



RESEARCH - ACTION - LEARNING NOTES

About Project Nirmal

The overall vision of Project Nirmal is the demonstration of appropriate, low-cost, decentralized, inclusive and sustainable sanitation service delivery solutions for two small towns (Angul and Dhenkanal) in Odisha leading to improved sanitation access for all households and integration of FSM in the sanitation value chain, through enabling institutional and financial arrangements and increased private sector participation.

The project is being implemented by Practical Action and Centre for Policy Research with support from Bill and Melinda Gates Foundation; Arghyam; Housing and Urban Development, Government of Odisha; and Municipalities of Angul and Dhenkanal.

The project aims to :

- Demonstrate State Government and ULB commitment towards sanitation service delivery in small towns;
- Capacity development of states and cities for effective sanitation service delivery;
- Increase in number of people in Angul and Dhenkanal with access to better sanitation services;
- Improve city-wide planning approaches for sanitation; and
- Demonstrate models for Faecal Sludge Management (FSM).

PROJECT NIRMAL: IMPLEMENTING DECENTRALIZED SOLUTIONS FOR SANITATION IN SMALL TOWNS



A. Background – National Level

In 2011, 31¹ percent of India's population was residing in its urban centres² and as per the UN World Urbanization Prospects this proportion has increased to 34 percent³ in 2018⁴. It is expected that most of the population increase between now and 2050 will take place in urban areas. Estimates suggest that by 2030 around 40 percent of the country's population will be living in urban areas and this proportion will further increase to 53 percent by 2050⁵.

With respect to access to sanitation facilities, as per Census 2011, 81.4 percent of urban households in the country had access to Individual Household Latrines (IHHLs) while 12.6 per cent were using Community/Public Toilets (CTs/PTs) and 6 per cent were defecating in the open⁶.

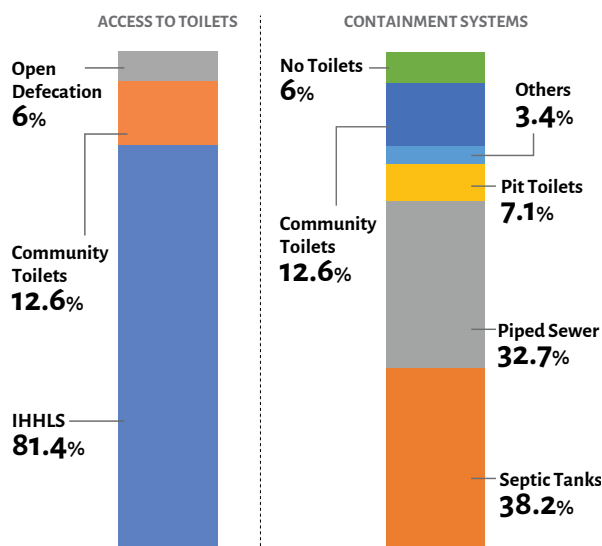


Figure 1: Access to sanitation facilities and types of containment and conveyance mechanisms (Census 2011)

