

CAPACITY BUILDING
NEED ASSESSMENT OF
CITIES (ANGUL AND
DHENKANAL) AND
STATE GOVERNMENT
ON SANITATION

A CASE OF ODISHA

RESEARCH REPORT

Padmaja Nair
Independent Consultant

Anju Dwivedi
Senior Researcher

CAPACITY BUILDING NEED ASSESSMENT
OF CITIES (ANGUL AND DHENKANAL) AND
STATE GOVERNMENT ON SANITATION
A CASE OF ODISHA

A Report by

Padmaja Nair

Anju Dwivedi

March 2017



Suggested Citation

Padmaja Nair, Anju Dwivedi. 2017. Capacity Building Need Assessment of cities (Angul & Dhenkanal) & State Government on Sanitation: A Case of Odisha. Centre for Policy Research. New Delhi

ACKNOWLEDGEMENT

We would like to thank Practical Action staff at the State and at the cities who provided all the support required to carry out the study in Angul and Dhenkanal. We appreciate the support of officials and Chairpersons of both municipalities, State level officials of Orissa Water Supply and Sewerage Board (OWSSB), Housing and Urban Development Department (HUDD) and State Urban Development Authority (SUDA), who shared information required for the study. We also extend our thanks to State Level technical teams of JNNURM and Deloitte for providing relevant information for the study.

FOREWORD

Capacity development is an ongoing process of strengthening and augmenting capacities of 'actors' involved in a development process to deliver sustainable outcomes. Capacity building involves three key elements- enhancement of knowledge, upgradation of skills and change in attitudes.

Various researches and evaluations on capacity building programmes for the government functionaries under the Central government programmes have suggested that in addition to building physical capacities, there is a need to invest in financial and human capacity. However, many States and cities have been unable to leverage available funds or implement reforms because of lack of local capacity and technical expertise.

Capacity building programmes have largely remained part of the schemes of the GoI and delivered under a 'top down approach', with very limited impact on organisation wide interventions and Human Resource Development. Capacity building is an integral component of all recent and ongoing flagship programmes of the Government of India, including Swachh Bharat Mission (Urban) and Atal Mission for Rejuvenation and Urban Transformation (AMRUT). Under SBM and AMRUT, States are encouraged to propose extensive capacity building plan to be approved by the State Level High Power Committee after suggestions from MoUD.

Although sanitation is one of the key components under the SBM, AMRUT as well as under SMART cities, capacity building on issues of sanitation has remained an area of neglect in most of the States and ULBs.

Centre for Policy Research, New Delhi has been working in the State of Odisha since 2013 under the Scaling City Institutions for India (SCI-FI) project and most recently through Project Nirmal (supplementary Grant of SCI-FI) supported by Bill and Melinda Gates foundations (BMGF) and Arghyam. "Project Nirmal" is a joint project of the Centre for Policy Research, New Delhi and Practical Action Bhubaneswar, in collaboration with the Government of Odisha (Housing & Urban Development Department). The Project aims to demonstrate a city-wide sanitation system for small cities strongly incorporating FSM techniques for on-site sanitation systems. The project recognises that to improve efficiency and effectiveness of sanitation services in cities, capacity building is not only crucial but requires examination of existing capacities and suggestions to improve the capacities in the cities and in the State to deliver sanitation programmes.

The study on **Capacity Building Need Assessment of cities (Angul & Dhenkanal) & State Government on Sanitation: A Case of Odisha** aimed to focus to understand the systems of sanitation service delivery including septage/faecal sludge management in the cities; and understand capacity gaps in the cities, both at the institutional and individual level in delivery of sanitation and inclusive urban planning.

The study was conducted under the Scaling City Institutions for India (SCI-FI) Project on Urban Sanitation (Project Nirmal), supported by Bill and Melinda Gates Foundation (BMGF).

TABLE OF CONTENTS

ACRONYMS	8
EXECUTIVE SUMMARY	9
1. BACKGROUND	12
1.1 About the study	13
1.2 Methodology of the study	13
1.3 Arrangement of the report	14
2. URBAN SANITATION: SECTOR OVERVIEW	16
2.1 Global trends	17
2.2 Addressing urban sanitation and fsm: a municipal function	17
2.3 National perspective: urban sanitation and septage management	20
2.3.1 <i>Urbanization and urban sanitation</i>	
2.3.2 <i>Policies and programmes</i>	
2.3.3 <i>Institutional arrangements</i>	
2.4 Odisha: state perspective	23
2.4.1 <i>Urbanization and urban growth</i>	
2.4.2 <i>Urban sanitation</i>	
2.4.4 <i>Capacities of ULBs in Odisha to manage an expanding need for sanitation and FSM</i>	
3. CAPACITY NEED ANALYSIS AND FINDINGS: ANGUL	26
3.1 Urban and socio-economic profile of angul	27
3.2 Status of sanitation, facilities and services	27
3.3 Sanitation functions of angul municipality: role and capacities	29
3.3.1 <i>Organizational structure, roles and functions</i>	
3.3.2 <i>Coordination with other departments and agencies</i>	
3.3.3 <i>Systems and processes</i>	

4.	CAPACITY NEED ANALYSIS AND FINDINGS: DHENKANAL	32
4.1	Urban and socio-economic profile of dhenkanal	33
4.2	Status of sanitation, facilities and services	33
4.3	Sanitation functions of dhenkanal municipality: role and capacities	34
5.	FINDINGS AND STRATEGIC DIRECTIONS FOR CAPACITY BUILDING FOR EFFECTIVE URBAN SANITATION AND FSM	36
5.1	Findings and conclusions	37
5.2	Strategic directions	40
5.3	Training plan	44
5.4	Proposed timeline	45
	REFERENCES	46
	NOTES	47

ACRONYMS

AMRUT	Atal Mission for Rejuvenation and Urban Transformation	MAS	Mahila Arogya Samiti
ANM	Auxiliary Nurse Midwife	MDG	Millennium Development Goal
APL	Above Poverty Line	MoUD	Ministry of Urban Development
ASCI	Administrative Staff College of India	MSW	Municipal Solid Waste
ASHA	Accredited Social Health Activist	NBA	Nirmal Bharat Abhiyan
BMGF	Bill and Melinda Gates Foundation	NGO	Non Government Organization
BPL	Below Poverty Line	NULM	National Urban Livelihoods Mission
CBO	Community Based Organization	NUSP	National Urban Sanitation Policy
CCBP	Communication and Capacity Building Programme	OBC	Other Backward Castes
CDMO	Chief District Medical Officer	O&M	Operation and Maintenance
CPR	Centre for Policy Research	OUSS	Odisha Urban Sanitation Strategy
CSO	Civil Society Organization	OWSSB	Odisha Water Supply and Sanitation Board
CSR	Corporate Social Responsibility	PCB	Pollution Control Board
DA	Development Authority	PHEO	Public Health Engineering Organization
DALY	Disability Adjusted Life Year	PMU	Project Management Unit
DLR	Daily Labour Rate	PRI	Panchayati Raj Institution
DPR	Detailed Project Reports	PPP	Public-Private Partnership
EO	Executive Officer	RWA	Resident Welfare Association
FSM	Faecal Sludge Management	SBM	Swachh Bharat Mission
GoI	Government of India	SDG	Sustainable Development Goals
GoO	Government of Odisha	SFC	State Finance Commission
HUDD	Housing & Urban Development Department	SIG	School Improvement Grant
IDSMT	Integrated Development of Small and Medium Towns	SLWM	Solid and Liquid Waste Management
IEC	Information, Education, Communication	SSA	Sarva Shiksha Abhiyan
ISO	Indian Standards Organization	STP	Sewage Treatment Plant
JNNURM	Jawaharlal Nehru National Urban Renewal Mission	SUDA	State Urban Development Agency
KAP	Knowledge, Attitude and Practice	SWM	Solid Waste Management
LWM	Liquid Waste Management	ULB	Urban Local Body
FSTP	Faecal Sludge Treatment Plant		

EXECUTIVE SUMMARY

1. The Centre for Policy Research (CPR) and Practical Action is currently implementing Project Nirmal (2015-2017) – a pilot demonstration project on city-wide sanitation service delivery in the two small towns of Dhenkanal and Angul in Odisha – in collaboration with the Housing & Urban Development Department (HUDD) of the Government of Odisha. Project Nirmal aims to demonstrate a city-wide sanitation system for small cities incorporating faecal sludge management (FSM) techniques for on-site sanitation systems. Capacity building is one of the key inputs of the project; the focus is on a series of capacity assessments and reviews at the state and city levels in order to generate a relevant and feasible strategy. The current study is part of this component and aims to understand:

- ▶ The systems of sanitation service delivery including septage management/FSM in the cities
- ▶ The skill sets and knowledge available and capacity gaps at the institutional and individual levels in delivery of sanitation services
- ▶ The existing capacity building delivery mechanisms (trainings) in the context of overall inclusive urban planning with a focus on sanitation and FSM
- ▶ The revenue sources for sanitation; and the role of stakeholders, including the private sector and community, in financing and resource mobilization

2. The study looked at the systems and status of sanitation and FSM in the two towns of Dhenkanal and Angul with reference to the existing and required capacities of the Urban Local Bodies (ULBs) at the institutional and individual levels. The investigation concentrated on the overall sector environment at the national and state levels, the city sanitation profile with reference to the trends in urbanization and urban growth, the organizational structure as well as the overall and individual capacities of the ULBs to deliver sanitation services with a focus on FSM.

3. Review of data and documents, site visits and interviews with concerned officials and elected representatives of the two ULBs as well as other relevant departments and communities were the principal means of data collection. Besides, discussions were held with local civil society organizations (CSOs) involved in sanitation and private vendors of sanitation services. At the state level, detailed discussions were held with senior officials of the Odisha Water Supply and Sanitation Board (OWSSB), State Urban Development Agency (SUDA), Public Health Engineering Organization (PHEO), Pollution Control Board (PCB) and consultants from the Project Management Units (PMUs) of various other ongoing projects.

4. The study observes that:

4.1 Odisha, though the least urbanized state (17%) in the country, has registered a significantly high decadal urban growth rate of 27% with the urban population growing from 37 million to 42 million in the decade 2001-2011.

4.2 The Census (2011) data on the urban water and sanitation situation in Odisha presents a somewhat dismal picture: it indicates that access to safe drinking water is a major issue for almost half the urban households: only 42% have access to treated tap water for drinking and less than 57% have sources within their premises. In the case of sanitation, more than 35% of the urban households do not have access to toilets and only a little over 58% have water closets, with the remaining using pit or other kind of toilets.

4.3 The state government has responded by focusing on a mix of planned growth of the cities, and urban governance and management with greater accountability, transparency and citizens' participation. Odisha was one of the first states to formulate sanitation plans: the Odisha Urban Sanitation Strategy (OUSS, 2011), revised Odisha Urban Sanitation Strategy (2016) and the Odisha Urban Water and Sanitation Communication Strategy (2011). Recently it has introduced Odisha Septage Management Regulations (2015).

4.4 However, technology options available with the ULBs are limited and capacity enhancement is needed across the sanitation sector, including for waste water disposal. The capacity constraints range from the lack of clarity in roles and responsibilities of various stakeholders and institutions, the multiple responsibilities and functions and the mixed system of personnel deployment followed in the state to a lack of technical and functional skills of the ULBs and other stakeholders. The major shortcomings are thus weak and inadequate institutional structures and poor policy frameworks; lack of political will due to low prestige of the sector; inadequate and poorly utilized resources; inappropriate approaches, standards and regulations; and neglect of consumer preferences. This lack of capacities is reflected in both the elected and the executive wings of the ULBs.

4.5 Conditions in small towns like Angul (with a population of 44,000) and Dhenkanal (population 67,000) vary to some extent in terms of access to facilities and services. For instance, while 20% of the population have access to piped water in Angul, in Dhenkanal the percentage is higher at 41%. Again, while in Dhenkanal 42% of the population is reported to defecate in the open, in Angul the percentage is lower at 36%. However, both towns have adopted septic tank technologies to a large extent, with waste water draining into open drains, and have poor management systems and issues related to human resources, capacities and funds.

5. The study concludes that:

5.1 While on the one hand the percentage of open defecation is significantly high, on the other even those who have access to toilet facilities have not adopted adequately safe design and technology both in terms of construction and maintenance. *The ULBs needs to urgently address the issue of ensuring standard designs as well as operation and maintenance (O&M) of toilets across the respective municipal areas.*

5.2 The ULBs have also been unable to manage the safe collection and disposal of faecal sludge and waste water. They are constrained by multiple factors: adequate knowledge of technology, capacities to plan and manage the process of FSM, and availability of equipment and other resources, including sufficient and safely located land and adequately trained manpower. Above all, perceptions related to the relationship between sanitation and health as well as sanitation and environmental issues leave much to be desired. *The perceptions and understanding of ULBs on issues related to the impact of poor sanitation and the need to manage the growing quantities of faecal sludge being generated need to be urgently addressed.*

5.3 Both the ULBs have initiated steps for the management of solid waste: door-to-door collection has been started, intermediary dumping sites activated and final dumping sites identified. However, the waste is not segregated either at the collection (household) point or subsequently at the dumping sites. Further, both the intermediary dumping points within the city as well as the final dumping areas are not adequately contained or protected, resulting in waste being scattered all around. The most critical concern is the lack of any process to safely treat and dispose of the waste and the absence of either treatment plants or landfill processes. *A comprehensive process and system, from collection to safe disposal of solid waste, needs to be developed by the ULBs, incorporating technology and a robust system to manage it.*

5.4 The difficulty of the ULBs' task is compounded by the households which are hesitant to segregate household waste, on the one hand, and on the other to hand it over to the waste collector. The primary reasons behind this behaviour are the lack of awareness and understanding of the impact of solid waste and the inability of the ULBs to ensure compliance with municipal requirements. *Comprehensive guidelines for solid waste disposal needs to be developed by the respective ULBs and a platform for interface with the community for promoting their participation in the process of solid waste management needs to be developed.*

5.5 Inadequate drains in terms of both coverage and design lead to waterlogging in the two municipal areas. There is no master plan of drains nor are the drains networked for maximum effectiveness. The fact that large numbers of septic tanks empty out their effluence into these drains adds to the need to secure them. *A master plan of a safe and secure drainage system needs to be prepared by the ULBs.*

5.6 Sanitation is one of the major responsibilities of the ULBs and, in terms of staff, engages the largest number of people. The basic sanitation services currently being provided are highly dependent on limited manpower and human resources, including a team of professionals who have other responsibilities. The launch of the Swachh Bharat Mission (SBM) has led to an additional burden on these officials without commensurate support in terms of effective guidelines, training and manpower. The new municipal cadre system also does not have a separate service category for sanitation; it is assumed that the manpower required for these functions would again be drawn from the Engineering and Community Development Services. *There is a need to review and define manpower requirements in the light of the focus on sanitation, the new technologies that need to be introduced, the efficient management systems that will have to be put in place, the proposed agenda to engage with both communities and private providers, and the intensive SBM that has been launched in each town.*

5.7 Issues of inclusion and gender are not a conscious part of planning and management, within the overall structure and functions of the ULBs, nor in specific relation to sanitation services, though there are women in key positions in both the municipalities, apart from their mandatory presence as elected representatives. *Hence, gender mainstreaming – preceded by an exhaustive gender audit – will encourage a process of inclusion and a gender sensitive work environment as well as facilities and services in the ULBs.*

5.8 Currently the framework and strategy for continuous capacity building of the staff in the ULBs is minimal and confined more or less to the senior staff like the Executive Officer, Municipal Engineer and the accountant. The elected representatives are also at times exposed to orientations that are more generic in nature. *There is a need to develop a clear capacity building strategy for sanitation that focuses on all staff engaged in the activity. The strategy has to take into consideration the technical as well as the management skills required.*

5.9 The planning and management systems are weak and planning is undertaken on the basis of the previous year's budget and expenditure. *There is a need to build up a database on the sanitation status and needs of the municipalities, prepare a comprehensive city sanitation plan, and develop efficient management systems to implement it. This will include monitoring and supervision, and by default it would also mean building up the capacities of the concerned officials. Finally, the budget estimates need to be prepared on the basis of a need analysis to ensure adequate and timely availability of funds.*

5.10 Community interface is minimum and restricted to receiving and addressing complaints through the offices of the Executive Officer or Ward Councillors. The sole Community Organizer is engaged in activities related to the National Urban Livelihoods Mission (NULM). Given that a ULB by definition is a community based institution in terms of structure, responsibilities and governance, its functions need to be tailored around the community. *As such there is a need to establish a platform for regular interface between the community and the ULB, and to build up the capacities of the elected representatives as well as the officials to engage with the communities. Community awareness and information strategy need to be developed and located within the process of service delivery.*

