. Two years ago, Bini had



സിറ്റി സാനിറ്റേഷൻ പദ്ധതിയുമായി ചിറ്റൂർ-തത്തമംഗലം നഗരസഭ

ചിറ്റൂർ: സിറ്റി സാനിറ്റേഷൻ പദ്ധതി നടപ്പാക്കുന്ന സംസ്ഥാനത്തെ ആദ്യനഗരസഭ ചിറ്റൂർ-തത്തമംഗലം നഗരസഭയാണെന്ന് ജർമ്മൻ സർക്കാർ പ്രതിനിധി സാറാ ഹോബർസാക്ക് അവകാശപ്പെട്ടു. സിറ്റി സാനിറ്റേഷൻ പദ്ധതി സെമിനാർ നഗരസഭയിൽ ഉദ്ഘാടനം ചെയ്യുകയായിരുന്നു അവർ.

നഗരസഭ ദീർഘവീക്ഷണത്തോടെയാണ് പ്ലാൻ തയ്യാറാക്കിയത്. ഇത് മറ്റ് നഗരസഭകൾ അനുകരിക്കേണ്ടതാണെന്നും സാറാ ഹോബർസാക്ക് പറഞ്ഞു. ചെയർമാൻ ടി.എസ്. തിരുവെങ്കിടം അധ്യക്ഷനായി. ശുചിത്വ മിഷന്റെയും ജർമ്മൻ ഗവ. സെൻറർ ഫോർ സയൻസ് ആൻഡ് എൻവയോൺമെൻറിന്റെയും സാങ്കേതികസഹായത്തോടെയാണ് പദ്ധതി നടപ്പാക്കുന്നത്.

പദ്ധതിയെക്കുറിച്ച് സി.എ



നഗരസഭയിൽ സിറ്റി സാനിറ്റേഷൻ പദ്ധതി സാറാ ഹോബർസാക്ക് ഉദ്ഘാടനം ചെയ്യുന്നു

സ്.ഇ. സാങ്കേതികോപദേശകരായ രാഹുൽ ശർമ, ഇസാക്കിരാജ് എന്നിവർ വിശദീകരണം നൽകി.

ജലവിതരണത്തിന്റെ അപാകം, മലിനജലശുചീകരണം, ഖരമാലിന്യസംസ്കരണം, ജന

ങ്ങൾക്ക് ബോധവൽകരണം, നഗരസഭയിൽ പൊതുശുചാലയങ്ങൾ, വിടുകളിൽ ശുചാലയം, ജൈവ-അജൈവ മാലിന്യങ്ങൾ വേർതിരിക്കൽ, വിടുകളിൽ മാലിന്യസംസ്കരണം, പരിസരശുചീകരണം, ആരോഗ്യപ

രിപാലനം തുടങ്ങി ഒട്ടേറെ കാര്യങ്ങളാണ് നഗരസഭ തയ്യാറാക്കിയ പ്ലാനിൽ പെടുത്തിയിട്ടുള്ളത്.

30 വർഷത്തിനുള്ളിൽ നടപ്പാക്കേണ്ട പദ്ധതികളാണ് പ്ലാനിൽ പെടുത്തിയതെന്ന് പദ്ധ

തി വിശദീകരിച്ച് എൻജിനീയർ സ്വാമിദാസ് പറഞ്ഞു.

നഗരസഭയിൽ മൂന്ന് മാസത്തിനുള്ളിൽ നടപ്പാക്കേണ്ട കാര്യങ്ങളെക്കുറിച്ച് സെക്രട്ടറി കെ.യു. ബിനി വിശദീകരിച്ചു. നഗരസഭ തയ്യാറാക്കിയ പ്ലാൻ സന്നദ്ധസംഘടന അംഗീകരിച്ചു.

നഗരസഭ വൈസ് ചെയർമാൻ കെ.എ. ഷീബ, വികസന സ്റ്റാൻഡിങ് കമ്മിറ്റി ചെയർമാൻ കെ.സി. പ്രിത്, ആരോഗ്യ സ്റ്റാൻഡിങ് കമ്മിറ്റി ചെയർമാൻ സാദിക് അലി, ഹെൽത്ത് ഇൻസ്പെക്ടർ പ്രകാശൻ, കൗൺസിലർമാർ, പൊതുപ്രവർത്തകർ എന്നിവർ സംസാരിച്ചു.