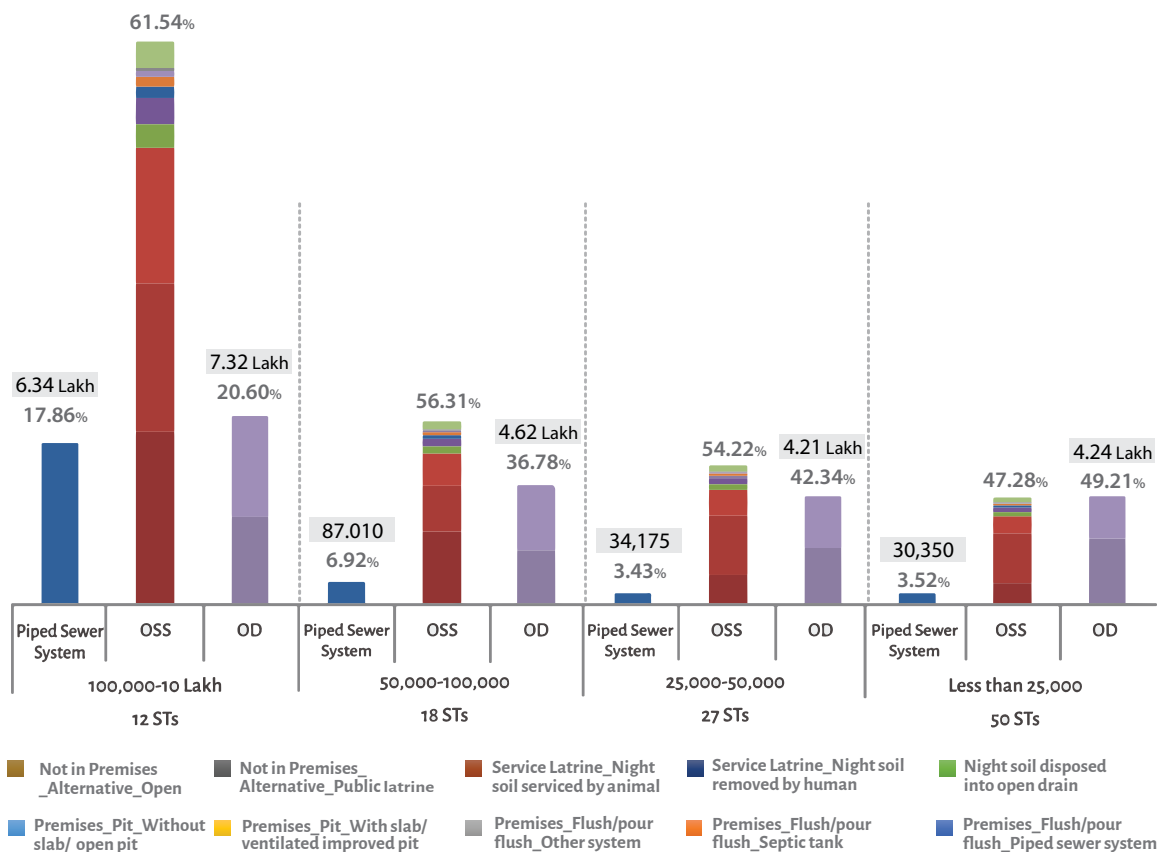


Figure 2: Access to containment and conveyance mechanism according to size of urban centre

¹377.2 million in 2011

²935 urban centres which included 4041 statutory towns and 3894 Census Towns, Source: Census 2011

³461 million

⁴UN World Urbanization Prospects, 2018, https://population.un.org/wup/Download/Files/WUP2018-F03-Urban_Population.xls

⁵UN World Urbanization Prospects, 2018, https://population.un.org/wup/Download/Files/WUP2018-F19-Urban_Population_Annual.xls, https://population.un.org/wup/Download/Files/WUP2018-F21-Proportion_Urban_Annual.xls

⁶Census of India, 2011, "Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011", http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrine.pdf

(Figure 1) With respect to the containment and conveyance mechanisms, 45.3 percent of urban households had toilets which were connected to On-Site Sanitation (OSS) systems; this figure included households with toilets based on septic tanks (38.2 percent) and pits (7.1 percent)⁷; while only 32.7 percent were connected to underground sewerage systems⁸. (Figure 1)

Dependence on OSS systems was found to be very high in small and medium sized urban centres⁹ (defined as urban centres with a population of less than 1,00,000) as compared to Million Plus¹⁰ and Class – I¹¹ cit-

ies. As per Census 2011, around 88 percent of households in small and medium urban centres were connected to OSS systems¹² as compared to 37 percent in Million Plus cities and 72 percent in Class I cities. (Figure 2) The high capital and Operation and Maintenance (O&M) costs of underground sewerage systems have been prohibitive and only large cities have sewer-based wastewater collection and conveyance systems. Most of the small and medium urban centres lack underground sewerage systems and only 17.36 percent of households have IHHLs connected to such systems¹³.