5.11 The ULBs are expected to generate and raise their own resources, including that for improved sanitation. However, they are constrained by access to information about potential sources and ways of accessing the resources, including private sector funds, CSR funds and borrowings from the market and state institutions. *While the ULBs' confidence and capacity to access funds need to be built up, their capacity to effectively use the resources also needs to be strengthened.*

5.12 Finally, while FSM is one aspect of sanitation over which the ULBs need to have a clear understanding and capacity in terms of technology and management, *what is more critical is to enable the ULBs to adopt a holistic perspective of urban sanitation and develop capacities to plan and manage inputs in a sustained manner.*

6. Both Angul and Dhenkanal are currently at a stage where they need to adopt multiple strategies to ensure adequate sanitation services in the areas under their jurisdiction. The strategies need to focus on adopting improved and appropriate technologies within the framework of the complete cycle of sanitation management, be it solid or liquid waste and FSM. This would mean ensuring that waste is safely contained, collected, transported, treated and, wherever possible, reused. This would also mean that while on the one hand the communities are made aware, mobilized and supported to adopt safe and hygienic practices, the municipality itself needs to adopt appropriate technologies and practices, which in turn would require revisiting the current human resources structure and management arrangements as well as arranging for the appropriate capacity building inputs. Given this, a capacity building plan for the two ULBs for improved sanitation with a focus on FSM would include:

6.1 Appropriate structuring of a dedicated sanitation team within each ULB in the long run

6.2 Establishing efficient and effective systems, processes and guidelines for planning, implementing and managing sanitation interventions

6.3 Building capacities of the team and individual members in both technical and management functions

6.4 Building capacities to engage with the communities while integrating capacity building into the management cycle of the interventions

1

BACKGROUND

1.1 About the study

CPR has been working in the state of Odisha since 2013 under the Scaling up City Institutions for India (SCI-FI) project and its most recent component, Project Nirmal, supported by the Bill and Melinda Gates Foundation (BMGF) and Arghyam. SCI-FI aims at building an evidence base for developing policies, programmes and implementation plans for achieving sanitized cities. It has four thematic components: (i) it includes an analysis of various flagship programmes to understand the financial and institutional models used and identify their impact, challenges faced, etc.; (ii) it focuses on action research in two medium sized cities to document situations and options available to achieve the goals of the Government of India's (GoI) National Urban Sanitation Policy (NUSP); (iii) it addresses sector specific issues to understand the economies of scale of various technologies and related capacity, governance and monitoring models that would be required; and (iv) in collaboration with Practical Action, it implements Project Nirmal, a pilot demonstration project of city-wide sanitation service delivery in the two small towns of Dhenkanal and Angul in Odisha.

Project Nirmal (2015-2017) is being implemented in collaboration with the Housing & Urban Development Department (HUDD) of the Government of Odisha (GoO). Specifically, the project aims to demonstrate a city-wide sanitation system for small cities incorporating FSM techniques for on-site sanitation systems. It has state level and city level components. The state level component includes capacity building, knowledge management and advocacy, policy support to GoO on sustainable sanitation, and support for developing a state sanitation strategy. The city level component has as its objective the establishment of a baseline city sanitation profile, development of a city sanitation strategy through a participatory planning approach, capacity building, preparation of Detailed Project Reports (DPRs), implementation of pilot projects and developing markets for sanitation.

Capacity building is one of the key inputs at both the state and city levels and focuses on a series of capacity assessments and reviews at the state and city levels (pilot cities) in order to generate a relevant and feasible strategy. The current study is part of this component and aims to specifically understand and assess:

- ▶ The systems of sanitation service delivery including septage management/FSM in the cities, and the cost and time spends along the service line
- ▶ The capacity gaps in the cities, both at the institutional and individual levels in delivery of sanitation and overall inclusive urban planning
- ▶ The skill-sets and knowledge of concerned personnel in the municipalities regarding septage and FSM and urban planning
- ▶ The existing capacity building delivery mechanisms (including trainings) at the state and city levels in the context of overall inclusive urban planning with a focus on

sanitation and FSM. (to include subjects covered, duration and periodicity, level of participants, mechanisms of evaluation of training programmes or impact assessments)

- ▶ The revenue sources for providing service delivery related to sanitation and urban planning
- ▶ The role of stakeholders in financing and resource mobilization in the process of sanitation service delivery, including, but not restricted to, the private sector and local communities

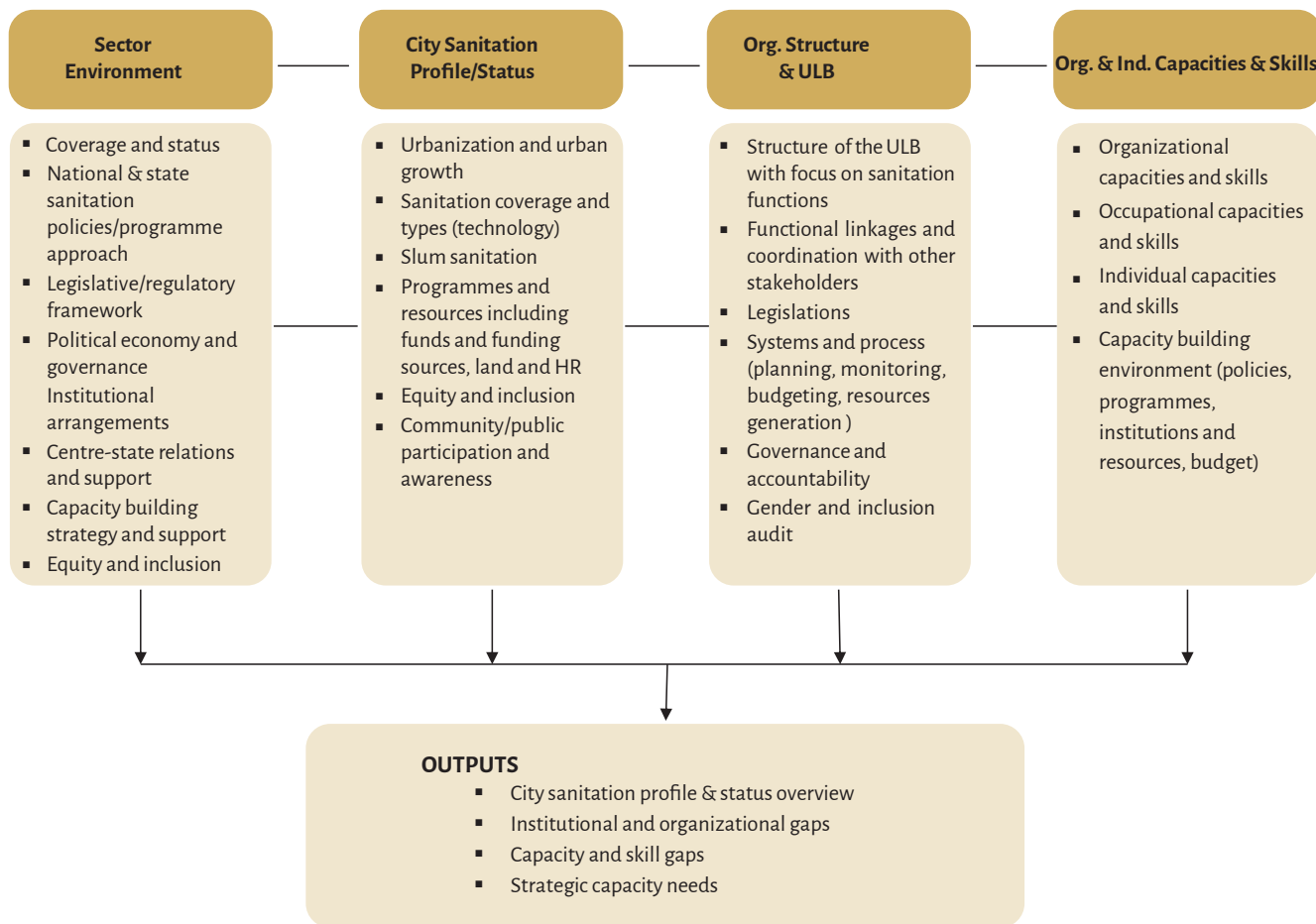
1.2 Methodology of the study

The study looked at the systems and status of sanitation and FSM in the two towns of Dhenkanal and Angul with reference to the existing and required capacities of the ULBs at the institutional and individual levels. The framework for inquiry was developed along the lines shown in Diagram 1.

The overall sector environment at the national and state levels was examined in terms of coverage of services, policies and programmes, legislative and institutional arrangements, issues of political economy and governance, and the relationship between the Centre and the state. All of this was assumed to have an impact on the support provided for sanitation, the existing capacities of the sector and the capacity building strategy adopted by the state agencies, and the approach to addressing issues of equity and inclusion. Simultaneously, city sanitation profiles were created with reference to the trends in urbanization and urban growth. While creating the profiles, the study looked at the types of sanitation technology currently being used, the extent of coverage and the status of sanitation in the slums, the approach of the local governments to issues of equity, inclusion and poverty, the nature and extent of community participation and awareness, and finally the access of the ULBs to funds and other resources.

The organizational structure of the ULBs was analysed, especially with reference to their sanitation functions, and functional linkages and coordination with other stakeholders were examined. In this context, the systems and processes as well as issues of governance, accountability and inclusion as manifested in the functioning of the ULBs were addressed. Detailed analysis of the existence and extent of capacities and skills for planning and managing sanitation functions was also undertaken together with that of the existing environment and process for enhancing capacities and skills.

Diagram 1: Framework for Investigation



Review of data and documents, site visits and interviews with concerned officials and elected representatives of the two ULBs as well as other relevant departments and communities were the principal means of data collection. Besides, discussions were also held with local CSOs involved in sanitation and private vendors of sanitation services. At the state level, detailed discussions were held with senior officials of the Odisha Water Supply and Sanitation Board (OWSSB), State Urban Development Agency (SUDA), Public Health Engineering Organization (PHEO), Pollution Control Board (PCB), and consultants from the Project Management Unit (PMUs) of various other on-going projects.

1.3 Arrangement of the report

The report has been organized into five sections. While Section 1 introduces the SCI-FI project and the context of this specific study, Section 2 provides the overall sector perspective and Sections 3 and 4 focus on the institutional and capacity analysis of Angul and Dhenkanal municipalities respectively in the context of sanitation functions. Section 5, after summarizing the overall findings and conclusions, goes on to provide strategic directions for enhancing the capacities and skills at the ULB and state levels for planning and managing urban sanitation with a focus on FSM.

2

URBAN SANITATION: SECTOR OVERVIEW

2.1 Global trends

Since the mid 1970s the percentage of people living in cities and towns across the globe has been steadily increasing. Globally, the urbanization level has risen from 39% in 1980 to 52% in 2011. Though trends vary across countries and continents, statistics indicate that currently half the population is reported to be living in cities and towns; by 2050 this figure is expected to increase to 70% of the population. The challenges of rapidly growing urbanization are well documented and include access to adequate shelter and basic services like water and sanitation, amongst others. Urban sanitation itself involves three major components: access and use of sanitary toilets, solid waste management and liquid waste management.

Globally, while provision and access to safe drinking water shows considerable improvement across all parameters in both rural and urban settlements, sanitation has failed to meet the (United Nations' Millennium Development Goals (MDG) targets in many countries. Though the urban parts of the globe have fared better and a higher percentage (80%) of the population in urban areas now have access to improved sanitation facilities as compared to rural areas,¹ the absolute number of people in urban areas without access has been on the rise from 541 million in 1990 to 756 million in 2012 because of the rapid pace of urbanization. Further, inequalities persist across regions and though the number of urban dwellers practising open defecation is reported to have decreased overall, it has risen in countries of Sub-Saharan Africa and fallen only slightly in Southeast Asia as well as in some South Asian countries. Even within cities there are huge disparities between the lowest and highest wealth quintiles in access to facilities (JMP, 2014; WSP, August 2013).

The situation with regard to solid waste management is even grimmer. A World Bank report (Hoomweg, 2012) observes that the amount of municipal solid waste (MSW) is growing even faster than the rate of urbanization. At the beginning of the current century, 2.9 billion urban residents generated about 0.64 kg of MSW per person per day and today these figures have increased

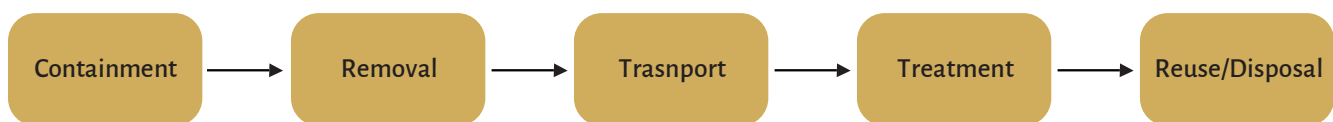
to about 3 billion residents generating 1.2 kg per person per day or 1.3 billion tons per year. Solid waste management (SWM) is one of the key functions of the ULBs/municipal bodies and in low income countries a large percentage of the budget allotted to SWM is spent on just collection of waste, with the other equally critical elements of the waste management chain being neglected.

Waste water management is the other growing concern in most cities, especially in the less developed and low income countries of the world. Waste water is a combination of one or more of effluents from domestic, commercial, industrial and agricultural sources and faecal sludge. The MDG had focused largely on reducing open defecation and the construction of toilets, with far less attention given to ensuring that the liquid waste and sludge are collected and treated adequately before being released into natural waterbodies and other receptors. As a result, in many countries of the developing world, including in India, the waste waters, including septage and faecal sludge, are discharged without any form of treatment, causing damage to both humans and the ecosystem. Most cities suffer from an inefficient waste water management system and regime because of inadequate or ageing infrastructure, apart from lack of capacities of municipal bodies. Reportedly, currently, only 20% of the waste water produced receives adequate treatment (UN Water). The United Nations' Sustainable Development Goals (SDGs) have now extended their attention to halving the proportion of untreated waste water, dumping hazardous material and promoting recycling and reuse (Goal 6).

2.2 Addressing urban sanitation and fsm: a municipal function

Urban sanitation is a municipal function across most countries. This includes the provision of public and community toilets, promotion of individual toilets, and organizing the entire service cycle of waste water management. The service chain consists of five broad categories of tasks and a specific set of activities related to each: containment, removal, transport, treatment and reuse or disposal.

Diagram 2: Sanitation Service Chain



Source: WSP, 2013.

During the course of the MDGs all countries were focused on the first element of the activity chain, i.e. containment. Efforts were made to move populations up the 'sanitation ladder', i.e. from a situation of open defecation to one of improved sanitation facilities, in which human excreta was hygienically separated from human contact. Various technologies like pour/flush to piped sewer systems, septic tanks, pit latrine, ventilated improved pits, etc. were introduced. These technologies use on-site (non-sewered) or off-site (sewered) systems for disposal. In the majority of the low and middle income countries, where sewerage systems are limited to part of some major cities, on-site systems are the most prevalent.

The safe disposal of waste water and related activities have been largely neglected in most countries. Research indicates that 50% of the world's population does not have safe means of disposal of waste water from toilets. This is especially so in the case of on-site systems. It is estimated that about 2.4 billion users of on-site systems the world over generate faecal sludge that goes untreated. In most countries the quality of toilet structures and pits or septic tanks is so poor that it is difficult for the household to empty the pit. Moreover, private manual and mechanical emptiers dump waste into waterbodies, waste grounds or landfill sites because municipalities are poorly equipped to provide emptying and transport services. In fact, overall there is a dearth of sludge treatment facilities with the municipal bodies, across most countries (Kone, 2010; Strauss and Montangero, 2003)

Hence, political commitment and priority for FSM at all levels is a key success factor for its effective implementation. This would

assure adequate funds and resources, incentives, organizational structure and an overall enabling environment focusing on capacity building and necessary regulations. A city-wide approach, better coordination amongst stakeholders through participatory structures and institutions, an effective communication system and sound financial management ability are some of the other factors that are required for success. Apart from this, an effective FSM system needs to address the sanitation requirements of all sections of the society at affordable prices, raise awareness and share necessary information with communities and other stakeholders while developing local expertise for implementing the system, enhancing capacities for O&M, and maintaining overall transparency in functioning. Finally, these efforts are to be backed by an enabling environment of good governance to ensure human and environmental health and safety; this should encompass guidelines, standards and regulations for each step of the service chain at the national and city levels.

Thus, while in most countries FSM is a municipal function, it may involve multiple stakeholders, including communities and service providers – both state and private sector agencies, depending on the institutional model adopted and the extent of decentralization enabled by the state. Conceptually the institutional models are seen to range from different stakeholders for different functions of the service chain to a single entity for the entire service chain. The emerging scenario from global best practices of stakeholders and functions along the FSM service chain is reflected in Table 1. Planning, monitoring and resource generation are the key project functions that are again primarily the responsibility of the municipalities.