പദ്ധതിയിൽപ്പെടുത്തേണ്ട കാര്യങ്ങളെക്കുറിച്ച് ഷഡ്യാനൻ ആനിക്കത്ത്, കൗൺസിലർ എം. ശിവകുമാർ, പൊതുപ്രവർത്തകരായ സി. കൃഷ്ണൻ, പി.വൈ.എം. മൻസൂർ എന്നിവർ നിർദ്ദേശം നൽകി.

completed her post-graduate degree in law and although higher in the municipality ranks, she always wanted to be a team player. Swamidass liked their camaraderie.

The Mayor agreed and the CSTF was constituted within the next month.

The first training began three months later. Swamidass had been to many training events across India – to Hyderabad, Chennai, Ahmedabad and Delhi – but this training was nothing like any previous ones. Attending day-long trainings for three days straight hadn't been easy. The training was in English, a language he was not very familiar with, but the days were surprisingly engaging. The trainers did not just talk about the subject of planning but they also encouraged

the participants to contribute. The trainers explored the subject with them in different ways – encouraging participants to analyse the situation in their own cities, identifying areas that needed intervention, pushing them to question how data collection on different aspects of sanitation could help them. Every time Swamidass found it difficult to comprehend the proceedings, he would approach Esakki Raj, the training team's state technical expert.

Listening to the trainers underlining the importance of public participation, he realised they had taken a great first step by formulating the CSTF. But there was a long way to go. Until then, in Chittur, Thathamangalam, they had built toilets and they had their own composting site but they had never really

considered the matter of septage management, storm-water drainage or involving the local community in the process of planning or decision-making at the municipality level.

And as they learnt, before the participants came back for the second training two months later, each city had to prepare a status report – collecting baseline data on multiple aspects of sanitation.

“This will be a whole different level of work,” murmured his colleague Radhakrishnan (Superintendent, Taluk Hospital) who was also attending the training.

Once they returned to Chittur Thathamangalam, Bini, Mohammad Ashraf (the Health Inspector), Swamidass and Radhakrishnan

met immediately. They decided to split the job of data gathering sector-wise, among smaller teams. To get the inputs of the council and other members of the CSTF, the mayor decided to call for the first CSTF meeting.

Everyone turned up – the chairmen of various standing committees, engineers from Kerala Water Authority, Public Works Department, Kudumbashree, businessmen, educators, social workers, as well as members of various Residence Welfare Associations.

The Mayor set the context by introducing the CSP and the need to develop a baseline data. Before she could finish her speech, the diverse bunch had already started pitching in, bringing in the concerns of the poor and marginalised, women, students and the market associations among many others. Everyone was contributing, just the way Swamidas had thought it would happen.

By the end of the meeting, the task of developing the baseline was clearly divided. Swamidas led the group for water supply, storm-water management, receiving water body management and wastewater management. Ashraf was leading the group working on gathering data on toilets and solid waste while Bini was going to be leading the group that would collect data on institution and governance, municipal finance and capacity enhancement. The group for health and hygiene was to be led by Radhakrishnan. The groups had a month to do their job.

It was not easy. They had to get data from different state bodies. Many of the teams had to follow-up repeatedly to get some of the data. Sometimes the authorities did not have the right kind of data at all. The trainers had shared a template for the report but the team needed help. Suchitwa Mission and the GIZ

team had said that the participants could reach out to them, much like a helpdesk. Swamidas contacted Esakki Raj. Before the month ended, the team visited their city.

While the visit proved helpful, the challenge of collecting the right data had remained. Swamidas had his doubts and shared them with Bini. His fear was if they were heading for a pointless chase.

“Well, I understand the problem. But the thing is we have never done such an exercise before so the need for looking out for such a data never arose. Now that we are in the process, we are realising the gaps. And I guess that too is part of the planning process. We may not get everything we want but the next time someone is updating these data sets, they may have a better chance if we have established the right processes, no?” Bini had suggested.

That’s when Swamidas realised what the trainers had meant by the term “living document.” The document was not a one-time Detailed Project Report (DPR) – it was a long-term plan to be constantly updated and possibly revised.

