

National Workshop

14th-15th November, 2019

WASH Futures: Subsidiarity for Service Delivery



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WORKSHOP PROCEEDINGS

1. BACKGROUND AND CONTEXT

To accelerate the efforts towards a universal sanitation coverage and drive sanitation investments across rural and urban areas, the Government of India (GOI) launched the Swachh Bharat Mission (SBM) on October 2nd, 2014. While there was focus on rural sanitation in India in the post-Independence period, the focus on urban sanitation with the purpose to provide universal access to toilets has been emphasized under SBM-U since 2014.

Despite glorious achievements of SBM and AMRUT, issues and challenges of reaching out to the most marginalized, poor and women still remain prevalent. Hazardous cleaning of septic tanks, the unabated practice of manual scavenging and the increasing incidents of deaths of manual scavengers have brought issues of dignity and safety of workers to the national agenda. Additionally, issues pertaining to proper containment, transportation, disposal, recycle and reuse of faecal waste are yet to be addressed fully. India has also committed to achieve the 2030 global agenda in the sanitation sector pronounced by the Sustainable Development Goal (SDG) 6 (On Clean water and sanitation) with its target to have 'access to adequate and equitable sanitation and hygiene for all, end open defecation while paying special attention to the needs of women and girls and those who are in vulnerable situations'. SDGs also emphasize on the principle of Leave no one behind (LNOB) towards achieving goals and targets for all including the groups being left furthest behind. Thus, it is imperative to interlink SDG 6, SDG 5 (On Gender Equality), SDG 10 (On Reduced Inequalities) and promote universal access for all in the sanitation space. Further, SDG 6 marks a shift in the global goal setting, from basic sanitation targets to targets around the sanitation service chain, requiring "safely managed sanitation".

A critical assessment of the existing sanitation infrastructure on functionality of access and sustenance remains pertinent. Complementing infrastructural needs, enabling policies and regulations also need to be given due attention so that structures remain in service and address issues related to environmental degradation and pollution. Efforts towards building collaborations and partnerships, engagement with Civil Society Organizations, Community-Based Organizations, citizens, media and private sector, are key to sustain the accomplishments so far. Thus, sustaining the various efforts as outlined above will be contingent upon the successful decentralization vis-à-vis planning, installation, ownership, operation and maintenance. In terms of water and sanitation programs and schemes, applying subsidiarity based principles would invariably imply city/village level ownership of common infrastructure and community-led management. This would be possible only through strengthening local institutions by empowering and capacitating them to provide improved water and sanitation services as the way forward.

2. OVERVIEW

In the beginning of the decade, sanitation's progress appeared dismally low. As per the Census 2011 statistics, about 47% (rural-31% and urban-81%) Indian households had access to latrine facility, while 50% (rural-67% and urban-13%) of households practiced open defecation and the remaining 3% (rural-1.9% and urban-6%) relied on Community Toilets (CTs)/Public Toilets (PTs). According to the report of the Joint Monitoring Programme (2012) by UNICEF-WHO, 626 million people in India practiced Open Defecation (OD), out of the total 1 billion across the world. With the introduction of SBM, approximately 100 million household toilets and 6 million CTs/PTs have been constructed in the rural and urban areas respectively till date. As the latter part of the decade added a significant number of toilets without a commensurate spread of the sewer network, it may not be difficult to ascertain that the majority of these newly constructed toilets are connected to OSS systems across both rural and urban areas. In the absence of a well-developed sewer network across cities/villages, 70% of the toilets owning households in 2011 relied on on-site sanitation (OSS) systems. Such OSS systems, if constructed correctly, safely contain the waste from toilets and provide primary treatment in-situ. For optimal functionality, these systems require periodic emptying and an off-site treatment of the emptied waste, before it can be safely disposed. The amplifying dependence on OSS systems underscores the need for safe management of faecal sludge. Continued reliance on ground water sources and predominance of sporadically serviced on-site sanitation systems due to the absence of sewerage network and liquid waste treatment facilities in many cities evince the incommensurateness of water and sanitation infrastructure and services in India.

With 62% of total untreated sewage discharged directly into water bodies and 70% of faecal sludge left untreated (Central Pollution Control Board (CPCB) report, 2018), there was a need for attention on non-sewered sanitation systems and FSSM in the national and state policies and schemes. The Atal Mission for Rejuvenation and Urban Transformation (AMRUT)¹ allowed for septage management investments, which encouraged States to submit plans for safe and sustainable FSM solutions. Further, the publishing of the National Policy on Faecal Sludge and Septage Management (NFSSM-2017) and FSSM operative guidelines as well as the State policies by 19 States and Union Territories (2018) helped scale up approaches to “safely managed sanitation”, especially for urban areas. From just 1 Faecal Sludge Treatment Plant (FSTP) in 2014 there are more than 30 FSTPs in operation today with about 450 FSTPs under consideration and construction.