Table 1: FSM Service Chain: Stakeholders, Roles and Responsibilities

SERVICE CHAIN (COMPONENTS)	KEY ACTIVITIES (INDICATIVE)	STAKEHOLDERS	ROLES & RESPONSIBILITIES
Containment	<ul style="list-style-type: none"> –Public awareness/promotion of safe toilets and SLWM* –Preparing/disseminating user guidelines/manuals on construction, use and maintenance of toilets/septic tanks and FSM –Supervision/compliance on construction, use and maintenance specifications of toilets and septic tanks 	State level ministry/department	<ul style="list-style-type: none"> -Integrated sanitation and FSM policy -Model legislations and guidelines -Training elected representatives and officials of municipalities -Allocation of budget/budgetary support to municipalities -Setting up funding pool/sources to facilitate marginalized communities -Regulator

SERVICE CHAIN (COMPONENTS)	KEY ACTIVITIES (INDICATIVE)	STAKEHOLDERS	ROLES & RESPONSIBILITIES
		Municipality (including elected representative)	<ul style="list-style-type: none"> -Enacting legislations for an open defecation free and clean city with safe disposal of solid and liquid waste -Adoption of appropriate technology for safe toilets and faecal sludge disposal -Preparing guidelines to operationalize the above -Ensuring adequate funds and resources -Coordinating with other stakeholders
		Community (household and institutional users)	<ul style="list-style-type: none"> -Construction of toilets and pits as per specification; use and maintenance -Complying with the municipality rules for cleaning and collection
		Construction agents (private sector contractors/masons)	<ul style="list-style-type: none"> - Construction of toilets and pits according to specifications
		NGOs/CBOs	<ul style="list-style-type: none"> -Supporting municipalities by: <ul style="list-style-type: none"> • promoting community participation through awareness and communication • Training masons for construction of toilets and septic tanks • Monitoring - Construction of toilets
Collection/Emptying	<ul style="list-style-type: none"> - Choosing community specific technologies for collection of faecal sludge - Developing norms and guidelines for applying selected technologies, including safety measures. - Deciding on institutional model for collection: (a) directly by the ULB or (b) outsourcing to private vendors - In case of adoption of an outsourcing model <ul style="list-style-type: none"> - selecting vendors and managing contract -orienting vendors to norms and specifications for collection of faecal sludge - Establishing interface with community to plan and arrange logistics/collection schedule, inform procedures and costs involved in collection/emptying of septic tanks - Locating/opening system and collecting faecal sludge - Securing system and cleaning up after process is completed. - Evaluating and reporting condition of system to the house owner and ULB 	State ministry/ department	<ul style="list-style-type: none"> - Developing norms and standard guidelines - Providing a shelf of appropriate technologies - Training on technology and management - Coordination with other departments
		Municipality (including elected representatives)	<ul style="list-style-type: none"> - Selecting city and community specific technology for FSM - Developing norms and guidelines - Identifying the appropriate institutional model - Contracting and managing private vendors - Coordinating with other stakeholders
		Private collection companies	<ul style="list-style-type: none"> - Undertaking collection of FSM as per contract with the municipality - Interacting and keeping households/ communities informed about processes and status of individual tanks
		NGOs/CBOs	<ul style="list-style-type: none"> - Collection/emptying
		Community (household and institutional users)	<ul style="list-style-type: none"> - Maintaining hygiene and sanitation - Adopting norms and guidelines as issued by the municipality for sanitation and FSM
Transportation	<ul style="list-style-type: none"> - Selecting institutional model for transportation: (a) directly by ULB; (b) outsourcing to private vendor - Preparing and managing contracts in case of outsourcing. - Ensuring selected operators have the required capacities and skills for handling and transportation of faecal sludge - Choosing appropriate and viable technology for transportation (manual/ mechanical) - Selecting appropriate vehicle and equipment for transportation 	State level ministry/ department	<ul style="list-style-type: none"> - Developing norms and standard guidelines - Providing a shelf of appropriate technologies - Training on technology and management - Coordination with other departments and stakeholders
		Municipalities including elected representative	<ul style="list-style-type: none"> - Decision on the institutional model and technology - Organizing municipal teams/contracting and managing private vendors - Ensuring compliance of safe transportation - Acquiring/providing land/intermediary stations for emptying of faecal sludge - Coordinating with other stakeholders

SERVICE CHAIN (COMPONENTS)	KEY ACTIVITIES (INDICATIVE)	STAKEHOLDERS	ROLES & RESPONSIBILITIES
	<ul style="list-style-type: none"> – Issuing necessary guidelines/procedures and licences for transportation – Ensuring adequate safety measures for handling and transportation – Identifying, negotiating and finalizing agreement on land for transfer stations 	Private companies/transport providers	<ul style="list-style-type: none"> – Transporting as per contract and norms of the municipality
Treatment	<ul style="list-style-type: none"> - Selecting treatment technology - Contracting private agencies to set up treatment plant/organizing ULB to set up treatment plant - Planning O&M of treatment plant, including monitoring of waste water discharged and aquifers - Ensuring necessary procedures/legislations for adequate human and environmental safety are in place and complied with 	State ministry/department	<ul style="list-style-type: none"> – Developing norms and standard guidelines – Providing a shelf of appropriate technologies – Training on technology and management – Coordination with other Departments and stakeholders
		Municipalities	<ul style="list-style-type: none"> – Identifying appropriate technology – Issuing guidelines and norms for environmentally sound treatment practices – Selecting/acquiring land for treatment plant and intermediary stations – Contracting and managing private vendors for construction/O&M of plant – Developing and operationalizing O&M plan – Coordinating with other departments/agencies/stakeholders
		Private companies	<ul style="list-style-type: none"> – Implementing construction and O&M of intermediary sites and faecal sludge plants as per contract
End-use/resource recovery and disposal	<ul style="list-style-type: none"> - Planning for reuse or safe disposal of end product - In case of reuse option, ensuring human and environmental safety - Safe disposal of end-use - Disseminating information and promoting appropriate use of recycled end product 	State ministry/department	<ul style="list-style-type: none"> – Identifying reuse and resource recovery avenues and channels: soil conditioner, reclaimed water for irrigation, fodder for plants, building material, biofuels, etc. – Providing guidelines and norms/legislations where necessary for both reuse and safe disposal of end product – Supporting states by way of incentives – Organizing multi stakeholder workshops to orient and promote reuse
		Municipalities	<ul style="list-style-type: none"> – Identifying and promoting reuse of end products – Identifying and securing land for safe disposal of end product – Choosing the institutional model for the service function: organizing municipal teams for the same/contracting and managing private vendors/NGOs/CBOs for production and promotion of end-use products or for safe disposal of end-use products – Drafting safety norms and standards and ensuring its compliance – Monitoring the function
		Private companies/NGOs/CBOs	<ul style="list-style-type: none"> – Development and promotion of reuse products
		End-users (farmers, gardens, builders, households, etc.)	<ul style="list-style-type: none"> – Ensuring safe and productive use of end products

2.3 National perspective: urban sanitation and septage management

2.3.1 Urbanization and urban sanitation

Urbanization in India has been slower (1.15% a year during 2001-2011) than in many of the developing countries; according to the 2011 Census only 32% of the population live in urban areas.² The

process of urbanization in India has also been termed ‘messy’ because over 65 million of this population live in the slums and almost 14% of the urban population live below the poverty line (Ellis & Roberts, 2016).

Against this background, the urban sanitation scenario in the country is quite dismal: over 94% of the cities and towns do not have

even a partial sewerage network; over 18% of the urban households defecate in the open; the majority of the urban population is dependent on individual septic tanks without proper outlets and drainage; and less than 25% of waste water is treated. Solid waste collection is reported to range from 70 to 90% in larger metro cities and is less than 50% in the smaller towns.³ However, less than 30% of the solid waste is segregated and scientific disposal is absent across cities. While the collection process has been privatized to a large extent, with NGOs and community based organizations involved in some cities, safe disposal of waste is still an issue because of multiple reasons: availability of land, lack of appropriate technology especially one based on a business model, etc. Besides, the process of collection and dumping is fraught with health and environmental risks.

In fact, sanitation and septage management is rife with difficulties. Very few cities and towns have the required infrastructure and mechanized desludging is rarely in use. The emphasis is more on centralized and advanced engineering solutions for sanitation, and septage management is not perceived as a possible solution. Investment decisions are based on projects and technology rather than city-wide planning. Moreover, cities lack adequate data related to on-site sanitation systems in their jurisdictions, and little attention is given to awareness of the public. Besides, the policy and legislative framework is weak and the enforcement process even weaker. Institutional and human capacities are grossly inadequate to plan and manage waste water and septage; the ULBs as a key institution lack capacities, skills and funds, and are fraught with political and administrative challenges. Funding is inadequate and there is over-reliance on support from the central government or external aid.

It is only as late as 2008 that a National Urban Sanitation Policy (NUSP) was formulated for the first time and guidelines for septage management drafted thereafter. The GoI Advisory (draft) on septage management observes that on-site sanitation and the use of septic tanks is widely prevalent in Indian cities. However, septage management is a neglected area and limited attention has been paid to proper construction, maintenance and safe disposal of septage from septic tanks. Construction standards provided by the Indian Standards Organization (ISO) are not followed, with construction left to the households to manage. Further, because the ULBs have limited capacities no regulatory measures are observed and households do not report or take the support of the ULBs for cleaning and maintenance. Instead, unregulated private vendors are engaged, with little care for safety of the workers or disposal practices. Septage, in most cases, is dumped in drains and open areas. The Advisory also observes that there is very little disaggregated information available with the cities on the types and numbers of on-site toilets and septage disposal systems and practices. The Advisory lists the following as the key problems associated with on-site sanitation in urban areas in India:

- ▶ Insufficient knowledge, capacity and awareness about the planning, design and maintenance of on-site systems amongst the users as well as many ULBs.

- ▶ Inappropriate system design and facilities that are not built to national standards and constructed by untrained personnel and unskilled workers. The practice of constructing septic tanks with outlets connecting to local open drains is also widely prevalent.
- ▶ Poor O&M that also includes infrequent desludging and the consequent effects of clogging, etc.
- ▶ Poor inspection and monitoring, and absence or poor implementation of regulatory components, primarily because of lack of institutional mechanisms and other regulatory measures.

The conditions of septage management in the smaller cities and urban areas in the country are especially bad. Calling sanitation in the smaller towns a 'blind spot', a recent study (Dasgupta et al., 2016) observes that this category of urban settlements has suffered from both a lack of resources and a lack of understanding of their specific issues, needs and possible options. Desludging services are generally provided by private vendors and in spite of being legally prohibited, desludging is often carried out manually with limited use of safety tools and measures. The sludge is transported in ways ranging from buckets to tankers and mobile toilets attached to tractors. Almost all small cities do not have any means of treatment of the sludge, and since they also lack sewerage networks, the raw sludge is disposed off untreated into open grounds, agricultural fields, drains, rivers, etc.

It is not surprising, then, that in 2010 none of the 423 cities that were assessed for sanitation and cleanliness by the GoI were found to qualify as 'healthy and clean' and 190 cities were declared to be on the verge of a crisis situation. Subsequently, in 2015, a base year pre-survey was conducted for the next round of assessments and 476 cities were ranked on pre-determined parameters.⁴ Bhubaneswar, Cuttack and Puri figured on the list, with Bhubaneswar eventually qualifying in the top 75 list.

The most telling reflection of this dismal state of affairs in India is the fact that annually \$15 billion dollars are spent on water-borne disease. The estimated cost per DALY due to poor sanitation is Rs 5400 and that due to poor hygiene is Rs 900 (HPEC, 2011). The impact of poor sanitation is the highest amongst the poorest 20% of the population and the burden is heavier for women and the girl child. Bihar, Jharkhand, Madhya Pradesh and Odisha are some of the worst performing states. And these are also the states with low levels of urbanization. Over the years, various commissions and committees set up by the government have pointed out the need to focus on inclusive services that are aligned to both urban and economic growth. And for this to become effective the focus will need to shift from creating infrastructure to delivering services and, consequently, to improved governance and capacities.

2.3.2 Policies and programmes

There is as yet no comprehensive urban water and sanitation policy in India. However, there is a National Water Policy (2012) and a National Urban Sanitation Policy (NUSP, 2008). While the water policy focuses on water use resources in both the rural and urban

contexts, the sanitation policy has a specific urban focus and is backed by strategy guidelines for the development of state and city sanitation strategies and plans. The NUSP attempts to deal with issues such as poor sanitation awareness, overlapping institutional responsibilities, poor supply driven approach and the economic constraints of the urban poor. It encourages states and cities to develop their own strategies and plans.

However, over the years a series of sanitation programmes and schemes, starting with the Integrated Low Cost Sanitation and the Integrated Development of Small and Medium Towns programmes in the 1980s and the more comprehensive Jawaharlal Nehru National Urban Renewal Mission (JNNURM) after 2000, have brought urban sanitation more to the forefront. There has not only been a significant rise in the resources available but objectives and strategies are also becoming more focused with improved sanitation across the country becoming a priority. The previously rural focused campaign (Nirmal Bharat Abhiyan/NBA) has now taken on a mission mode as Swachh Bharat Mission (SBM) and been extended to the urban areas as a separate urban mission, SBM-Urban. Moreover, though construction of toilets continues to be the top priority, other aspects like solid and liquid waste management, are also being addressed.

The objectives of the SBM-Urban is to eliminate open defecation, eradicate manual scavenging, introduce modern and scientific methods of MSW management, effect behavioural change and encourage communities to adopt healthy sanitation practices, generate awareness about sanitation and its linkages with public health, augment the capacities of ULBs to plan and manage sanitation functions, and create an enabling environment for private sector participation. The key components hence are construction of household, community and public toilets, SLWM, Information, Education, Communication (IEC) and awareness generation, and capacity building. GoI has allocated a budget based on unit and per capita costs of various components. It also stipulates that the state will contribute a minimum additional amount of 25% of GoI contribution to SBM. The remaining resources will be raised from various other sources including beneficiary share, market borrowings, private sector participation, etc.

While 3% of the central government allocation has been earmarked for capacity building, administrative and office expenses of states and ULBs, 2% of the total allocation is to be utilized at the Ministry of Urban Development (MoUD) level for capacity building. States have to propose the capacity building activities which will be part of the comprehensive annual state-wise action plan prepared by each of them. After approval by the concerned authorities the states and ULBs will implement the capacity building plans. States will contribute a minimum of 25% funds towards capacity building (and administrative and office expenses) to match the central government's share of 75%. At least 50% of the approved capacity building fund in each annual plan is allocated to the ULBs. States are encouraged to use other available capacity building funds to dovetail the capacity building activities of both the ULBs and the states, while the ULBs are expected to identify resource persons for

the training and draw up an annual calendar of training. The State Mission Director of each state will ensure that identified officials undergo adequate capacity building in the state. Additionally, each state will also identify 'master trainers' to participate in the trainings organized by the central government.

2.3.3 Institutional arrangements

In terms of institutional arrangements the primary responsibility for drinking water and sanitation lies with the state governments. Each state has a different set of institutional mechanisms and implementation ranges from state line departments to parastatal boards/companies. In most states these responsibilities have been decentralized to the ULBs, especially in larger cities. The ULBs in turn have to coordinate with other agencies like the Development Authority (DA), the PHEO and SUDA for planning and implementation of sanitation services. For instance, the DA is responsible for overall physical development of the city, and preparation of master plans and schemes; the PHEO is responsible for provision of drinking water in urban areas and for its operation and maintenance as well as for the upkeep of sewage treatment plants (STPs) in urban areas. SUDA, on the other hand, focuses on poverty alleviation programmes and is currently moving towards becoming the nodal agency for training and capacity building.

In the case of SBM, while at the national level there is a National Mission Directorate supported by a National Advisory and Review Committee, much of the onus for effective implementation of urban sanitation infrastructure and services is on each state government. Overall there is a State Mission Directorate located within the Urban Development Department of the state, headed by a State Mission Director. The Mission Director is also the Member Secretary of the state level High Powered Committee. The Directorate is supported by a PMU (outsourced).⁵ No additional structure has been prescribed for the ULBs. However, as SBM is a people centred programme, the active participation of the Ward Committees, Area Sabhas, Resident Welfare Associations (RWAs), NGOs and CSOs is encouraged. AMRUT (Atal Mission for Rejuvenation and Urban Transformation), which also has sewage facilities and septage management as a key thrust area, has a similar national, state and city level planning and monitoring setup. Capacity building – both individual and institutional – is a critical component with the interventions to be aligned with the Comprehensive Capacity Building Programme (CCBP).