He still remembers how nervous and excited he had been on his way to the second training, the niggling worry about what would be the feedback. He had been looking out of the window when he noticed the graffiti on the walls, much like the warli-style paintings he had used to illustrate the walls of the composting site in Chittur. Stick figures to tell a story – how to segregate one’s waste and how to create compost in one’s own backyard; much like how the trainers had helped him and his team draw out a better story for his city. He had still been unsure of his strokes but the team behind him had given him the faith that the canvas will be a

rich one by the end of their journey.

As he learnt later that afternoon, his strokes were not so bad after all.

Swamidas’s city was one of the few municipalities that had submitted the Status Report in time. “Just at the outset, I would like to say that this is one of the best status reports we have got from across the states. Yes, there can be some improvements – but it really shows you put in a lot of effort,” one of the trainers had shared.

“And I don’t think it would have been possible without such an involved approach to teaching that you people have used. Thanks so much for that,” Swamidas responded. He engaged wholeheartedly in the lectures, exercises, games and discussions on how to analyse the city’s data and came out with key sanitation issues in the city. Even as he did, he was aware of the next challenge. The team was expected to submit the draft CSP before the third and final training but there was a minor hurdle on the way – the upcoming civic polls. They were told the dates for the final training were tentatively set but would the CSP continue to be a priority for the council after the elections?

The two months since the second training had been a haze. The CSTF met for the last time in October. Swamidas had shared the feedback on the status report and the way ahead had been drafted. The team was to continue working on the draft CSP.

Even if they made a plan, there was much to consider. The municipality had been facing a severe deficit of funds. The principal source of income, the property taxes, had not been revised in 20 years and there was no motivation to increase them anytime soon. This also meant that they always had limited hands to

work on the different projects. As a technical staff, Swamidas was the lone engineer that the municipality employed. Even at the level of sanitation workers, while there was a need for hiring, they were barely managing to pay the salaries of the current staff. These problems were not new and perhaps a solid plan could help them out. But as the electoral campaigns became shriller, the way ahead seemed clouded. What if the ruling party changed? What if there was a new agenda?

“Even if the ruling party changes, we have to keep going. Our best chance is to offer them a solid plan so that they cannot overlook it. And with the CSTF, we have kept all councilors on board so no one is in the dark about the CSP. So I think we have a good chance,” Bini had responded. She certainly knew how to march on.

The team had once again split the work amongst themselves. Everyone was on board – from the daily-wage workers, to the superintendents to the typewriters. They would hold feedback meetings for each team’s outcomes, improving everyone’s work along the way. Swamidas continued to be in touch with Esakki Raj, clarifying his doubts about the template and the various terms used within. To meet the deadline, the municipality worked 12–18 hours and some of them even came on Sundays.

The Election Day came and went.

On November 7, the results were out. The ruling party had lost a few seats but it was back in power. There was a new chairperson, the 78-year-old Mr TS Thiruvankidam.

On top of his briefing documents lay the draft CSP. To Bini’s and Swamidas’s relief, the Chairperson was in complete agreement with their plans. Soon enough, the team

from Suchitwa Mission called, informing them about the dates for the final training. It was to be in January, giving the municipality enough time to successfully complete their draft.

“Once again, the CSP produced by your team is one of the best documents from all of the 34 cities that we have been working with. It is amazing what you have managed”, remarked one of the senior trainers, as they shared their feedback with Swamidas and Prakasan, one of the health inspectors, who was attending the final training with him.

“We will definitely find a way to support municipalities like yours in planning your projects further.”

The GIZ team shared with Swamidas a detailed feedback on the first draft of their City Sanitation Plan.

Under the Chairperson’s leadership, the new CSTF was constituted in March 2016. By the time the newly constituted CSTF came together for its first meeting in June, the Kerala Sustainable Urban Development Programme (KSUDP) had also sanctioned funds worth six crores for renovation of water bodies and another ten crores for the improvement of drainage systems. At the CSTF meeting, Swamidas and Prakasan shared with the Task Force the outcome of their research and analyses and the feedback of the GIZ team.

In the months ahead, the team – assisted by Esakki Raj – fine-tuned the CSP document. On Esakki Raj’s visit to the city, Swamidas was happy to note that he was not alone – there were the trainers from GIZ as well. It was a special occasion. Bini and Swamidas shared the way forward about their action plan. The GIZ team was planning on

another training schedule for the state of Uttarakhand. They extended an invitation to Bini and Swamidas to talk to the new trainees about the CSP formulation process. But it was time for Swamidas to take on a different journey.