HOW SHIT FLOWS

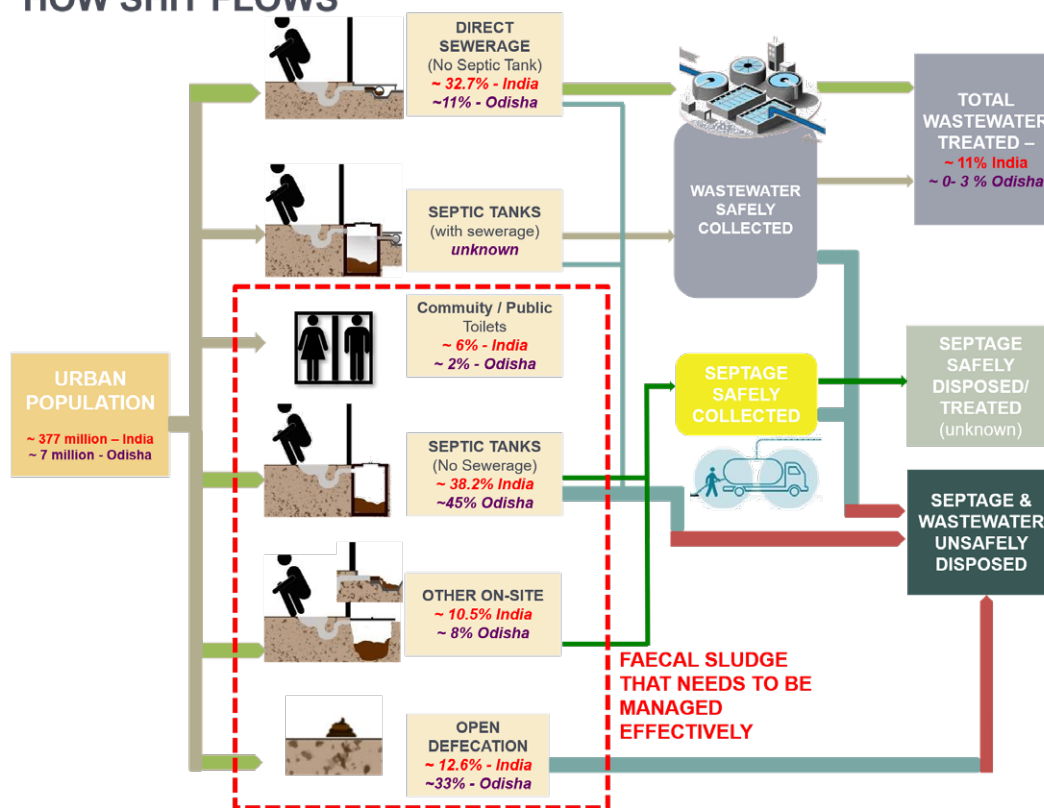


Figure 3: Shit Flow Diagram for Odisha

⁷Includes with Slab Improved Ventilated Pit (6.4 percent) and Without Slab / Open Pit (0.7 percent). Source: Census of India, 2011, "Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011", http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrines.pdf

⁸Census of India, 2011, "Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011", http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrines.pdf

⁹Defined as urban centres with a population of less than 1,00,000 people

¹⁰Cities with a population of 1 million or more

¹¹Class I cities have a population of 100,000 or more

¹²Includes septic tank (64.87 percent), other systems (3.10 percent), with slab improved ventilated pit (10.65 percent), without slab / open pit (1.46 percent), night soil disposed in open drain (1.55 percent), night soil removed by humans (0.71) and night soil removed by animals (0.29 percent). Source: CPR analysis based on data from Census 2011 (Census of India, 2011, "Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011", http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrines.pdf)

¹³The corresponding figure for million plus cities is 72.25 percent and for Class I cities it is 32.60 percent



Odisha – Key facts

Area	155,707 km ² (tenth largest state in the country)
Population	41.9 million (eleventh largest state in the country)
Rate of urbanisation	16.68 Percent (Census 2011)
Urban Population	~ 7 million (Census 2011)
Urban Households	1,517,073 (Census 2011)
Urban Local Bodies	114 ULBs with a population of 50,000 or more; including 5 Municipal Corporations, 48 Municipalities and 61 Notified Area Councils (NACs)

Approach	Features	Advantages / Disadvantages
Scenario existing prior to implementation of Project Nirmal	High dependence on OSS systems Lack of an efficient system for emptying/desludging, transportation, treatment and disposal of faecal waste	Inefficient system; resulting in poor environmental conditions and pollution.
Option 1: Decentralized wastewater transport and treatment systems	Decentralised systems for transport and treatment of faecal waste Improvements to the emptying/desludging and transportation mechanisms and creation of treatment for septage and faecal sludge through private sector participation	Efficient and effective Low capital and O&M cost (CAPEX / capita: Rs 750-1000 per capita) Focussed on sanitation sector goals High impact solution
Option 2: Centralized underground sewerage conveyance and treatment systems	Creation of underground sewerage network Centralised treatment facilities in the form of Sewage Treatment Plants (STPs)	High investment, facilitation & O&M costs (CAPEX / capita: Rs 15,000=20,000) Challenging to connect all households

B. Odisha: Inadequate access to sanitation, high OD and over reliance on OSS systems

The least urbanised state in the country, Odisha, had only 16.7 per cent of its population living in urban areas, little less than half the national average (31 per cent). In 2011, all 114 urban centres¹⁴ in the state, had very poor access to sanitation facilities and ~35 per cent of urban households lacked access to IHHLs¹⁵. While 2.17 per cent of urban households were using CTs/PTs 33.2 per cent were defecating in the open¹⁶. Odisha was ranked

second, after Chhattisgarh, among states based on the rate of open defecation in urban areas¹⁷.

Among the 65 per cent of urban households that had IHHLs, only 11.5 per cent were connected to sewerage systems¹⁸ while majority (52 per cent) relied on septic tanks and other OSS systems (including pit latrines)¹⁹. It was estimated that less than 2 per cent of the faecal sludge generated was being treated through Sewage Treatment Plants (STPs). (Figure 3) While septic tanks and pit latrines were predominant in the state's urban areas prevalent practices pointed to deficiencies in construction of containment structures²⁰, irregular emptying, inadequate

¹⁴114 Urban Local Bodies including 5 Municipal Corporations, 48 Municipalities and 61 Notified Area Councils (NACs)

¹⁵Census of India, 2011, "Houses, Household Amenities and Latrines - Availability and Type of Latrine Facility 2001-2011", http://censusindia.gov.in/2011census/hlo/Data_sheet/India/Latrine.pdf

¹⁶Ibid.