Constitutional backing for urban sanitation has been provided by Article 243 (W) of the Constitution of India, specifying the powers, authority and responsibility of the municipalities to carry out functions listed in the 12th Schedule (including SWM, public health, sanitation conservancy and protection of the environment, safeguarding interests of weaker sections and urban poverty alleviation). Besides, there are other Acts and legislations like the Environment (Protection) Act, 1986, which is an umbrella Act that pertains to management of wastes in the country, and Rules that govern the management of all types of wastes. Thus, there are the Municipal Solid Waste (Management and Handling) Rules, 2000; Plastic Waste Management Rules, 2011; Biomedical Waste

(Management and Handling) Rules, 1998, amended in 2011; e-Waste (Management and Handling) Rules, 2010, amended in 2011; Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008, etc.

It also needs to be noted that in 1994, the 74th amendment to the Constitution had introduced an environment of decentralization and participation in the urban settlements across the country that focused on governance and institutional reforms, process reforms, fiscal reforms and citizen centric reforms (Gol, 2011). Subsequently, when the first reform based country-wide programme JNNURM was launched in 2006, several reform measures were concretized, attempting to give more teeth to the ULBs. Gol itself organized rapid training programmes to upgrade skills of municipal and parastatal staff as well as orientation programmes on governance and reforms for the elected representatives in the selected JNNURM cities. The ULBs were expected to prioritize this and prepare a charter listing the capacities available and the improvements planned. Following this, a number of states too chalked out training and capacity building plans. Further, a Twelfth Five Year Plan Working Group of the Planning Commission recommended that every ULB prepare a capacity building action plan taking into account its local circumstances and challenges. It called for creating 'a favourable enabling environment' for capacity building and developing capacity building strategy at the state and ULB levels to include an organizational development strategy, a human resource development strategy as well as an appropriate institutional and legal framework.

2.4 Odisha: state perspective

2.4.1 Urbanization and urban growth

Odisha, though the least urbanized (17%) in the country, has registered a significantly high decadal urban growth rate of 27% with the urban population growing from 37 million to 42 million during the decade 2000-2011. Considerable inter-district variations in urbanization levels also exist in the state with Khorda, a coastal district, reporting a rate as high as 48% and Boudh in the south central part of the state recording a rate of just 5%. Further, the 2011 Census indicates that the number of towns in the state have increased from 138 to 223 over the decade. The increase has been primarily attributed to a significant increase in the number of Census Towns⁶ from 31 in 2001 to 116 in 2011; the number of Statutory Towns, on the other hand, has remained the same at 107.

2.4.2 Urban sanitation

The 2011 Census data on the urban water and sanitation situation in Odisha provides a somewhat dismal picture. It indicates that safe drinking water is a major issue for almost half the urban households as only 42% have access to treated tap water for drinking and less than 57% have sources within their premises. In the case of sanitation, more than 35% of the urban households do not have access to toilets – a marginal 5% improvement over the decade – and only a little over 58% have water closets, with the remaining using pit or other kinds of toilets. About 98% of the septage and

waste water is drained off into rivers and waterbodies or in the open environment without any kind of treatment.

The Odisha Urban Sanitation Strategy, 2011, states that while on-site sanitation systems predominate in urban areas, 'deficiencies in construction, lack of proper sludge disposal/treatment facilities and also sometimes problems with access to septic tank/pits' are major issues. Only a few of the larger municipal corporations have access to a sewerage system and reportedly only less than 10% of human excreta generated in the urban areas of the state is properly treated. The practice of constructing septic tanks and connecting it to open drains is rampant and most of the septic tanks are reportedly poorly constructed. The sludge disposal system, hence, largely consists of disposal directly into open drains or use of cesspool services (on payment) provided by the municipalities or private service providers, both of which are in short supply. Of more concern is the method of disposal of the sludge, which is generally dumped into an unsecured pit in a designated open area. With a growing number of toilets being constructed and the lack of available urban land, sludge disposal has become a major concern. The state seems to be only constructing facilities and infrastructure without paying much attention to appropriate low-cost technologies.

Similarly, while SWM occupies considerable time and resources of the ULBs, especially after the passing of the Municipal Solid Waste Handling Act and Rules, this function too suffers from lack of capacities in terms of technology options, skills and management arrangements, apart from the dearth of resources like funds and land for safe treatment and disposal of waste. While there are policies and laws that attempt to mobilize community participation and better management of waste, the ULBs do not have the capacities or wherewithal to effectively enforce these. Political, resource and capacity constraints are barriers to better implementation and management.

The state government has responded by focusing on planned growth of the cities and on urban governance and management with greater accountability, transparency and citizens' participation. The total budgetary outlay has also been increased from Rs 326 crores in 2001-02 to Rs 2925 crores in 2015-16. Odisha was one of the first states to formulate sanitation strategies: the Odisha Urban Sanitation Strategy (OUSS, 2011) and the Odisha Urban Water and Sanitation Communication Strategy (2011). The OUSS stresses the achievement of open defecation free cities and towns, and adequate fund allocation for providing services to the urban poor. It advocates community facilities where individual toilets are not feasible because of lack of space. Community toilets, however, have to be community planned and managed. Further, the City Sanitation Plans (CSPs) need to be prepared in a participatory manner, that is, in consultation especially with urban poor citizens and women. It interestingly also proposes that ULBs and other service providers should extend sanitation provisions to unauthorized settlements. The state is a beneficiary of most of the centrally supported programmes. Currently sewerage and septage schemes under AMRUT are under various stages of planning and implementation in some of the larger cities like Puri, Rourkela, Cuttack and

Bhubaneswar. The state, however, does not envisage large-scale sewerage systems because of the cost factor. Hence, septic tanks and their management are more critical.⁷ However, the state government admits that it needs handholding support to roll these out. Odisha has also been implementing training programmes under the Gol supported CCBP, which reportedly has been halted now as there is a move to channel all capacity building programmes⁸ through AMRUT. Currently, SUDA is the principal agency for capacity building in Odisha.

Subsequently, the state prepared guidelines for planning and managing community and public toilets (2012) and is currently in the process of undertaking public consultations on Odisha Septage Management Regulations targeting Bhubaneswar as the first experimental city. Sanitation, including sewerage and SWM, has been given priority in the policies, programmes and budget, and is getting a further push through the SBM. While most of the policy documents and strategy do reflect concern for the poor and marginalized, the floating and migrant population, and the SC and ST communities, there is relatively less evidence and articulation of gender concerns. The Odisha Septage Management Regulations (2015) aim to address a number of the above issues and provide specifications for the construction of septic tanks, O&M of tanks, septage transportation, treatment and disposal of sludge, supervision of processes, and effective enforcement.

2.4.3 Capacities of ULBs in Odisha to manage an expanding need for sanitation and FSM

The Odisha Urban Sanitation Strategy document acknowledges that technology options available with the ULBs are limited and capacity enhancement is needed across the sanitation sector,

including waste water disposal. The capacity constraints include the lack of clarity in roles and responsibilities of various stakeholders and institutions, the overcalling responsibilities and functions, and the mixed system of personnel deployment followed in the state until recently⁹; the shortage of skilled staff for adequate coverage as well as enforcement; and both technical and financial shortfalls that do not allow for corrective infrastructural or management interventions. The problems of management are compounded by the need for ULBs to coordinate with multiple agencies: OWSSB,¹⁰ PHEO, the Health Department, the District Education Office, Odisha State PCB and Odisha Water Resource Development Board.

There is a shortfall of engineers and other staff in the ULBs and these have not been filled in years because of a freeze on recruitments. However, the good news is that a system of Municipal Cadres has been recently approved by the state Cabinet, though it is yet to be fully operationalized. The cadre is of seven categories and includes the Odisha Municipal Administration Service, Odisha Municipal Engineering Service, Odisha Municipal Town Planning Service, Odisha Municipal Health Service, Odisha Municipal Community Development Service, Odisha Municipal Ministerial Service and Odisha Municipal e-Governance Service.¹¹ The ULBs are to be grouped into eight categories depending on the size of the population and manpower will be allocated to each ULB on the basis of those categories. The fact that HUDD is aiming to place a minimum 11 staff in the Notified Area Councils (NACs) with a population of 5000-10,000 gives an indication of the future human resource profile.

Besides, there are several other issues: lack of adequate data for better planning and management across the sanitation cycle; ensuring

ODISHA SEPTAGE MANAGEMENT REGULATIONS (2016)

Purpose of the Regulations

- (1) To provide a regulatory framework for construction, routine maintenance, regular cleaning and emptying of septic tanks; transportation, treatment and safe disposal of septage
- (2) To prescribe the actions to be taken by the owners of the premises connected to septic tanks and septage transporters to ensure compliance with their obligations
- (3) To provide for appropriate enforcement mechanisms
- (4) To ensure cost recovery on a sustainable basis for proper septage management
- (5) To facilitate participation of private and non-government sector in septage management

Key features of the Regulations

Provisions relate to:

- (1) Registration of all septic tanks with the municipal corporation
- (2) Registration of septage transporters and vehicles for the collection, transportation and disposal of septage
- (3) Operation and maintenance of septic tanks
 - a. Regular O&M responsibility shall be with the owner of the premises
 - b. Desludging to be carried out only by the sanitary workers of the corporation or by registered septage transporters
- (4) Levy of user charges for desludging and treatment of septage
- (5) Safety measures to be adopted during de-ludging, transportation and treatment
- (6) Supervision of septic tanks by the corporation or corporation appointed agency
- (7) Responsibilities of septage transporters and operator of the treatment plant
- (8) Administration and enforcement mechanisms

access to the un-served urban poor and the floating population; the lack of awareness amongst communities, service providers and city managers about the consequences of poor sanitation; the need for enhanced community participation; building adequate capacities of all stakeholders, especially the ULBs; and the need for an integrated city-wide approach and sustained investments for asset and facility creation as well as O&M. ULBs are especially constrained by 'inadequate personal and systemic capacities' for social mobilization and in implementing user-participatory programmes. Finally, the ULBs' almost complete dependence on government grants and schemes prevents them from developing their own capacities for planning and management as the funds do not make adequate provisions for sustained capacity building of this kind. The Fourth State Finance Commission (SFC) of Odisha observed that training programmes in ULBs are organized only if funds are available under central government schemes. In fact, no annual plans are prepared for the elected representatives or the officials. The SFC hence recommended that SUDA should be strengthened with adequate infrastructure support and manpower to impart training and the state government should set up an institutional framework for capacity building and training of officials and elected representatives of ULBs 'within a reasonable time frame and with a concrete action plan'. Further, aware of the urgency to intervene and correct the existing situation, HUDD is has revised OUSS and is planning to bring about an appropriate and adequate legislation on FSM.¹²

In short, the major shortcomings of the sector are often identified as weak and inadequate institutional structures and poor policy frameworks; lack of political will due to low prestige of the sector; inadequate and poorly utilized resources; inappropriate approaches, standards and regulations; and neglect of consumer preferences. This lack of capacities is reflected in both the elected and executive wings of the ULBs.

So far capacity building has been limited to routine departmental trainings on various thematic and functional issues through SUDA and its training partners, which also includes water and sanitation interventions. Apart from SUDA, the other key training institutes Odisha has recourse to are the Regional Centre for Urban and Environmental Studies, Lucknow, and, of late, the Administrative Staff College of India (ASCI) in Hyderabad and the All India Institute of Local Self-Government (AIIILSG) in Mumbai. Further, the capacity building interventions are limited to structured trainings and exposure visits within the framework of programmes like JNNURM, AMRUT, SBM, etc. and are standardized according to the guidelines provided by GoI. Seldom do they respond to the needs of a specific ULB or its staff. Most often they are also limited to the elected representatives and the senior officials of the ULB, and as such are of little relevance to the issues on ground.

Currently, the Comprehensive Capacity Building Programme, earlier designed within the framework of JNNURM and now revised to respond to the requirements of AMRUT (10 cities) and the Smart City project (Bhubaneswar and Rourkela), is the most comprehensive capacity building intervention being planned in

Odisha. CCBP has been formulated by GoI to create an enabling environment for capacity building of ULBs, and also the parastatals, through policy and implementation support for organizational and human resource development, and enhanced capacities for strategic planning, technology improvements and resource mobilization. More specifically, CCBP aims to:

- ▶ facilitate the ULBs to function as institutions of effective local governance
- ▶ develop capacities for procurement, project development, project management, O&M, financial management, budgeting and accounting
- ▶ promote urban planning and sustainable urban habitats in the cities
- ▶ support the creation of municipal cadres in states
- ▶ create a participatory and consultative environment for stakeholders
- ▶ promote the use of Information Communication Technologies through e-governance
- ▶ support the government to strengthen the supply side training and capacity building institutions, especially State Training Institutes, to meet the higher level capacity building and human resource needs of ULBs
- ▶ strengthen the capacity of ULBs to mainstream gender in all activities and promote gender budgeting
- ▶ develop Centres of Excellence for urban management

In Odisha CCBP is supported by the ASCI. An elaborate capacity building plan for the state and ULBs is being prepared, with a focus on 10 pilot cities, along with training modules in line with AMRUT. The plan has reportedly been developed taking into consideration the existing and required human resource capacities and profiles based on the 18 functions that have been devolved to the ULBs as per the 74th Amendment to the Constitution. A Knowledge, Attitude and Practice (KAP) analysis was also undertaken with both the executives and elected representatives of the ULBs and aligned with the functions prescribed in the Municipal Act for preparing the capacity building modules. Besides, HUDD is also in the process of setting up State and City Reforms and Policy Management Centres. The State Centre is expected to develop capacity building plans and monitor their implementation, apart from developing training modules with the support of ASCI. SUDA is the nodal agency for training.

Until now, capacity building has been limited to random trainings for a range of officials, primarily focusing on the requirements of specific programmes and schemes. Efforts to improve the overall skills and capacities to plan and manage an effective service delivery system centred on the community and the people have been conspicuous by their absence. CCBP, together with the proposed Cadre system and the efforts to decentralize planning and management at the ULB level, is expected to bring about greater efficiency and effectiveness in ULBs.

3

*CAPACITY NEED ANALYSIS AND
FINDINGS: ANGUL*

3.1 Urban and socio-economic profile of Angul

Together with Athamalik (NAC) and Talcher (municipality), Angul Municipality constitutes the urban areas of Angul district. Located towards the northern part of the state of Odisha and close to the cities of Cuttack and Bhubaneswar, Angul is a landlocked settlement well endowed with forests, water bodies and mineral deposits. Until 1993 Angul was part of Dhenkanal district, but Angul town itself had already been constituted as a Notified Area Committee in 1931, and thereafter upgraded to a Notified Area Council in 1955 and subsequently to a municipality in 2008. The present boundaries of the municipality are stretched across a little over 19 sq. km. The municipality consists of 23 wards, and like the rest of the state, follows a Chairman-in-Council system of governance, with the councillors being directly elected by the adult voting population. Ward Committees have also been formed to facilitate decentralized planning. In terms of population, Angul is classified as a Class III town.

Though urbanization in the district, as in the case of the state as a whole, is relatively low, the decadal growth rate of the urban population at 30% has been higher than the state average. Then again, while the number of Statutory Towns (3 STs) in the district has remained unchanged over the decade, the number of Census Towns has increased from 6 to 15, apparently contributing to the increase in the urban population. However, the district as a whole continues to be predominantly rural in population, with the urban population constituting only around 17% of the total population of the district. The urban population in Angul Municipality has increased from 38,000 in 2001 to 43,795 in 2011. A recent baseline survey (I-Concept Initiatives, 2015) indicates that there are around 9778 households currently living here, with a substantial percentage of the floating population living in rented houses. There are 27 slums within the municipal area, out of which 13 are reported to be authorized and 14 are unauthorized slums. While there are 2469 households with a total population of 10,950 in the slums, with 5205 of them being women, Angul is also reported to attract a substantial mobile population consisting of industrial workers, businessmen and tourists. Most of these are concentrated in 17 wards.

While 12% of the population in Angul Municipality belong to the SC community, a large majority is from the OBC communities; 26% of the population live below the poverty line. The urban sex ratio (889) is lower than that for Angul district as a whole and also that of the state. The child sex ratio (0-6 years age group) too is lower in the urban areas of the district as compared to the rural. The literacy percentage on the other hand is higher than of the district as a whole as well as that of the state, with over 85% of the female population also being literate.