Thus, over the last five years, India has witnessed a significant leap to tackle the issues of toilet access and management of faecal sludge, with 4,320 ODF cities (SBM-U Dashboard). On 2nd October 2019, Mahatma Gandhi's 150th birth anniversary, India was declared Open Defecation Free by the Hon'ble Prime Minister. Significant strides have also been made in the area of solid and liquid waste management. While solid waste management includes treating, recycling wastes such as biosolids, bio-waste and plastic waste, liquid waste management involves recycling or ensuring the safe discharge of grey water. As far as solid waste management is concerned, its composition in rural areas differs significantly from the 'urbanised' counterparts which are increasingly producing non-recyclable waste materials including plastic wastes.

Solid waste management, as guided by the Solid Management Rules, 2016 focuses on source segregation, adequate collection, transport and processing of solid waste with focus on reuse and recycle. According to the Central Pollution Control Board report (2017-18), approximately 25,940 tons of plastic waste is generated in the country per day. This highlights the need to focus on plastic waste management as outlined under the Plastic Waste Management Rules 2016. With around 43% of manufactured plastics being used for packaging purpose and most being of the single use type (MOEFCC, National resource efficiency draft policy, 2019), the movement towards a complete elimination of single use plastic has gained significant traction, as well as advocacy by the

¹ AMRUT is a GOI programme aimed at providing basic services (e.g. water supply, sewerage, urban transport) to households and build amenities in cities. This is currently implemented by the Ministry of Housing and Urban Affairs, Government of India

Hon'ble Prime Minister. Besides this, a movement to discourage plastic usage in all rural and urban areas has been initiated through mass mobilisation and ensuring the availability of alternative solutions.

Acknowledging the rapid gains in toilet access through implementation of the SBM, the GoI has been developing an agenda for piped water access across the country. In the face of an ever-increasing water stress, the need for ensuring a sound infrastructure of piped water facilities, especially in rural areas, will require a strong political as well as policy commitment from all stakeholders. Earlier this year, the GoI launched the Jal Shakti Abhiyan and Jal Jeevan Mission under the Jal Shakti Ministry² to underscore the relevance of interlinking water with the ongoing sanitation program. The Jal Jeevan Mission (JJM) aims to ensure piped water supply to all rural households by 2024. This special thrust on water accentuates the need to align focus from just sanitation to integrated water and sanitation, including water supply augmentation, demand management and recycling of wastewater and undertaking FSM as a sustainable solution, going forward.

The new water programs being developed by the government aim to adopt subsidiarity as a key principle³. The advocacy of this concept is driven by the principle that the ownership and management of assets and services will be at the lowest level of decision making, i.e., decisions will be made by the stakeholders that are most affected by the asset or facility. This is important to further the efforts towards achieving the goal of sustainable sanitation in smaller cities/villages.

² Jal Jeevan Mission is a flagship programme launched by Jal Shakti Ministry for provision of drinking water, in both urban and rural areas. (<http://mowr.gov.in/>)

³ "A Jan Andolan for water," MrObjec Parameswaran Iyer, The Indian Express, September 6, 2019.

3. OBJECTIVES AND THEMATIC AREAS OF THE WORKSHOP

As the Country moves forward to sustain efforts undertaken through SBM and AMRUT, an increasing attention on integrated water and sanitation through Jal Shakti and Jal Jeevan mission provides an opportunity to learn from the experiences on the field and research undertaken. There is a growing thrust on wise water management practices which need policies and practices to focus on reuse of waste water, in order to achieve the aim of providing tap water for every household by 2024.

In this context, the Scaling City Institutions for India: Sanitation (SCI-FI) initiative at the Centre for Policy Research (CPR), with support from the Bill and Melinda Gates Foundation, in partnership with UNICEF and WaterAid India, organised a day-and-a-half long national workshop titled 'WASH Futures: Subsidiarity for Service Delivery'. The workshop discussed SCI-FI's and its partners research and programmatic insights and with an objective to promote cross-learnings between stakeholders including governments (at the central, state and local levels), academicians, researchers, NFSSM Alliance members, policy makers, civil society organisations, and other development partner agencies.