¹⁷Government of Odisha, Housing & Urban Development Department, Odisha Urban Sanitation Policy 2017 (H&UDD 2017) 2.

¹⁸The state has only two operational STPs - one in Cuttack (33 MLD) and Puri (15 MLD) with a combined treatment capacity of 48 MLD. In order to enhance the treatment capacity three STPs are under construction in Cuttack (two) and Bhubaneswar (one) with funding from Japan International Cooperation Agency (JICA).

¹⁹Includes other systems (2.3 per cent), with slab improved ventilated pit (3.1 per cent), without slab / open pit (1.1 per cent),

²⁰Both septic tanks and pits

desludging and cesspool services (provided by ULB and/or private operators) for collection and transportation of septage as well as lack of faecal sludge treatment and disposal facilities. It was estimated that septage from less than half of the households that relied on septic tanks was being collected safely²¹. Untreated faecal sludge and septage, thus, was finding its way into drains and open areas. According to the Odisha State Pollution Control Board's (OSCPB's) report, untreated water and sewage from urban centres has led to pollution of the State's major rivers²². Issues related to septage collection, treatment and disposal are likely to exacerbate given the rapid pace of construction of toilets under Gol's Swachh Bharat Mission – Urban (SBM-U). Census 2011 data also brought to light the fact that some toilets were still being serviced manually, despite explicit legal prohibition as per the provisions of the “Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993”.

In this background, it was apparent that the state needed Faecal Sludge and Septage Management (FSSM) to be at the centre of all its urban sanitation related interventions (including policies, programs and schemes) along with ensuring improved access to safe sanitation facilities for all. The state would also benefit from demonstration of alternative decentralized options for collection, transportation, treatment and disposal of faecal sludge and septage; participatory techniques for planning urban sanitation infrastructure and robust institutional arrangements for effective sanitation service delivery.

C. Project Nirmal: Conceptualization

International, National and State level Developments related to urban sanitation

In the early 2000s, Government of India (GoI) began sharpening its focus on urban sanitation, the

first apparent sign of the same was in the form of an increase in national government financing for the sector. At the international level, the United Nations (UN) declared 2008 as the “International Year of Sanitation” in conjunction with the UN Decade for Action, Water for Life (2005-2015)²³. The same year GoI launched the National Urban Sanitation Policy (NUSP) to ensure focus and prominence to urban sanitation. NUSP's vision was “to transform all Indian cities into community driven, totally sanitized, healthy and liveable for all citizens, especially the urban poor”.

Shadowing the work at the international and national level, rural and public toilet grants were given out in Odisha in 2010 with support from the Bill and Melinda Gates Foundation (BMGF). Titled as “Project Samaan” the available grants were utilized to provide adequate and suitably designed sanitation facilities for urban poor households in Bhubaneswar and Cuttack who were unable to construct individual household latrines and were residing too far away from public toilets. The main focus of “Project Samaan” was to design and build community toilets which people would like to use, institutionalizing management systems which will ensure appropriate services, pricing and management of these services and to facilitate change in sanitation related behaviours²⁴. In subsequent years, the intensity and focus of research initiatives aimed at developing a better understanding on issues and challenges in urban sanitation sector in Odisha, was further deepened and widened. One such study was the “Sanitation Landscaping Study of nine urban centres²⁵” which was undertaken by Practical Action in 2013. The findings of the study pointed to the need for ensuring universal access to sanitation facilities and provision of adequate FSM services. The study also brought to light the need for creating awareness among urban households on safe sanitation and hygiene practices; capacity building of ULB staff on FSSM and demonstrating implementation of innovative decentralised

²¹Source: Bhullar, L., Koonan, S., Cullet, P. 2019. Faecal Sludge and Septage Management in Odisha: A review of the law and policy framework. New Delhi: Centre for Policy Research

²²River pollution caused by urban waste alarmingly high in Odisha' *The Hindu* (7 June 2014).

²³The General Assembly of the United Nations proclaimed the period from 2005 to 2015 as the International Decade for Action, 'Water for Life'. The main goal of the Decade was to ensure greater focus on water-related issues at all levels and on the implementation of water-related programmes in order to achieve internationally agreed upon water-related goals contained in Agenda 21, the UN MDGs and the Johannesburg Plan of Implementation.

²⁴Further information on Project Samaan is available at <http://projectsammaan.com/>

²⁵These included Balasore, Baripada, Berhampur, Bhadrak, Bhubaneswar, Cuttack, Puri, Rourkela and Sambalpur. These cities are now covered under AMRUT.



pilot programs for safe management of faecal waste.