There are 16 primary and upper primary schools and 6 high schools, including a municipal high school in Angul Municipality. The district hospital is located in the town; private clinics are available and so is an ambulance service. The municipality has been covered under the National Urban Health Mission since

2013. Mahila Arogya Samitis or MAS (22) and Ward Kalyan Samitis (15) have been formed and are reportedly active with the support of a local NGO and UNICEF. There are 8 Accredited Social Health Activists (ASHAs) and 1 Auxiliary Nurse Midwife (ANM) posted in the urban area. MAS is a critical community group that is allocated an untied fund of Rs 500 per year. There are currently 82 members of the MAS in Angul; they have been oriented about their roles and responsibilities, including awareness about sanitation and hygiene. However, the links of the municipality with both the Education and Health Departments are weak and limited to token participation in review meetings and random training programmes.

The economy of the district has improved considerably over the last decade because of the establishment of various public sector undertakings such as the National Aluminum Company Limited, Mahanadi Coal Fields Limited, National Thermal Power Corporation and Talcher Thermal Power Station. The District Industries Centre promotes various industrial activities in the district. Bauxite mines, alumina refinery, aluminum smelter, captive power plants, port facilities, etc. contribute to the economic growth of the district. Besides, several small-scale industries have been established, apart from craft based industries, which have received assistance from the state government through its Odisha Khadi and Village Industries Board. Though the larger industrial houses have their own educational and health facilities as well as housing for the staff, with oversight provided by the dedicated Development Authority, the impact of the population and activities is obvious on Angul Municipality at large and on the environment in particular. Besides, the existence of the industrial houses also provides potential scope for CSR support to basic services like water and sanitation.

3.2 Status of sanitation, facilities and services

The data¹³ on water and sanitation facilities and coverage indicates the following:

- ▶ Only 20% of the households have access to treated tap water (1290 households have piped water connection), while 49% draw water from tube wells or bore wells and the remaining from other sources like uncovered wells and even lakes and ponds. In 67% cases the water source is within the premises of the household making accessibility easy. However, over 15% of the households have to walk a considerable distance to collect water. Broad mapping also indicated the uneven distribution of water resources like hand pumps and standposts as well as placement of dustbins across wards.¹⁴
- ▶ Currently water supply is being provided from the Rangali reservoir which is now considered unsafe for drinking as waste water and medical waste drain into this source. A new system has been constructed by the PHEO with water lifted from the Brahmani river and is expected to be commissioned soon. According to the PHEO currently 17 wards are fully covered with piped water supply, while 6

wards are partially covered. The proposed new system will ensure full coverage of all wards with piped supply.

- ▶ While only 11% of the households have access to closed drains, 56% depend on open drains and a significant 33% have reported the total absence of drains.
- ▶ Drains in fact are an issue in Angul because many of them have not been constructed to end at some appropriate and safe tip-off point, leading to considerable waterlogging.
- ▶ 64% of the households have access to individual or shared toilets; 62% have flush latrines that are connected to septic tanks; and 26% have no toilets at all and, it is assumed, defecate in the open. While three public toilets have been reported, there is no community toilet in the municipality.
- ▶ The baseline survey further indicates while 74% of the sample households in non-slum areas have access to toilets, only 53% of the households in authorized slums and 38% in unauthorized slums have access to toilets. The lack of funds, space and water supply has been quoted as the major reason for open defecation.
- ▶ Again, amongst the households with latrines in the baseline survey, 41% had access to flush/pour latrines connected to septic tanks, 35% to pit latrines with slabs and 24% to ventilated improved pit latrines (soak pits). This trend was observed in both the slum and non-slum areas.
- ▶ The response to the query relating to the number of chambers in the septic tanks was revealing. While 47% reported a single chamber and 40% twin chambers, the remaining were not aware about the number or size of the chambers. Similarly there were variations in the responses as to the size of pits and number of rings. More alarming is the fact that a large percentage of households reported the distance of the drinking water source to be less than 30 ft from the latrine pit. Interestingly, toilets were often cleaned by the male members of the households and cleaning agents like Phenyl and Harpic and at times even detergent were used.
- ▶ 22 MT/day of solid waste is generated in the municipality; 85% of the households are covered by SWM services; efficiency of collection is 81%; and wards in three zones have been outsourced to private contractors for collection. There is no separate fee charged for door-to-door collection; instead the fee forms part of the holding tax paid by homeowners.
- ▶ While 150 RCC dustbins and 12 permanent dustbins have been provided across the municipality, the dumping yard is currently located in Ward 15 near the bus stand. There are 14 collection points from where the municipal tractor collects the waste and transports it to the dumping ground. Reportedly, medical waste is also collected by the municipality, though the district hospital is equipped with a functional waste management incinerator and processes.

- ▶ The dumping ground itself is an unused piece of land within the city with a boundary of sorts around it. It was observed that the waste was dumped on the ground at random with much of it spilling out of the boundary. The site is used for all kinds of waste, including solid, liquid and medical waste. An alternate piece of land of 5 acres has been provided by the district outside the city limits. However, this is not operational as yet because of objections from the village communities around it. The land belongs to the government and has also got clearance from the Environmental PCB according to guidelines that stipulate that the site should be at an adequately safe distance from human habitation and drinking water sources.
- ▶ Though all schools in the municipality have toilets, many did not have separate toilets for boys and girls and some were not functional. Besides, piped water supply is not available in most schools, except in a few cases where CSR funds have been accessed by the schools.
- ▶ Similarly in hospitals while the wards had attached toilets, these were not always clean; and toilets for the OPD patients and attendants were grossly inadequate in numbers.

FSM is a major concern in Angul Municipality. Three methods of FSM have been observed:

- ▶ In most cases sludge is directly emptied into the open drains. The municipality has one cesspool which was hired out to households, but was soon abandoned because of lack of space for discharging the sludge. Some years back the sludge was being disposed on multiple sites. However, over the years most of the sites had to be abandoned because of complaints from the citizens; sludge disposal is now restricted to a single and fairly isolated site.
- ▶ A private cesspool vehicle was also operational for the last few years, with the sludge being discharged outside the municipality on 3 acres of private grounds, with each 'trip' costing between Rs 2000 to Rs 2500. However, the private vendor too has reportedly discontinued the business because of space concerns.
- ▶ Often manual scavengers on an individual basis are also involved in cleaning out the pits; they carry the sludge in buckets and dispose of it into drains or open grounds.

All the three methods used are of concern as they do not follow any safety standards or treatment processes from containment to disposal. While the scavenger collects the sludge manually the cesspool operator – private or the municipality – uses a suction pump and tanker to hold the sludge. Transportation of the sludge is through various means: cesspool emptying vehicle, buckets carried by the scavengers or trolleys, tricycles and open tractors. The sludge is then thrown into open drains within the town or a waterbody, a pit on individual land or open fields within or outside the municipal boundaries. All of this is done without any kind of treatment of the sludge.

What is more, many households do not desludge because of the expenses¹⁵ involved or because of lack of information and knowledge; many more are not aware of the hazards of improper desludging and disposal. Desludging in schools and hospitals is more regular.¹⁶ Discussions with the community and the baseline survey revealed that the manual scavengers are the most used services followed by the paid private operator and then the municipality. The services of the private operator, even though more expensive than that of the municipality, were used because of ease of access. The baseline survey indicates that the services of the municipality were used significantly more by the non-slum households, indicating their greater influence with the municipality.

Discussions with the municipality indicated that under the SBM, 1425 household toilets were to be constructed in a staggered manner by 2019, and 1086 were to be converted from single pit toilets to septic tanks, thereby increasing the number of septic tanks and the need for desludging in Angul. Community toilets were also to be constructed on a public-private partnership (PPP) mode with the ownership lying with the municipality.¹⁷ The Municipal Engineer is of the opinion that Angul was geographically and geologically suited to develop a sewerage system but was constrained by the lack of funds and technical support from the OUWSSB and the state government. The system – whereby the central/state governments planned programmes without adequate involvement of or support to the ULBs – was thought to be faulty and one of the reasons for the lack of performance of the ULBs. The industries based around Angul could be motivated to contribute to its development.¹⁸ However, since they were under the oversight of TAMDA (regional authority), the Angul Municipality had little influence over them. The officials and elected representatives of the ULBs were of the opinion that the District Collector could play a positive role in mobilizing the industries as he was responsible for peripheral development.

Lack of funds, unavailability of adequate land, shortage of staff and human resource, lack of access to appropriate technology, and vested interests of some of the elected representatives were given as the major reasons for Angul's failure to adopt more efficient means of sanitation and FSM.

3.3 Sanitation functions of Angul municipality: role and capacities

3.3.1 Organizational structure, roles and functions

As mentioned earlier, Angul town was first constituted as a Notified Area Committee in 1931, then converted to Notified Area Council in 1955 and upgraded to municipality in 2008. It is governed by an elected Chairperson and his 22 Councillors who represent the 23 wards in the municipality. The Chairperson and his Council are supported by an Executive Officer and his team of officials and assistants. There are a total of 139 employees in the municipality, but 13 posts have remained vacant for a considerable time because of a freeze on recruitments. Those

involved in sanitation related work include 11 regular government employees, 5 Work Charged, and 10 DLRs (Daily Labour Rate) who are hired on contractual basis, besides a large team of sweepers and sanitation workers. The team thus includes a Municipal Engineer and a Junior Engineer, a Sanitary Inspector, a Community Organizer, an Accountant, 6 Tax Collectors and an Office Assistant. There are also 3 private contractors who between them have engaged 147 sweepers, in various wards, for waste collection and road sweeping. While 26 of them are employed as permanent sweepers by the municipality, 121 are the employees of the contractor. The sanitation work is largely limited to cleaning of roads and drains and collection of household garbage, besides planning and executing national and state supported schemes as and when budgets are sanctioned. Cleaning and emptying of septic tanks and pits is limited and currently conspicuous by its absence because of lack of resources and availability of land.

Discussions with one of the contractors (responsible for Zone 1) revealed that he employs 60 people, 5% of whom are women. The staff also includes 2 Supervisors. The Sanitary Inspector takes a roll call of the staff, on the basis of which the ULB makes payments to the contractor who in turn pays the staff. Reportedly payments are made on time. The contractor and his team are responsible for door-to-door collection of solid waste, cleaning of drains and sweeping of roads. The sludge from the drains is left to dry on the side and then lifted by the municipal tractor and dumped on the dumping site, as per the contract.

The shortage of staff is evident with many of the existing staff holding multiple portfolios and cross-posting of roles. For instance, the survey of households and beneficiaries under SBM is carried out by the Assistant Tax Collector, who then submits it to the Office Assistant for compilation and processing. The Municipal Engineer, who is responsible for preparing DPRs and executing all infrastructure work from roads to toilets, pointed out that a team of 1 Junior Engineer and 2 Supervisors was inadequate to simultaneously supervise the construction of toilets under SBM, as well as take care of other infrastructure works. The single Community Organizer in the municipality was loaded with work related to NULM, including the formation of SHGs, etc. and hence could not devote time to mobilizing communities on sanitation and hygiene or provide support for the supervision of toilet construction.

The Sanitary Inspector, as in other small municipalities, is on deputation from the Health Department and his responsibility is largely limited to supervising the conservancy and waste management work. He is assisted by 2 Supervisors. The Sanitary Inspector reports to the Chief District Medical Officer (CDMO) and also draws his salary from the CDMO's office. The Sanitary Inspector's duties primarily include maintaining a daily attendance sheet of the sweepers, allocating work and assigning the area for work, supervising the dumping and pick-up of solid waste, addressing complaints of the citizens and reporting to the Executive Officer. Responsibility for managing the occasional

cleaning of drains and clogged septic tanks in public places also lies with the Sanitary Inspector. While manual scavenging, it was reported, is carried out primarily in the night, the sweepers are ill equipped with safety tools and measures. The Sanitary Inspector's post had reportedly remained vacant for 10 years; it was only two years ago that the current incumbent was deputed from the Health Department.

Sanitation is the priority of the Chairperson of the municipality. One of his main concerns was drain water getting mixed with the drinking water being supplied to the city, as the waste was emptying out into the Raniguda river. The new piped water supply scheme to be operational in March 2016 was expected to solve this issue. However, an STP was required to ensure that the sewage water was sufficiently safe before being drained off into waterbodies. Secondly, the concern was the unavailability of land for disposing solid and liquid waste. He observed that while the municipality had adequate funds, unavailability of land prevented proper dumping and disposing of waste. Land was an issue because, while on the one hand 40% of the land in Angul Municipality was reportedly encroached, on the other the fact that land was under the jurisdiction of the Revenue Department made the process of acquisition cumbersome. The Chairperson observed that the growing industrialization and related opportunities for work in Angul would increase the inflow of population and the number of slums in future. Hence, there was an urgent need to improve services and facilities to keep pace with the growth in population. While this called for additional staff in the municipality, the new Cadre system (which rationalizes and allocates staff according to the size of the city population), it was feared, would actually reduce the number of staff in a small city like Angul and prevent the hiring of additional contractual staff.

3.3.2 Coordination with other departments and agencies

The district offices of the PHEO (subdivision) and the State PCB, apart from the Education and Health Departments, are the key agencies that Angul Municipality has to technically coordinate with.

The PHEO (Angul subdivision) is responsible for the supply of drinking water to the municipality. The responsibilities include both the execution of schemes and the O&M of the piped water system. According to the PHEO, Angul was a water scarce area and both groundwater (19 bore wells) as well as surface water was being used to supply water to the town. Against a total demand for water of 9.72 mld, only 4.48 mld was currently being supplied through 14,253 piped water connections, 244 standposts and 289 hand pumps. The supply and coverage were both expected to improve when the new system became operational later this year. However, the PHEO stated that the municipality has as yet not shared any list of identified slums and hence, by default, these too may be provided with standposts or hand pumps instead of house connections to which they were entitled.

Patta or Proof of Residence/ownership of a house is required for house connections to be given. The APL (Above Poverty Line) households are charged Rs 3000 for house connections and the BPL (Below Poverty Line) Rs 300, and this amount is collected directly by the PHEO. On the other hand, the O&M charges are collected by the municipality as part of holding tax and regularly transferred to the PHEO for its services. Efforts were on to transit to an online system of payments in the near future.

The PHEO also has a small water testing laboratory in the district that tests basic parameters such as the PH value, residual chemicals, E-coli, etc. The PHEO reported that for the last three months the results of water testing (parameters) were being forwarded to the state office (Chief Engineer and Secretary) but not shared as a matter of routine with the municipality. Other quality tests for hardness, fluoride, iron, BoD, etc. are carried out by the State PCB. The PHEO does not follow a regular leak detection or maintenance protocol because of shortage of staff; however, it responds to complaints from citizens.

The State PCB, including its regional office in Angul, does not have the mandate to test drinking water. Its responsibilities are limited to commercial, industrial and institutional pollution control. Further, its role in the municipality is apparently limited to generating and forwarding information to the State Board and thereafter ensuring the compliance of the instructions given by the state. It is the State Board that provides the necessary recommendations or instructions for any form of water pollution control and regularly sends reports on various aspects, including status of MSW management, of all ULBs to the Central PCB. The Central PCB has also provided guidelines for cleaning of drains, etc.

The municipality stated that there was little coordination with the PHEO. The latter planned and implemented projects on its own without any consultations with the municipality. Besides, though the water in the area was at a high risk of pollution because of the presence of numerous industries (amongst other reasons), no tests were regularly carried out and results shared with the municipality. The municipality reported that neither the PHEO nor the District Collector took much interest in water quality testing. Similarly, the municipality had little coordination with either the Health or the Education Department, except during some occasional events, trainings or meetings. Angul could have benefitted from the presence of the numerous industries on its periphery. However, the municipality does not have the capacity to take advantage of the situation nor does the District Collector, also responsible for the Peripheral Area, initiate any kind of coordinated activities with mutual benefits.

3.3.3 Systems and processes

Sanitation is one of the biggest functions of the municipality in terms of workload and budget. In recent years, with decentralization as well as the priority given to sanitation, the municipality's roles and responsibilities and corresponding skill requirements have increased. Currently, apart from the routine functions of street and drain cleaning, SWM and conservancy, Angul Municipality is also responsible for implementing the SBM interventions, including mobilizing communities to adopt the use of sanitary toilets and safe and hygienic practices. The planning for SBM is undertaken by the Municipal Engineer on the basis of the field data provided by the Assistant Tax Collectors. The plans are approved by the Chairperson and his Council or the Steering Committees, and forwarded to the state government for release of funds. Once the funds are approved and released to the ULB the stipulated amount, in phases, is forwarded to the beneficiaries who construct on their own. There are no regulations or specific guidelines for ensuring the quality of construction, nor is the beneficiary oriented to the specifications or regulatory requirements. Any faults in services—leakages in the pipelines, clogged drains or septic tanks, piling of garbage, etc.—are verbally conveyed to the concerned ward councillor or official in the municipality, who then instructs the concerned staff to take action as when required.