As a child, when his mother would ask what her little boy wanted to be, Swamidas would unfailingly respond, “Sanchari [traveller], amma.” He did not know then when and how he would fulfill his dream of traveling but he was sure he wanted to. In his working life of 31 years, he had already managed to travel to a number of places in the Himalayas and Rajasthan. He felt a curiosity for the world – the same curiosity that made him experiment with warli paintings as a way of teaching people about waste segregation. After 12 years of service as an assistant engineer in Chittur, Tathamangalam, as the time for the CSP implementation drew close, Swamidas received a notification from the state government. He was being transferred to Pala, another town in Palakkad district.

“But why now?” Bini complained on hearing the news. “Now that we have to move ahead with the implementation.”

Truth was Swamidas was sad as well but then the way ahead was not his to choose. “Bini, but thankfully we managed to finish so much, didn’t we?” Swamidas responded, as much to her as to his own self. He looked up. “Pala is not far... and who knows what adventure awaits there?”

In the months ahead, the municipal council gave its approval to the final draft of the CSP. It also allocated land for its very first Septage Management plant. There were no protests as the site was at a safe distance of 2–3 kms from the nearest residential area. The city

had been completely open-defecation free and through the municipality's composting plant, the city continued to process 1 ton of biodegradable waste everyday.

Early November, Bini received a call from the Suchitwa Mission office. They were requesting all municipalities to submit a Detailed Project Report (DPR) for a Solid Waste Management project. She almost

immediately reached out for her phone to call Swamidas. Who else but him to help out in these technical matters?

As she was scrolling down the phone, she remembered: Well, he has already written down all of it.

She put the phone away and took out the copy of the CSP from her drawer. She

poured over the details that needed to be filled in the DPR and unsurprisingly the information needed was all there.

That afternoon Swamidas was watching over the painters as they gave a final touch to the murals – another composting pit was getting an overhaul. His phone buzzed. It was a message from Bini: “Thanks for being such a great guide.”

abbreviations

AIILSG	All India Institute of Local Self-Government
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AP	Andhra Pradesh
APSRTC	Andhra Pradesh State Road Transport Corporation
CDMA	Commissioner & Director of Municipal Administration
CPCB	Central Pollution Control Board
CPHEEO	Central Public Health and Environmental Engineering Organisation
CSE	Centre for Science and Environment
CSP	City Sanitation Plan
CSTF	City Sanitation Task Force
CT	Community Toilet
cu.m	cubic meters
DMA	Department of Municipal Administration
DPR	Detailed Project Report
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GoI	Government of India
IEC	Information Education and Communication
IWW&SM	Integrated wastewater and septage management
KL	Kerala
KLD	kilo liters per day
KMC	Kochi Municipal Cooperation
KWA	Kerala Water Authority
LPCD	litres per capita daily
MA&UD	Municipal Administration and Urban Development
MH	Maharashtra
MLD	Million litre per day
MoEFCC	Ministry of Environment, Forests and Climate Change
MoHUA	Ministry of Housing and Urban Affairs (earlier Ministry of Urban Development)
MoUD	Ministry of Urban Development (now Ministry of Housing and Urban Affairs)
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
NGOs	Non-Government Organisation
NoC	Non-Objection Certificate
NSS	National Service Scheme
NUSP	National Urban Sanitation Policy
OD	Open Defecation

ODF	Open Defecation Free
P&CT	Public and Community Toilets
PT	Public Toilet
PJN	Pey Jal Nigam
PSC	Project Steering Committee
SAC	Swachha Andhra Corporation
SBM	Swachh Bharat Mission
SCM	Smart City Mission
SDG	Sustainable Development Goals
SHG	Self-Help Groups
SLSC	State Level Sanitation Committee
SNUSP	Support to the National Urban Sanitation Policy
SNUSP II	Support to the National Urban Sanitation Policy II
SSS	State Sanitation Strategies
SWM	Solid Waste Management
TMC	Tirupati Municipal Corporation
ToT	Training of Trainers
TS	Telangana State
UDD	Urban Development Department or Urban Development Directorate
UK	Uttarakhand
ULB	Urban Local Bodies

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