Further, in 2014, under the ambit of the Scaling up City Institutions for India (SCI-FI) Project²⁶, Centre for Policy Research (CPR), undertook Geographical Information System (GIS) mapping of sanitation facilities in Balasore. Using the case study of Balasore, a town directly affecting a river system, the state government made a case for a River Basin Pollution Abatement Strategy to the Chief Secretary, GoO. As a result of this representation 30 towns were shortlisted for strengthening their drainage and septage management infrastructure so that no untreated wastewater flows into their respective river systems.

At the national level, urban sanitation received a renewed focus in 2014 with the launch of SBM-U which set out to make urban India Open Defecation Free (ODF) by October 2019. In Odisha, advocacy efforts related to ensuring adequate and safe sanitation facilities and wastewater management gained momentum. The Additional Chief Secretary, Housing and Urban Development Department (HUDD), GoO made a strong case for effective FSSM in the state and the need for piloting decentralized solutions through his presentation at the “Reinvent the Toilet Fair”²⁷ in March 2014.



D. Project Nirmal

Project Nirmal was conceptualized as a response to the emerging need for decentralized, low cost

and scientific management of faecal sludge and septage in Odisha. Project Nirmal was designed based on a **co-production approach which aims at enabling providers and users of services opportunities to share power and responsibility, and to work together in equal, reciprocal and caring relationships**. The project, thus, has at its core the community engagement structures at slum and ward level and has active participation of State, district and local agencies, including HUDD, GoO; District Administration of Angul and Dhenkanal districts; and Angul and Dhenkanal Municipalities. A consortium of organizations including Practical Action, Bhubaneswar and CPR, New Delhi with funding support from BMGF and Arghyam have supported this project. Based on GoO's recommendations, Angul and Dhenkanal Municipalities²⁸ were selected for project implementation.

Project Objectives and Vision: Project Nirmal was aimed at piloting appropriate, low-cost, decentralized, inclusive and sustainable sanitation service delivery solutions for small and medium towns, that would lead to improved sanitation access for all households and integrate FSSM. While the project was implemented in two towns namely, Angul and Dhenkanal, it was envisaged that the learnings from its implementation would inform frameworks (legal, financial, institutional, community participation) required at the state and national levels to ensure replicability and scaling up of this approach.

Project Components: Project Nirmal has multiple components in order to adequately address all issues and challenges related to urban sanitation in the state and the two towns; and these include research, policy advocacy, pilot implementation, participatory planning, Behaviour Change Communication (BCC) and Institutional strengthening / capacity building.

²⁶SCI-FI aims at building an evidence base for developing policies, programmes and implementation plans for achieving sanitized cities.

²⁷The second “Reinvent the Toilet Fair” was held in New Delhi, India, in March 2014. It was co-hosted by GoI's Department of Biotechnology and Bill & Melinda Gates Foundation, with support from GoI's Ministry of Urban Development (MoUD). The Fair aimed to stimulate discussion and spur partnerships to bring safe, affordable sanitation to the people who lack access to sanitation. Researchers from India and around the world were among the more than 700 participants who attended the fair. Toilet prototypes – toilets that aren't connected to water, sewer, electricity, that reuse the waste for energy or fertilizer, that are affordable for the poor – were on display at this two-day event.

²⁸Out of a long list of four towns, namely, Khurda, Jatni, Angul and Dhenkanal



Project Outcomes: Project Nirmal aims to achieve the following outcomes:

- Commitment towards sanitation service delivery in small and medium towns from both the state government and ULBs;
- Long-term sustained capacity development of government agencies at state and city level for effective sanitation service delivery;
- Improved access to ensure better access to sanitation services for households in pilot cities;
- Inclusive city-wide approaches for planning sanitation infrastructure; and

- Demonstration of FSM models

Project Phases: Project Nirmal had three distinct phases, namely, preparatory, planning and implementation. Key activities undertaken in each of these phases is presented in Table 1.

Project Monitoring Structures: In order to ensure effective monitoring of the project a robust monitoring structure was put in place. In both towns, community engagement structures created at the slum and ward level, namely the Slum Sanitation Committees (SSCs) and Ward Sanitation Committees (WSCs) were entrusted with project monitoring responsibilities in addition to their planning and information dissemination roles. At the city level, the City Sanitation Task Force (CSTF), mandated to be constituted in every city for overall management of sanitation related interventions under the National Urban Sanitation Policy, 2008 was also made responsible for monitoring of the activities under Project Nirmal. Given the role of district level agencies in the urban sanitation sector a District Coordination Committee²⁹ (DCC) headed by the District collector was put in place. Finally, at the state level a Project Steering Committee (PSC) was constituted which was headed by the Commissioner cum Secretary, Housing and Urban Development Department, Government of Odisha. (Figure 4)