Community processes are conspicuously absent and the focus is primarily on the provisions of physical infrastructure. The lone Community Organizer is overloaded with the task of forming SHGs and implementing other poverty oriented welfare schemes and hence does not have the capacity to engage deeply with

the community. Interactions are limited to mere exchanges of scheme related information and processes. In the communities where some level of interaction under the ongoing Project Nirmal has occurred, it was seen that they were aware the ULB was giving funds for construction of toilets but did not have any information beyond that.

The income of the municipality is generated from fees and taxes like holding tax, water tax, lighting tax, licence and fees, revenue from municipal property, grants and contributions for other purposes like maintenance of roads, compensation in lieu of Octroi, and projects and allocations under schemes like NULM, Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT), construction of public and community toilets, toilets under SBM, etc. Grants and contributions are also generated from schemes such as Members of Parliament Local Area Development (MPLAD), Periphery Development and from advances and deposits from shopping complexes. No other funds are allotted specially for water and sanitation, and expenditure on these has to be obtained from the grants devolved from the 13th Finance Commission.¹⁹ The budget for the new financial year is prepared on the basis of the total tax and revenue income generated in the previous year and the expenditure incurred in the last financial year, with a 10% addition to the total. The municipality gets a total of 9% (4% holding tax+3% water tax+2% electricity tax) on the valuation of the houses. However, this amount is insufficient for any development or maintenance work as a large part of it is transferred to the PHEO. The sanctioned budget estimate for 2014-15 was Rs 22.88 crores while the estimated budget for 2015-16 was Rs 37.88 crores.

4

*CAPACITY NEED ANALYSIS AND
FINDINGS: DHENKANAL*

4.1. Urbanisation and socio-economic profile of Dhenkanal

Dhenkanal Municipality came into existence in 1951 and was subsequently expanded in 1975 with the inclusion of 12 more revenue villages. Adjacent to Angul, centrally located, landlocked and spread over 31 sq. km, the topography of the region has influenced the growth and spread of the urban area. The hill ranges on the western part of the town and low-lying paddy fields have restricted the growth of the town in these directions. Residential colonies occupy the largest percentage (42%) of the developed urban area, with administrative, commercial, industrial, educational and health facilities occupying the remaining space.

Dhenkanal is primarily an administrative town with activities having developed around the few industries that have come up in the area together with some amount of trade and commerce. The urban population has been steadily growing over the last few decades: the decadal growth rate was 12.7% between 2001 and 2011, and in 2011 stood at over 67,000 people, with 53% being male. The total number of households is reported to be around 14,900, with an average household size of 4 people. The female population has been growing at a marginally higher rate with the sex ratio also showing a marginal improvement over the last decade. Of the total population, 12% belongs to the SC community and 5% to the ST communities. The literacy rate in the municipality is high at 91%. While government health facilities and services are inadequate, there are 17 anganwadis in the slums and 7 high schools and 45 primary schools, many of which also cater to the children from the slums.

While the district itself has a predominantly agricultural economic base, there are a few industries in the region based on the rich mineral resources found here. Mining is an important economic activity engaging a large number of people, many of whom reside in the urban area and access basic services from the municipality. Thus, several small and micro industries operate in and around Dhenkanal, including agro based units, textiles, paper products, leather, chemical and mineral based industries.

The draft City Development Plan of Dhenkanal and the recent baseline survey²⁰ indicate that there are 17 slums in the municipal area with about 2060 households and a total population of 7821 people, 49% of whom are females. 40% of the population in the town lives below the poverty line and most of these reside in the 17 slums. 64% of this population belongs to the SC communities, 25% to the ST and the remaining 11% is almost equally divided between the OBC and general categories. In terms of religion, the vast majority are Hindus. The slums are concentrated in 17 out of a total of 23 wards with some of them having a higher number of slum households than others. Only about 360 households have pattas in their names and another 38 have possession certificates, while the remaining households have no title deed or clear ownership over the land and house that they have occupied.

4.2 Status of sanitation, facilities and services

Dhenkanal Municipality receives water from multiple sources. Geographically, because of its location in the foothills, it has an adequate catchment area. However, in recent years the ground water level is reported to have gone down considerably. While pipe water supply is available in the town, the distribution network does not cover the entire area. While 41% have access to direct tap water, 36% draw water from public standposts, hand pumps and covered wells. Out of the 23 wards, 12 are fully covered by tap water while 9 wards are only partially covered. Besides the house connections, the town has a total of 285 public standposts and 275 hand pumps. More than 60% of the households have access to water within their premises, while 16% have it just outside but at an easy distance. However, 17% reported having to walk a considerable distance to fetch water.

The present demand for water is reported to be around 12.5 mld; the PHEO is only able to supply about 50% of the demand. The source of water is the Badajora Nallah production wells and the river Brahmani. The municipality has an MoU with the PHEO for supply of water and has established the service level benchmarks for 2015-16.

The broad mapping exercise conducted in different wards during the baseline survey indicated that there are 163 functional hand pumps in the municipality and 46 dustbins located across wards; however, drains are confined to only a few wards and two of the main drains discharge untreated water directly into the river. Drains have reportedly been left out of the Master Plan of the city; the plan needs to be revised to include them. According to the municipality, not only is there a need for more new covered drains, but the old ones also need to be reconstructed and covered. Open drains are to be found more in the newer colonies which are located in low-lying areas, leading to severe waterlogging. The ULB is of the opinion that legislative measures are required to ensure that dumping of solid waste into drains is stopped. At present there is no sewerage network. The CDP observes that a total of 906 litres of untreated waste water, including sewage, is generated in the town.

Solid waste is collected by the municipality from dumping areas around the city and currently dumped on a site designated for the purpose in each ward. The collection of solid waste for 15 wards has been outsourced to a private contractor (with 75 sweepers), while the remaining 8 wards are serviced by a total of 64 municipal sweepers. There are two private contractors involved in the SWM function. While one contractor is responsible for door-to-door collection (14,000 HH) in all 23 wards, the other is responsible for sweeping of the streets, lifting and dumping the garbage and cleaning the drains in 15 wards. The contracts to the two private service providers are awarded on an annual basis and while the door-to-door collection has been in place for the last three years, the sanitation contract was initiated as recently as August 2015.

While the drains are cleaned once a week, de-silting is carried out only once a year. Sweeping and cleaning of the main roads is carried out as early as at 4 am and that of the internal roads at 6 am. According to the ULB, there is little awareness in the community and households are reluctant to segregate waste and hand it over to the door-to-door collector, even when the service is free of cost. The municipality states that it is empowered to fine the citizens for acts like open defecation, littering and other acts causing nuisance and pollution in the city. But being a political creature with an eye on votes, the municipality refrains from using such measures to ensure cleanliness at the cost of a healthier city.

The ULB reported that the number of sweepers engaged currently is not sufficient to ensure all-round cleanliness. The sweepers engaged by the municipality as well as the private contractor are supposed to work eight hours a day. However, they only work three to four hours a day in the morning. Forcing them to work for longer periods leads to striking of work in protest. Hence, it was observed that a system of two shifts was required to keep the city clean. Besides, the sweepers are not well trained and tend to follow the traditional methods of cleaning and waste management. The quality of service is also affected by the lack of equipment such as machines for de-silting, tractors, JCBs, cesspools, etc.

Payments to the contractor are made on the basis of length of drain or road cleaned.²¹ The private contractor uses two tractors, each with the capacity to transport 3 metric ton of waste, with each metric ton fetching him Rs 1000. The contractor claims that the sweepers, all of whom are from the Dalit or Schedule Caste communities, have been provided with safety equipment, health and accident insurance cover, etc.

On an average, 20 tons of solid waste per day are reportedly collected in the city and dumped in 9 acres of land on the outskirts of the city (but within the municipal limits) designated for the purpose. The area is fenced and is divided into four separate units for solid waste, liquid waste, dead bodies and medical waste.²² The FSM unit proposed under Project Nirmal is a pilot intervention and will cover a certain number of wards according to its final capacity. Reportedly, a comprehensive SWM DPR has been recently prepared by a private consulting agency and submitted to the Odisha Infrastructure Development Fund. However, the proposal is apparently limited to collection and disposal with no proposed plan for treatment of the waste.

As much as 42% of the households in the city do not have access to sanitation facilities and hence defecate in the open. Two public toilets run by Sulabh Sauchalaya and one by the Reserve Police have been constructed but are obviously not adequate to cover the population (one toilet is defunct). Four more public toilets are proposed to be constructed under SBM; however, the plan for their O&M is yet to be formulated. Rs 8000 is given to each beneficiary household for construction of toilets under SBM. But both the ULB and the community claim that this amount is inadequate. In 2015-16, 1441 toilets are to be constructed out of which 185 applications

have been received and funds released for those. Earlier too, toilets were constructed under the Integrated Housing and Slum Development Programme. The municipality only disburses funds and does not provide any technical guidance or supervision, and though there is a budget provision of 6% for IEC under SBM, this has not been used as yet.

The slums have poor infrastructure and basic services, with most of the houses being kutchha structures. Around 85% do not have access to toilet facilities and hence open defecation is rampant. Most of the slums also do not have adequate space for construction of toilets. Only 12% of the households have access to toilets with septic tanks. Besides, most of the slums do not have piped water supply or the benefit of waste collection services. In fact, 47% of the households reportedly collect drinking water from bore wells and tube wells, and 37% resort to open wells.

The baseline survey indicated that 38% of the total households surveyed had access to pour/flush latrines connected to septic tanks, 50% to pit toilets with slabs and only 12% to ventilated improved toilets; 68% of the septic tanks had double chambers with varying designs and sizes. Distance of the pits from the source of drinking water was an issue with safe distance not maintained by a majority of the households for various reasons. The old areas have service type latrines while the newer colonies have latrines with individual septic tanks or soak pits, but emptying into open drains.

The fact that there is only one cesspool available with the municipality makes the gravity of the situation apparent: this is far from sufficient in number or adequate in terms of safe collection and disposal practices. The municipality charges Rs 1000 per trip made by the cesspool, which reportedly makes two or three trips each day on an average (one per day on an average according to the log book maintained by the municipality during 2012-15). In the absence of sufficient number of cesspool machines and facilities, especially in the slums, the faecal matter is lifted out manually by sweepers and discharged into open drains or holes dug in nearby areas. The ULB reports that because of this practice, all open wells in the city are polluted.

The municipality itself lists as some of its main concerns the lack of a drainage network for collecting and disposing storm water efficiently, open drains that are poorly maintained, a poor system for solid waste collection, untreated sewage and poor supply of water in the slums. The reasons for open defecation were reportedly the slum households' inability to pay the cost of construction, the lack of space for construction and also the preference for open defecation over using a closed toilet. The fact that there was no action taken by the municipality against open defecation leads to the perpetuation of the practice.

4.3 Sanitation functions of dhenkanal municipality: role and capacities

Dhenkanal has a Chairman-in-Council system, consisting of elected members from wards. The functional committee provides

for the formation of Executive Committees and other committees on different municipal subjects. The municipality is managed by 23 councillors, of which 12 are women. The administrative section is headed by an Executive Officer (EO) and is divided into the following:

- ▶ Technical section consisting of the EO, Assistant Engineer, Junior Engineer, Computer Operator
- ▶ Revenue section which includes a Junior Accountant, Revenue Inspector, Revenue Officer
- ▶ Public Health unit that includes a Health Officer, Sanitary Inspectors, sweepers, jamadars; there are 64 permanent sweepers and 75 daily wagers (NMR)
- ▶ Administrative section with one Office Assistant
- ▶ Law Department with a single Legal Assistant
- ▶ Enforcement Wing with an Enforcement Inspector

The Municipal Engineer (female) is responsible for all infrastructure activities, including the technical aspects of SBM. However, her role and responsibility in SBM is limited to preparing the DPRs and estimates. At present there are two Junior Engineers and an Assistant who support the Municipal Engineer. A shortage of staff was felt and the ULB is of the opinion that the new Cadre system will aggravate the situation. The sanitation team is the largest because of the number of sweepers who are part of the team. The work of the sweepers is supervised by six Supervisors, each of who have been allocated separate zones to manage. The EO also takes rounds of the city from time to time to monitor the work being carried out. However, the work is often pushed off track because of interference from the councillors who function with their own agenda.

Apart from the mandatory functions of maintaining records of birth, deaths, marriages and issuing certificates for the same, the municipality is also responsible for construction and maintenances of roads and drains, SWM, slum improvement and street lighting, basic healthcare facilities (prevention measures), etc.

As in all other municipalities, the system of planning of facilities and services is most rudimentary and based on the previous year's budget. Infrastructure and facility requirements are influenced by political considerations and the tied funds that are devolved from the central/state government. Thus, the funds in a year are constituted of salary and programme grants, taxes and fees, licences, etc. The expenditure incurred is primarily in establishment, and on the outsourcing of door-to-door collection, road and drain cleaning, and lifting of garbage in 15 wards. The approved budget for the year 2015-16, including that for sanitation, was around Rs 4.11 crores.

None of the existing team of sweepers reported receiving any type of training or capacity building inputs in the recent years, confirmed by the fact that no training reports were available

with the municipality. However, the Sanitary Inspector reported having received training on SBM in the Kalinga Institute and in Sambalpur over the last two years. It was observed that the Executive Officer and other senior officials, like the Municipal Engineer and Accounts Officer participate in random training programmes organized by SUDA in Bhubaneswar or the Regional Centre for Urban and Environmental Studies in Lucknow. Overall, the municipality reports that there are no funds allotted to them for training; whatever training the senior staff have undergone so far has been organized at the state level.

Apart from the officials in the ULB, in recent years, CSOs and CBOs too have been part of the institutional setup. The most critical in concept are the Ward Committees, with the Ward Councillor as the chair. Besides, under Project Nirmal, slum and ward level CBOs and a City Sanitation Task Force have been set up and are expected to take on the responsibility of providing guidance and oversight to the overall sanitation interventions in the city. The Task Force consists of the Chairperson of the municipality as the Chairman and the EO as the Convener and several others as members. They include the Secretary DRIT, Assistant Engineer from the PHEO, and representatives from the local NGO, corporate sector, hoteliers, private sector providers, slum sanitation committee and Project Nirmal. The Task Force is responsible for launching a sanitation campaign, generating awareness, approving progress, approving the CSP, visiting the field and briefing the media and the government, and providing overall guidance to the ULB.

Coordination with other agencies like the PHEO, PCB, the Education and the Health Departments is minimal and limited to responses on request for specific services.

There are around 45 schools under Sarva Shiksha Abhiyan (SSA) in the municipality. Reportedly all of them have been provided with toilets; a scheme to augment water supply in the schools is currently being planned. O&M of these facilities is the responsibility of the school and the funds for this come from the regular School Improvement Grant (SIG) that is provided. However, schools often complain that as the SIG is for all types of improvements in the school, the amount provided under the grant (Rs 7000-12,000) is insufficient to also ensure adequate O&M of sanitation facilities round the year. The SSA's point of contact with the municipality is the occasional visit of the EO to schools that are within the municipal boundary and during the regular coordination meeting of all departments under the chairmanship of the District Collector. The School Management Committee, an important body under the SSA, is key to the development of the school. Consisting of teachers, parents and the elected representatives, this committee is exposed to capacity building inputs, including on WASH. Similarly, interactions with the Health Department, anganwadis, etc. are minimal and largely occur during coordination meetings with the District Collector. Apart from this, capacity building activities related to WASH appeared to be absent.

5

FINDINGS AND STRATEGIC DIRECTIONS FOR CAPACITY BUILDING FOR EFFECTIVE URBAN SANITATION AND FSM

5.1 Findings and conclusions

This study has reviewed the status of sanitation in the two towns of Angul and Dhenkanal, with a focus on FSM, to profile and assess the existing institutional structure and capacities that influence the extent and level of services being provided. The overall picture that emerges is that of municipalities that are beginning to experience the pressures of the sanitation needs of a growing population and are struggling to find both technical solutions and resources to improve the services. The specific issues are:

5.1.1 While on the one hand the percentage of open defecation is significantly high, on the other, those in the community who have access to toilet facilities have not adopted adequately safe design and technology both in terms of construction and maintenance. Septic tanks are of a single or double tank design, and in both cases soak pits are absent with the untreated waste water flowing out into open drains; open drains in turn empty out into waterbodies or open grounds polluting both surface and ground water. Safe distance from drinking water sources is rarely maintained. The construction of soak pits does not appear to be a common practice in general, and the specification of both septic tanks and soak pits do not follow standard norms. Besides, there is no sewerage system in either ULB nor there is a proposal for one in the near future. *The ULBs need to urgently address the issue of ensuring standard and approved designs, and O&M of toilets across the respective municipal areas.*

5.1.2 The ULBs have not provided technical guidelines or supervision to the households for construction and maintenance of toilets, even in the course of implementation of SBM. Further, the ULBs have also not been able to manage the safe collection and disposal of faecal sludge and waste water. They are constrained by multiple factors: insufficient knowledge of technology, capacities to plan and manage the process of FSM, unavailability of equipment and other resources, including adequate and safely located land, and inadequately trained manpower. Above all, perceptions related to the relationship between sanitation and health as well as sanitation and environmental issues were weak. *The perceptions and understanding of ULBs of the impact of poor sanitation, including the inadequate management of the growing quantities of faecal sludge being generated, need to be urgently addressed.*

5.1.3 Both the ULBs have initiated the first steps for the management of solid waste in that door-to-door collection has been started, intermediary dumping sites activated and final dumping sites identified. However, the waste is not segregated either at the collection (household) point or subsequently at the dumping sites. Further, the intermediary dumping points within the city are not adequately contained or protected, resulting in waste being scattered around. Similarly the final dumping ground too only has a fence around it. However, the most critical concern is the lack of any process to safely treat and dispose of the waste and the absence of either treatment plants or landfill processes. *A comprehensive process and system, from collection to safe disposal of*

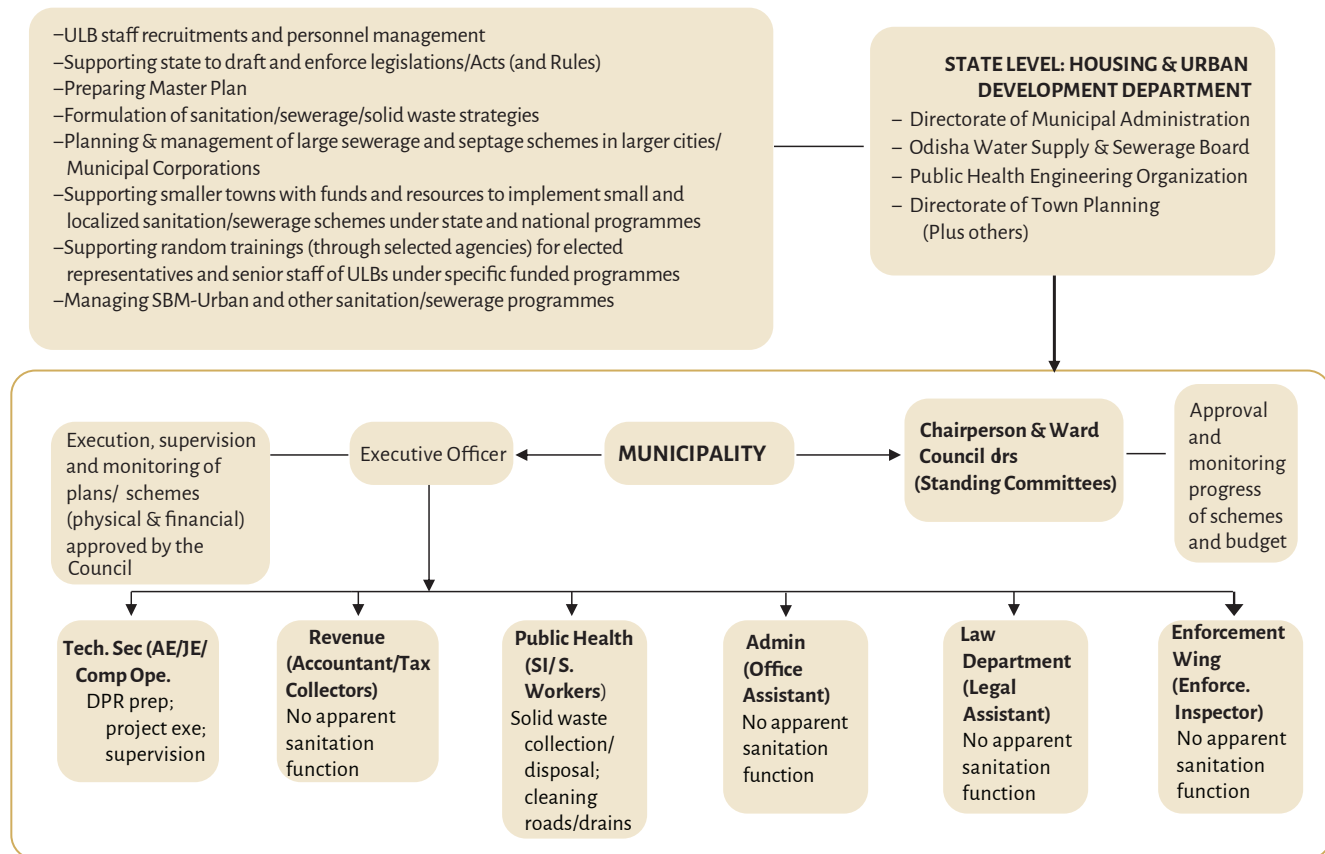
solid waste, needs to be developed by the ULBs, incorporating technology and a robust system to manage it.

5.1.4 The task of the ULBs is compounded by the households which are hesitant to segregate household waste on the one hand, and on the other to hand it over to the waste collector, even though the service is free of cost. The primary reason for this behaviour is perhaps the lack of awareness and understanding of the impact of solid waste; the ULBs have also been unable to ensure compliance with municipal requirements. *Comprehensive guidelines for solid waste disposal are to be developed by the respective ULBs and a platform for interfacing with the community for promoting their participation in the process of SWM needs to be developed.*

5.1.5 Inadequate drains, in terms of both coverage and design, cause waterlogging in the two municipal areas. The technical issues to be addressed are that the drains do not empty out into safe points and that they are most often uncovered. Further, drains in both urban areas have been laid on an ad hoc basis, to solve immediate problems. As such there is no master plan of drains and they are not networked for maximum effectiveness. The fact that the septic tanks in large numbers empty out their effluence into these drains makes the need to secure them even more critical. *A master plan of the required drainage system needs to be prepared by the ULBs.*

5.1.6 Sanitation is one of the major responsibilities of the ULBs, and in terms of staff engages the largest number of people. The basic sanitation services currently being provided are highly dependent on manpower and human resources. Most of the waste collection and disposal activities are undertaken manually and involves a large number of sweepers (from a specific community). There is no dedicated team for sanitation, except for the Sanitary Inspector (on deputation) and the army of sweepers (the ULBs claim that even this is inadequate). The planning and supervision of the construction of facilities and the management of services are primarily carried out by the Municipal Engineer and the EO who have several other tasks to perform (*Refer to Diagram on Organizational Structure and Existing Sanitation Functions of the State and Municipalities in Odisha*). The launch of SBM has led to an additional burden on these officials without commensurate support in terms of effective guidelines, training and manpower. Hence, the key tasks that are performed include preparing DPRs and estimates, and cleaning, collecting as well as disposing of solid and liquid waste using the most basic technology. The new Cadre system also does not have any separate service category for sanitation and it is assumed that the functions would again be drawn from the Engineering and Community Development Services. *There is a need to review and define requirements in the light of the focus on sanitation, the new technologies that need to be introduced, the efficient management systems that will have to be put in place, the proposed agenda to engage with both communities and private providers, and the intensive SBM that has been launched in each town.*

Diagram 3: Organizational Structure and Existing Sanitation Functions of the State and Municipalities in Odisha (Angul & Dhenkanal)



5.1.7 It is clear that both the ULBs undertake partial and random sanitation activities, mostly limited to cleaning drains and streets, collecting solid and, less frequently, liquid waste and sludge, and dumping them on designated or easily available land and waterbodies. Some amount of related construction work based on schemes and budgetary provisions is also undertaken.

5.1.8 Issues of inclusion and gender are not a conscious part of planning and management within the overall structure and functions of the ULBs, nor in specific relation to sanitation services. While there are projects and schemes that focus on marginalized communities like those living in slums, including women (related primarily to housing, infrastructure, SHGs and livelihoods, etc.), they aim at providing targeted facilities and services rather than an overall process of inclusion and empowerment. This also has technological implications. For instance, poor settlements and slums are seen as separate entities and not networked into service provisions. Then again, while providing public or community facilities like toilets, the privacy, safety and security of women only receive cursory attention. However, what is creditable is that both Angul and Dhenkanal municipalities had women in some key positions (Municipal Engineer, Accounts Officer) and with the power to take critical decisions. Apart from this,

there is also the mandatory percentage of women councillors in the municipalities. Hence, gender mainstreaming – preceded by an exhaustive gender audit – will facilitate in integrating a process of inclusion and a gender sensitive work environment as well as facilities and services in the ULBs.

5.1.9 Currently the framework/strategy for continuous capacity building of the staff in the ULBs is minimal and confined more or less to the senior staff like the EO, Mechanical Engineer and Accountant. The elected representatives are also at times exposed to orientations that are generic in nature. There is a need to develop a clear capacity building strategy for sanitation that focuses on all staff engaged in the activity. The strategy has to take into consideration the technical as well as the management skills required.

5.1.10 The planning and management systems are weak and planning is undertaken on the basis of the previous year's budget and expenditure. There is a need to build up a database on the sanitation status and needs of the municipalities, prepare a comprehensive city sanitation plan, and develop efficient management systems to implement it. This will include monitoring and supervision and by default it would also mean building up the capacities of the concerned officials.

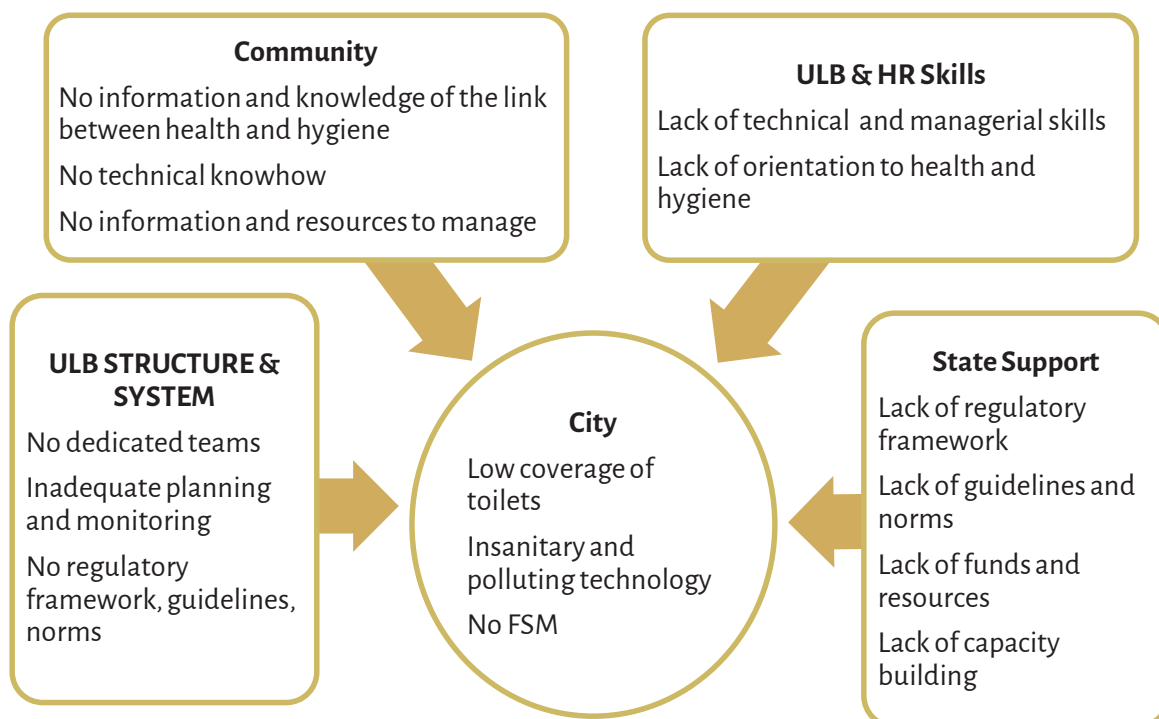
5.1.11 Community interface is minimum and restricted to receiving and addressing complaints through the offices of the EO or Ward Councillors. The sole Community Organizer is engaged in activities related to NULM. Given that a ULB by definition is a community based institution in terms of structure, responsibilities and governance, its functions should be tailored around the community. *As such there is a need to establish a platform for regular interface between the communities and the ULBs, and build up the capacities of the elected representatives as well as the officials to engage with the communities. Community awareness and an information strategy need to be developed and located within the process of service delivery.*

5.1.12 The ULBs are expected to generate and raise their own resources, including that for improved sanitation. However, they are constrained by lack of access to information about potential sources and ways as well as means of accessing resources, including private sector funds, CSR funds and borrowings from the market and state institutions. *While the ULBs' confidence and capacities to access funds need to be built up, their capacities to effectively use the resources also need to be strengthened.*

Table 2: Required and Actual Sanitation Functions in Angul and Dhenkanal

Required Sanitation Functions	Functions Currently Being Undertaken
Proper containment	Partial
Emptying/collection	Partial
Transportation	Partial
Treatment	Absent
End-use/resource recovery and disposal	Absent
Planning, supervision, monitoring	Inadequate

Diagram 4: Challenges



The challenges, thus, are primarily in terms of a weak institutional structure and human resource; inadequate legislative and regulatory support and enabling environment; a lack of interface with the community; and overall lack of required skills and competencies at the organizational and individual levels. Besides, while the stakeholders are many, coordination between them is relatively ineffective. Hence, multiple gaps exist in the present and expected capacities of the ULBs to perform efficiently and effectively (ref. Diagram 4).

While the weak planning and implementation of the sanitation role and functions may be attributed to the overall weakness of the institution and system, the sanitation functions per se – and with it perhaps the overall functioning – may be corrected and improved with a comprehensive capacity building programme.

5.2 Strategic directions

Both Angul and Dhenkanal are currently at a stage where they need to adopt multiple strategies to ensure adequate sanitation services in the areas under their jurisdiction. The need is to focus on adopting improved and appropriate technologies along the complete cycle of sanitation management, be it solid or liquid waste or faecal sludge. This would ensure that waste is safely contained, collected, transported, treated and wherever possible reused. The communities need to be made aware of, mobilized and supported to adopt safe and hygienic practices. For the municipalities to adopt appropriate technologies and practices would require revisiting of the current human resources structure and management arrangements as well as appropriate capacity building inputs.

Given this, a capacity building plan for the two ULBs for improved sanitation with a focus on FSM will have the following objectives:

- ▶ Adopting a ULB specific and locally conducive institutional model for sanitation and FSM, and adequately structuring the sanitation team and functions within the ULB
- ▶ Adopting a locally appropriate technical model for FSM
- ▶ Establishing efficient and effective systems, processes and guidelines for planning, implementing and managing sanitation interventions
- ▶ Creating an enabling environment through appropriate Acts and Regulations
- ▶ Building capacities of the team and individual members in both technical and management functions
- ▶ Building capacities to engage with the communities to bring about behaviour change related to sanitation, hygiene and FSM and establishing a robust social marketing process.
- ▶ Evolving a concurrent capacity monitoring and assessment system with multiple level and objective oriented indicators

The plan will be developed within the framework of the following guiding principles:

- ▶ The capacity building process will adopt a hands-on strategy and capacities will be developed in the course of the implementation of the ongoing interventions (Project Nirmal).
- ▶ Each ULB, as the central agency responsible for sanitation and FSM in Dhenkanal and Angul, will be supported to enhance capacities to enable, develop and sustain the services through the entire service chain.
- ▶ As capacity enhancement is a dynamic process, the capacity building plan will be integrated into the sanitation functions and programmes of the ULB and continuously reviewed and improved.
- ▶ The ULB will own the capacity building process and be accountable for improvements that will be reflected in empirical and tangible improvements in service levels.
- ▶ The capacity building process will take into consideration the need to adopt an equitable and city-wide approach to sanitation and FSM with close participation of all sections of the community.