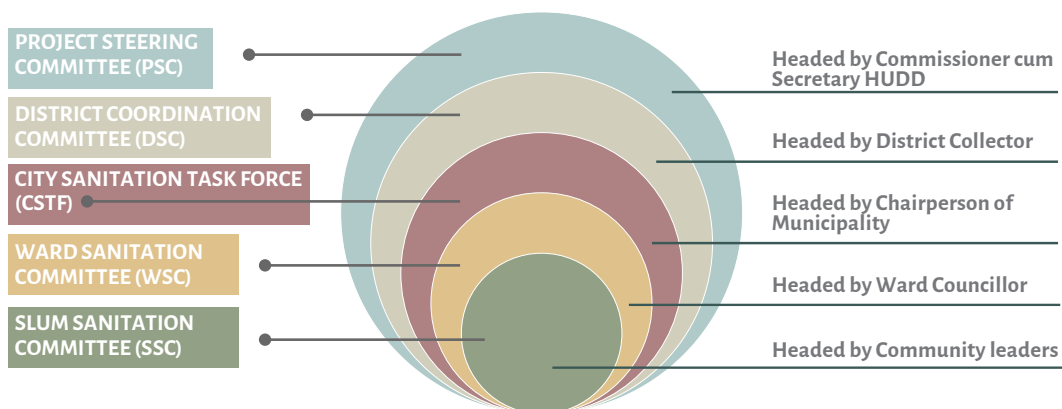


Figure 4: Project Monitoring and Co-ordination Structures created under Project Nirmal

²⁹As per the decision of the 1st PSC meeting held on 11th August 2015, a District Coordination Committee is to be constituted at the district level under the chairmanship of the Collector and District Magistrate of the district to guide, monitor and assist the sanitation programme to be undertaken in the respective Municipality under Project Nirmal. The DCC has as its members Collector and District Magistrate of the District; Chairperson, Municipality; Project Director, District Urban Development Agency (DUDA); Executive Officer, Municipality; Planning Member of Improvement Trust / Development Authority; Executive Engineer, Public Health; Representative, District Pollution Control Board, Chief, District Medical Officer; Representatives of District Water and Sanitation Mission; Tahsildar; Representatives of NGOs, Representatives of Corporate bodies; Representatives of Practical Action and CPR



Table 1: Phases of Project Nirmal – Preparatory, Planning and Implementation

Preparatory Phase (Includes assessing the sanitation situation in the pilot cities and ensuring a conducive policy and institutional structure)	Planning Phase (Includes creating of a set of plans for the cities on FSM, undertaking baseline and ethnographic studies and preparation of DPRs)	Implementation Phase (includes project implementation in Angul and Dhenkanal)
City Selection: Of the four towns (Khurda, Jatni, Angul and Dhenkanal) the last two were selected ³⁰	Creating an enabling policy environment: Odisha Urban Sanitation Policy, 2017; Odisha Urban Sanitation Strategy, 2017, Model Faecal Sludge & Septage Management (FSSM) Regulations, 2018 and inputs towards the Odisha Wastewater Law	Training and Capacity building: Training and Capacity building of government officials on non-sewered sanitation; Development of Training Module on Non sewered urban sanitation; and training of Master Trainers
MoU: MoU was signed between HUDD, GoO and the implementing partners (namely PA and CPR) on 18th November, 2015	Preparation of City Sanitation Plans (CSPs) for Angul and Dhenkanal including baseline assessments and GIS mapping	Odisha Pollution Control Board (OPCB) provides approval / Consent to Establish for FSTPs
Request for Technical Assistance (TA) from ULBs: Angul and Dhenkanal Municipalities requested CPR/PA for TA	Preparation of Detailed Project Reports (DPRs) for FSTPs at Angul and Dhenkanal	Odisha Pollution Control Board (OPCB) provides approval / Consent to Operate for FSTP in Dhenkanal
ULB Resolutions: Angul and Dhenkanal Municipalities issue resolutions committing their support to the project, provision of land that may be necessary for project implementation and their vision for the city	Needs Assessment Study for Capacity Building and Communication	Construction of FSTPs in Angul and Dhenkanal
State Launch: A launch workshop was organised which was attended by state government; district administration; municipal officials along with CSOs, NGOs and Media representatives	Research Initiatives: Ethnographic Study, Market Mapping study	Preparation and execution of the O&M Plan and FSM Business Plan
City Inception and Orientation Workshop: These workshops were organised in Angul and Dhenkanal in April and May 2015. The main aim was to (a) discuss the sanitation service delivery situation in the towns; (b) top orient stakeholders about key components, strategies and activities of the project; and (c) to ensure that all key stakeholders are on board	Orientation programs for government officials (state and ULB) on FSSM	Research Initiatives: Impact assessment of community mobilisation in Angul and Dhenkanal; Study on Manual Scavengers in Angul and Dhenkanal
Establishing a Project Monitoring Structure and Institutions: Community Structures including Slum Sanitation Committees (SSCs) and Ward Sanitation Committees (WSCs) were constituted at the slum and ward level. The City Sanitation Task Force (CSTF) was constituted at the City level. In addition, a District Co-ordination Committee ³¹ (DCC) was constituted at the district level. A Project Steering Committee (PSC) was constituted as the apex policy planning body. Under the chairmanship of the Commissioner-cum-Secretary, HUDD, GoO the PSC had as its members implementing agencies (PA and CPR), funding agencies (BMGF and Aarghyam) and other government agencies (including OWSSB, OSPCB, DCs and ULBs) (Figure 4)	Partnership with Centre for DE-WATS Dissemination (CDD) as a Technical Partner	Exit Strategy Planning and hand over process
	Land acquisition process initiated for FSTPs (site selection criterion)	