A staged capacity building strategy for each ULB, hence, will be to:

- ▶ Focus on institutional issues, organizational strengthening, enhancement of technical skills and functional management, and enhanced quality of engagement of other stakeholders, especially the community.
- ▶ Collectively understand the sanitation profile and needs of the ULB through intense surveys and consultations with a range of stakeholders
- ▶ Identify and adopt an institutional model for FSM appropriate to the capacities and needs of the ULB based on technical research and study of best practices
- ▶ In the long run build and establish a core sanitation team within the ULB
- ▶ Strengthen the role of the district for planning and monitoring oversight and to facilitate viable use of land for treatment and disposal
- ▶ Develop a long-term strategy with short-term actionable goals and plans for improving the overall sanitation of the city with a focus on FSM based on research and consultation with stakeholders
- ▶ Strengthen the technical and management skills of the core team, as well as their skill and capacity to manage contracts and coordinate with different stakeholders through targeted trainings and workshops
- ▶ Enable the core team to mobilize the private sector for various cycles of the service chain through resource incentives and trainings on business management
- ▶ Enable the core team to develop and implement a social marketing strategy to promote sanitation and appropriate FSM in the community
- ▶ Enable the core team to establish service level benchmarks and other relevant indicators as evidence of the impact

of capacity enhancement and overall improvement in services

- ▶ Enable the core team to develop an annual team performance appraisal process as an input to the annual planning process, which will ensure a dynamic capacity building process
- ▶ Support the ULBs (through the state level HUDD) to develop training and capacity building modules by

interfacing with resource agencies and best practices, sharing technical know-how and providing resource support

- ▶ Regularly enhance learnings and capacities through a range of tools and methods, such as structured trainings, periodic planning and review workshops, peer learning and knowledge sharing through a learning portal, newsletters and state level workshops

Diagram 5: Strategic Areas for Intervention (also refer to Table 3: Capacity Building Plan)

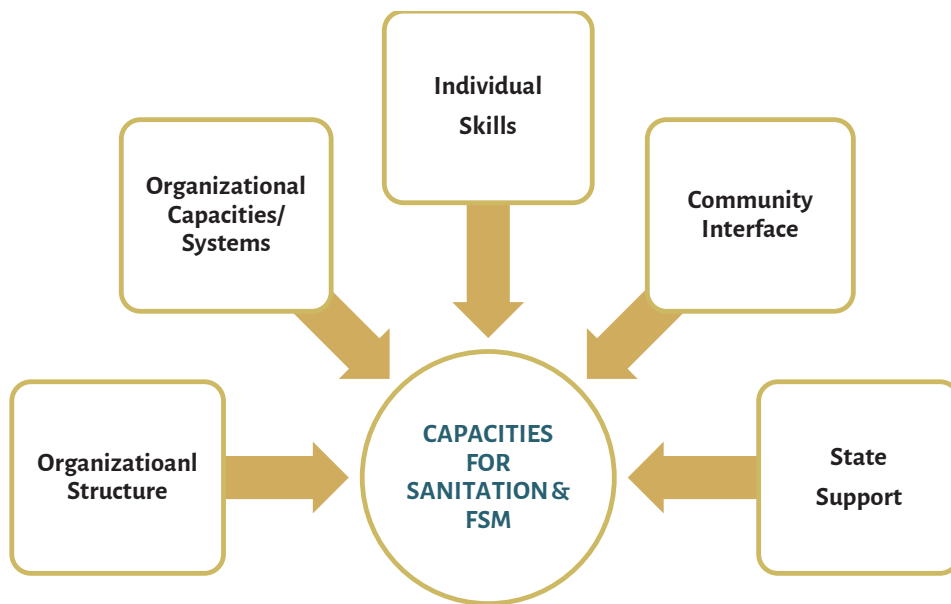


Diagram 6: Functional Linkages of the Proposed Institutional Model



Table 3: Capacity building plan: strategic areas of intervention

CAPACITY BUILDING COMPONENT	AREAS/ISSUES TO BE ADDRESSED	CAPACITY BUILDING INPUTS/SUPPORT TO BE PROVIDED	RECOMMENDED
ORGANIZATIONAL STRUCTURE	<p>In the long run creating an appropriate team dedicated to sanitation functions and community centred services:</p> <ul style="list-style-type: none"> - SWM - LWM & FSM - SBM <p>Gradually locating the team within the overall structure of the ULB</p> <p>Establishing coordination/ functional linkages with other relevant departments and agencies</p>	<p>Support ULB in:</p> <ol style="list-style-type: none"> a. Defining number, profile and responsibilities of team required for sanitation related activities/interventions over the next 3 years with reference to enhanced technology, increased workload and community centred approach to address²³: <ul style="list-style-type: none"> - SWM & LWM - FSM - SBM b. Revisiting requirements, rationalizing functions of existing staff, proposed Municipal Cadre and human resource provided under SBM; covering gaps by contracting time-bound consultants through Project Nirmal c. Ensuring adequate Community Organizers d. Preparing job descriptions e. Establishing functional linkages and reporting structure with the ULB f. Establishing functional linkages with elected representatives 	<p>Team construct to include:</p> <ul style="list-style-type: none"> - Municipal Engineer for oversight with one Junior Engineer dedicated to setting up the infrastructure and facilities - Supported by Sanitary Inspector (reporting to EO) assisted by one Supervisor for each zone. Will oversee road and drain cleaning and lifting and transporting of solid waste - STPs/FSM units and dumping sites will be directly supervised by the Junior Engineer with the oversight of the Municipal Engineer until such time that the facilities operate on their own steam - Alternatively, the ULB may contract a technical agency on a BOT basis. Funds for this may be raised from the Infrastructure Development Trust Fund - Similarly, the Community Organizer in the ULB may be supported by a local NGO on contract basis
ORGANIZATIONAL CAPACITY	<p>Establishing effective systems for planning, implementation, supervision and monitoring</p>	<p>Series of trainings and workshops with sanitation team to develop systems for:</p> <ol style="list-style-type: none"> a. Preparing perspective and annual plans b. Developing a protocol for supervision of infrastructure construction/upgradation c. Developing an MIS and monitoring strategy and plan d. Improving system for preparation of DPRs, estimates and overall budgeting; establishing protocols for pooling resources from various sources e. Establishing a system for continuous interface and feedback on service levels from the communities f. Establishing a system for private sector participation and contract management g. Establishing a protocol for social audits 	<ul style="list-style-type: none"> - Workshops and trainings may be jointly organized for both Angul and Dhenkanal in order to expand vision and share learnings
ORGANIZATIONAL/ INDIVIDUAL SKILLS	<p>Job oriented skills:</p> <ul style="list-style-type: none"> - Technical - Planning and Management Systems - Community Processes 	<ol style="list-style-type: none"> a. Technical skill upgradation for SWM/LWM/FSM: Municipal Engineers b. Upgradation for operating and maintaining SWM/LWM/FSM facilities and services: Sanitary Inspectors/Sanitation Workers/Pvt Contractors c. Applying upgraded systems and processes – planning, budgeting, MIS, monitoring: EO/Municipal Engineers/ Accounts Officer/ Community Organizers d. Upgradation of skills in community processes: Community Organizers (Municipal Engineers/ EOs to be oriented) 	<p>Annual exercise to identify training and capacity building needs based on the annual sanitation plan for the ULB</p>
ESTABLISHING INTERFACE WITH THE COMMUNITY	<ul style="list-style-type: none"> -Establishing a platform for interface between ULB and community, including a dedicated system for quick grievance redressal on sanitation issues -Promoting sanitation in the city 	<ul style="list-style-type: none"> -Activating Ward Committees and community participation platforms around issues of sanitation -Periodic planned campaigns to promote sanitation in the ULB -Establishing service level benchmarks, generating periodic Report Cards and organizing Social Audits 	

CAPACITY BUILDING COMPONENT	AREAS/ISSUES TO BE ADDRESSED	CAPACITY BUILDING INPUTS/SUPPORT TO BE PROVIDED	RECOMMENDED
ROLE OF THE STATE	Orientation of staff to technical and effective management techniques for urban sanitation/exposure to best practices –Annual workshops of ULBs to share and showcase experience of individual ULBs –Preparing training manuals, material and guidelines on sanitation –Setting up a call centre type help desk that could be assessed by ULBs		

5.3 Training plan

	TRAININGS/ WORKSHOPS	OBJECTIVES	DURATION/TIME PERIOD	PARTICIPANTS
1	Orientation to Urban Sanitation and FSM	<ul style="list-style-type: none"> – Introduce the concept of urban sanitation – Introduce faecal sludge technology and critical aspects of management – Emphasize the role of ULBs, including the elected representatives – Identify avenues for resource mobilization – Introduce relevant schemes and programmes 	<p>1 Day/Year 1</p> <p><i>Review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – EOs – Chairpersons
2 ²⁴	Orientation to Urban Sanitation and FSM	<ul style="list-style-type: none"> – Introduce the concept of urban sanitation – Introduce faecal sludge technology and critical aspects of management – Identify the roles and responsibilities of the CST (City Sanitation Team & Core Sanitation Teams); W/A Committees; and DSCs – Establish a coordination mechanism and functional linkages 	<p>1 Day/Year 1</p> <p><i>Review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – City Sanitation Task force – Core Sanitation Team – Ward/Area Committee – Support Organization – District Sanitation Committee
3	Training on Urban Solid and Liquid Waste Management with Focus on FSM: Options and Alternatives in Technology	<p>To develop skills in:</p> <ul style="list-style-type: none"> – Identifying and planning for appropriate site specific FSM and LWM technologies – Designing (including preparation of DPRs) and executing the scheme – O%M of schemes 	<p>3 days/Y1 (will also include site visits and practical exercises)</p> <p><i>1-day review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – Municipal Engineers – EOs – SIs – Municipal Accounts/ Finance Officers
4	Training on Community Interface and Process	<ul style="list-style-type: none"> – Introduction to communities and community processes – Methods and tools for community mobilization, interface and participation – Skills for establishing community institutions and ULB- community interface platform 	<p>2 days/Y1 (will also include site visits and practical exercises)</p> <p><i>1-day review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – EOs – Municipal Engineers – Community Organizers – SIs – NGOs – Pvt. Vendors
5	Workshop for Developing Supervision Protocols and Monitoring Tools	<ul style="list-style-type: none"> – Develop formats, protocol and process for supervision and monitoring FSM 	<p>2 days/ Y1</p> <p><i>1-day review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – EOs – Municipal Engineers – Community Organizers – Finance/ Accountants
6	Skill Development and Management Trainings: Masons	<ul style="list-style-type: none"> – Develop skills of masons for construction of toilets, drains, treatment plants, etc. 	<p>2 days/ Y1</p> <p><i>1-day review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – Masons – Municipal Engineers – Community Organizers
7	Skill Development and Management Trainings: Sanitation Workers	<ul style="list-style-type: none"> – Develop skills of sanitation workers in safe technologies and practices 	<p>2 days/ Y1</p> <p><i>1-day review and refresher workshops in Y2 and Y3</i></p>	<ul style="list-style-type: none"> – Sanitation workers (ULB+private vendors) – Municipal Engineers – Community Organizers

5.4 Proposed timeline

ACTIVITY CLUSTER	KEY RESPONSIBILITIES	YEAR 1	YEAR 2	YEAR 3
Establish State TSU & ULB Level Core Teams	State			
Orientation and Training of ULBs/ Stakeholders	State (TSU) in consultation with respective ULBs			
Handholding to Prepare State and ULB level Perspective/ Annual Plans	State (TSU) in consultation with respective ULBs			
Handholding to Implement and Manage ULB Level Action Plans	ULBs (Core Team)			
Review Impact of Capacity Building/Document Lessons/Prepare Revised Capacity Building Guidelines	ULBs (Core Team) with support from State (TSU)			

REFERENCES

- Gol (2011). Urban Development Management for the Formulation of the Twelfth Five Year Plan (2012-2017). Report of the Working Group on Capacity Building. September.
- HPEC (2011) Report on Urban Infrastructure and Services.
- Hoorweg, D. & Bhada-Tata, P. (2012). What a Waste: A Global Review of Solid Waste Management. Urban Development Series – Knowledge Paper No. 15. March.
- Progress on Drinking Water and Sanitation (Update) (2014). World Health Organization and UNICEF.
- Blackett, I., Hawkins, P & Heymans, C. (2014). The Missing Link in Sanitation Service Delivery: A Review of Fecal Sludge Management in 12 Cities. April. Water and Sanitation Program. UN Water.
- Hawkins, P. & Muximpua, O. (2015). Developing Business Models for Fecal Sludge Management in Maputo. June. Water and Sanitation Program.
- Housing & Urban Development Department (HUDD), Govt. of Odisha (2017), Odisha Urban Sanitation Strategy
- Housing & Urban Development Department (HUDD), Govt. of Odisha (2016), Septage Management Regulation
- Dasgupta, S., Murali, R., George, N. & Kapur, D. (2016). Fecal Waste Management Across Smaller Cities in South Asia: Getting Right the Policy and Practice. FANSA and Centre for Policy Research.
- Ellis, P. & Roberts, M. (2016). Leveraging Urbanization in South Asia: Managing Spatial Transformation for Prosperity and Livability. IBRD/World Bank.
- Kone, D. (2010). Making Urban Excreta and Wastewater Management contribute to Cities' Economic Development: A Paradigm Shift. Water Policy 12 (4).
- Strauss, M. & Montangero, A. (2003). FS Management: Review of Practices, Problems and Initiatives. Engineering Knowledge and Research Project – R8056 Capacity Building for Effective Decentralised Wastewater Management. EAWAG, Dübendorf, Switzerland.

NOTES

1. Overall the decrease in the percentage of people worldwide without access to improved sanitation facilities was marginal – from 2.7 in 1990 to 2.5 in 2012.
2. In India, urban settlements are classified as Statutory and Census Towns. Statutory Towns are those with municipalities, corporations, cantonment boards and notified town area committees. As per the 2011 Census there are 4041 urban settlements with 107 city municipal corporations, 1443 town municipalities, 2091 Nagar Panchayats (areas in transition). Census Towns are categorized by population size (Classes I-VI), population density and a higher (75%) percentage of population engaged in non-agricultural pursuits.
3. In India urban areas together generate around 100,000 million tons of waste per day (NIUA, 2015).
4. Parameters included the extent of open defecation, solid waste management, septage management, waste water treatment, drinking water quality, surface water quality of waterbodies, mortality due to water-borne diseases, etc.
5. The support structures for implementing the mission at the state and ULB level include the Programme Management Units (PMUs) at the State level, the Programme Implementation Units (PIUs) at the city level, and Independent Project Review & Monitoring Agencies (IPRMA). In many states these functions have been outsourced to independent agencies.
6. The Census Towns in Odisha have a population ranging between 5000 and 20,000.
7. At the time of the study, the OWSSB was in the process of acquiring 86 cesspools to be distributed to the ULBs.
8. With technical support from the Administrative Staff College of India (ASCI), Hyderabad.
9. Recently the state Cabinet has approved the Odisha Municipal Cadre system, but is yet to implement it.
10. OWSSB provides support to ULBs to plan and execute sanitation, waste management and water supply projects and in the preparation of DPRs on request. Besides, the engineers in the ULB are primarily on deputation from OWSSB.
11. E-Governance may, however, be outsourced.
12. Odisha Wastewater and Faecal Waste (Management and Disposal) in Urban Areas Bill, 2016 has been drafted recently and is in the process of finalization.
13. I-Concept Initiatives (2015), fact sheet prepared by Practical Action on the basis of interviews with officials.
14. Water supply is the responsibility of the PHEO.
15. The cost varies from Rs 1000 to Rs 3000 per service, with the private operator charging a higher rate.
16. The district hospital in Angul also has a functional bio-waste management facility.
17. Three community toilets are to be constructed once the land is allocated by the district administration.
18. It was reported that Angul district contributes one of the highest revenues to the state because of the many industries that have been established here.
19. The devolution of funds to ULBs of the Central Finance Commission fund is made on the basis of the recommendations of the respective State Finance Commissions (SFCs). The recommendations are based on the principles governing the distribution between state and local bodies (Panchayati Raj Institutions/PRI and ULBs) of the net proceeds of taxes, duties, tolls and fees that can be levied by the state and the grants in aid from the consolidated fund of the state. The 13th Central Finance Commission has defined two channels of transfer to local bodies: General Basic Grant which is accessible by all local bodies; and General Performance Grant, available when nine conditions stipulated by the Commission are satisfied. The Central Commission itself has identified some heads – water supply, sewerage, storm water drainage and SWM – for which service standards were to be notified before a year starts and achieved by the end of the succeeding year. The state governments have accordingly fixed targeted standards for different urban bodies for different years. The Fourth SFC, however, observes that most of the ULBs have failed to internalize the concept and process, and hence this has not made a significant impact on performance.
20. I-Concept and Practical Action.
21. The private contractor pays Rs 200/day to the sweeper, Rs 240/day to the Supervisor, and Rs 240/day to the tractor driver.
22. The proposed FSTP under Nirmal Project is expected to be constructed in the land adjacent to this site.
23. It is visualized that most of the staff could be recruited and deployed within the framework of the new Cadre system, which also recommends outsourcing of Class D employees. Any additional requirements may be sourced through external/CSR support.
24. Could be a joint one for participants of this workshop and the previous one if number of participants is small (less than 20).



CENTRE FOR
POLICY
RESEARCH