E. Project Implementation Towns – Angul and Dhenkanal

Based on GoO's recommendations, Angul and Dhenkanal Municipalities (Table 2) were selected for project implementation.

Table 2: Demographic and Sanitation related details of Angul and Dhenkanal³²

Municipality	Angul	Dhenkanal
Area	19.24 sq. kms.	30.92 sq. kms.
Wards	23 wards	23 wards
Population (Census 2011)	43,795	67,414
Population (Projected)	51,864 (2016)	74,589 (2017)
Households (Census 2011)	9,778	14,908
Slums Number	27 slums, of which 13 are notified and 14 are non-notified	17 (all notified)
Slums Population	10,950	7821
Slums Households	2,469	2059
Access to IHHLs	64.3 percent (82.8 percent)	57 percent
Insanitary Latrines	(0.7 percent)	9.4 percent
Open Defecation	35.7 percent (16.4 percent)	33.6 percent
Community Toilets	None	None
Public Toilets	5; 34 seats (21 are for males and 13 for females)	4; 35 seats (24 for male and 11 for female)
Pit latrines with slab	34.7 percent (567 households)	50.2 percent (1229 households)
Flush/pour flush latrines connected to septic tank	41.43 percent (677 households)	38 percent (929 households)
Pit latrine with ventilated improved pit	23.87 percent (390 households)	11.8 percent (290 households)
Sewerage system	-	-
STP	-	-
Septage Management	-	-

Dhenkanal Municipality is spread over an area of 30.92 sq. kms and is divided into 23 Wards. The population of the municipality, as per Census 2011, was 67,414 (14,908 households). In 2017, the town's population was estimated to be 74,589. Dhenkanal Municipality has 17 slums (all notified) with

a total population of 7821 (2059 households). According to a baseline survey (2015)³³ 57.6 percent (2448 households) had IHHLs while the remaining 42.4 percent (1805 households) were defecating in the open³⁴. Further, as per a survey conducted in 2017³⁵, about 57 percent (5080 households)

³⁰Based on the following variables population size, number of households, coverage by septic tanks, average duration of water supply, access to IHHLs and slum population

³¹The members of the District Coordination Committee included the District Collector (Chair), EO and Chairperson Municipality, District Regional improvement Trust (DRIT), Public Health, District Pollution Control Board, District Water and Sanitation Mission, District Urban Development Authority (DUDA)

³²Source: City Sanitation Plan of Dhenkanal Municipality, 2018 and City Sanitation Plan of Angul Municipality, 2017

³³A total of 4,253 households were covered by the survey, out of which 831 are slum households and 3422 are non-slum households.

³⁴74 percent of non-slum households and 46 percent of slum households have individual toilets while the remaining 26 percent and 54 percent of non-slum and slum households respectively were defecating in the open

³⁵The survey covered 8,910 households



had access to IHHLs, 9.4 percent (837 households) had insanitary latrines and 33.6 percent (2993 households) were defecating in the open. The town had no community toilets and there were only 4 public toilets with 35 seats (out of which 24 are for male and 11 are for female). With respect to containment and conveyance systems of the 2448 households covered by a baseline survey (2015) majority of the households had pit latrine with slab – 50.2 percent (1229 households) followed by flush/pour flush latrines connected to septic tank – 38 percent (929 households) and pit latrine with ventilated improved pit – 11.8 percent (290 households). The town lacks any sewerage system or wastewater treatment facility as a result of which most of grey water and in some cases outflows from pits and septic tanks flows through open drain into agricultural fields and other low-lying areas.

Angul Municipality is the headquarters of Angul District. The total area of the municipality is 19.24 sq. kms and it is divided administratively into 23 Wards. As per Census 2011, Angul municipality had a population of 43,795 (9,778 households). For the year 2016 the town's population had been projected as 51,864. The town has 27 slums, of which 13 are notified and 14 are non-notified. Slums have 2,469 households with a population of 10,950. According to the baseline survey³⁶ conducted in 2015, 64.3 percent of households have individual toilets and the remaining 35.7 percent are practicing open defecation. The survey conducted in 2017³⁷ reveals an improvement in the access and of the 9,326 households covered by the survey 82.8 percent had individual toilets, 0.7 percent households had insanitary latrines and 16.4 percent households were either using public toilets or defecating in the open. There are no community toilets in the town while there were five public toilets with 34 seats out of which 21 are for males and 13 for females. All public toilets are maintained by Sulabh International Social Service Organization. There is no sewerage system in Angul Municipal-

ity as a result of which most of grey water and in some cases outflows from pits and septic tanks flows through open drains and is discharged in agricultural field and other low-lying areas. As per the baseline survey (2015) of the total 1,634 toilets surveyed, 41.43 percent (677 households) have flush/ pour flush latrine connected to septic tank, whereas 34.7 percent (567 households) had pit latrine with slab and 23.87 percent (390 households) had pit latrine with ventilated improved pit in their houses.

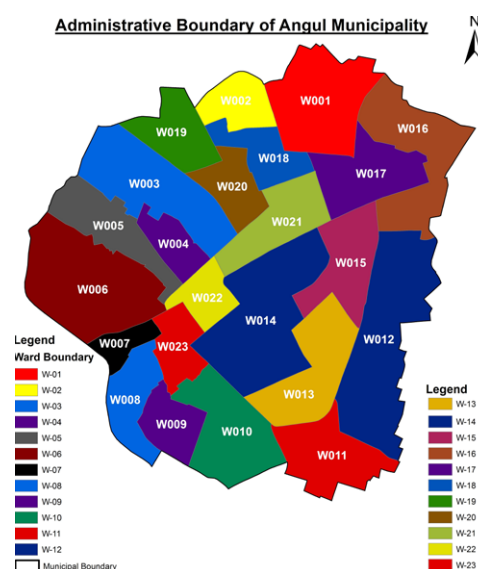


Figure 5: Map of Angul Municipality and its location in Odisha

³⁶ Covered a sample of 2540 households; of this 875 are slum households and 1665 are non-slum households

³⁷ Covered 9,236 households

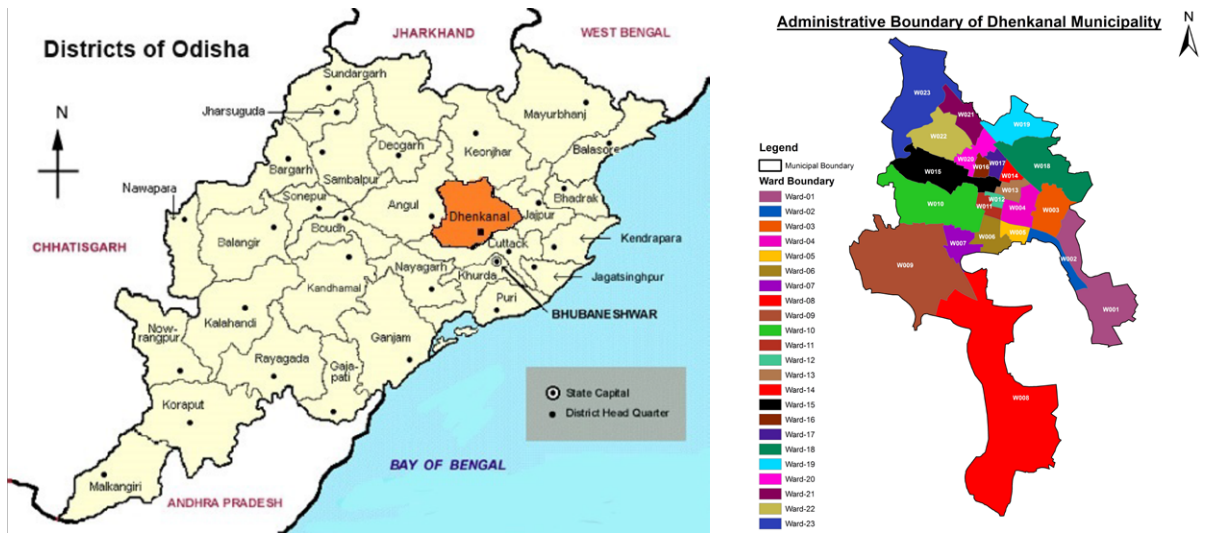


Figure 6: Map of Dhenkanal Municipality and its location in Odisha



Project
NIRMAL

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