It also enabled participants to develop key recommendations and strategies to strengthen institutional capacity at all levels to deliver integrated planning and WASH solutions. The primary participants of the workshop were Governments (at Central, State and Local levels), Academicians, Researchers, NFSSM Alliance members, Policy makers, Civil Society Organisations, and other Development Partner Agencies. The workshop held deliberations on some of the key thematic areas which have been briefly identified as under:

3.1 Integration of Planning Process

Continued reliance on ground water sources, without adequate recharge and predominance of sporadically serviced on-site sanitation systems – septic tanks and pits – evidence the commensurateness of water and sanitation infrastructure and services in India. Notwithstanding these deprivations, urban growth in the country has been precipitous in the last two decades, triggering in-situ growth, peripheral outgrowth and growth of satellite settlements.

A study on the identification of large and dense villages (LDVs) and their water sanitation facilities in India (which included 3892 Census Towns (CTs), settlements identified as urban by the Census of India but are administratively rural, and 155, 056 villages) revealed that they accounted for 507 million population based on Census 2011 data. It also revealed that a majority of these settlements are proximate to Class I cities which have a population greater than 100,000. More intriguingly, there is a continuum between these proximate rural and urban settlements not only in resembling socio-cultural and political economic structures but also through discernible similarities in water and sanitation infrastructure. LDVs which are within 25 km distance from nearby Class I cities account for 47 percent of the total LDV population of 507 million and 49 percent of their households with water within premises and 35 percent of households with toilets connected to on-site sanitation systems (Census 2011).

There has emerged a clear evidence of economic, social and environmental linkages between the urban areas and proximate settlements which stand to benefit from collective development planning. Another primary survey conducted in 2018 covering 60 LDVs in 5 states underscores trends in preferences for septic tanks and pits and variations in their design and make based on socio-economic, technical and behavioural factors influencing household decision making on their construction and maintenance. This study underscores and impels the exploration of rural-urban continuum through a microscopic analysis of water and sanitation infrastructure and services to gauge the viability of common waste treatment facilities through integrated planning and streamlining desludging services.

It is also imperative to facilitate the achievement of Sustainable Development Goals. Dovetailing efforts to converge pursuance of Goal 6 of Clean Water and Sanitation with Goal 10 on reduced inequality and Goal 11 on Sustainable Cities and Communities which call for “supporting positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning”. The case for integrated planning for urban-rural contiguous areas is further heightened by the government's conviction to build faecal treatment plants and provide tap-water to all households by 2024.

3.2 Decoding the sanitation mechanics

The sanitation value chain emphasises on a systematic approach to address the prevalent challenges in the sanitation fold. This starts with the nature of the containment structures (on-site sanitation systems) and extends to the value of the recycled and reused products, emphasising on plethora of innovative technological interventions in the sanitation value chain. So far, the understanding of on-site containment structures, which are an essential part of the sanitation chain has been limited. A new nationally representative survey of OSS in secondary and smaller cities and in LDVs aims to address this gap in knowledge will be presented and debated.

Different forms of desludging services prevalent to the local context also serve an important role in the value chain as it holds cross cutting linkages with technical and social (reducing the human intervention in desludging) dimensions. Poor or limited FSSM in the current context are not fully mechanised and involve manual cleaning in one form or the other. Generating value out of the waste is a concept of resource efficient system, thus selection of sustainable FSSM systems for treating the sludge and valorisation of the treated waste into potable water and nutrient rich biosolids or soil conditioners is to be viewed very critically in terms of attracting investments and minimizing the environmental impacts.

3.3 Private Sector Participation

The sanitation sector presents an opportunity for a market of about \$62 Billion by 2021⁴. As per an earlier CPR-CII study the Swachh Bharat Mission was expected to generate demand of Rs 32,000 Crores for the sanitary ware industry, Rs 27,900 Crores of demand for micro-finance, Rs 4,16,000 Crores for the equipment industry among other sectors⁵. Private sector engagement in the sanitation service sector remains unregulated and is characterised by indiscriminate disposal of the collected faecal sludge, precarious safety protocols, and unstandardized service provisions. There exist several key opportunities for engagement of the private sector “to leverage new business models and to enable efficiency and at competitive costs.” As the scale of sanitation challenges is shifting from the issues of construction of toilets to the issues of sustained usage and continued O&M, cost recovery and driving innovative technological solutions, the role of the private sector will emerge in a broader light. This has also been articulated in the national policies encouraging ULBs to invite private capital in urban infrastructure as well as to bring in private sector efficiency in the delivery of urban services, O&M and FSSM⁶.

3.4 Inclusive Sanitation

The sanitation ecosystem in its current form often misses critical elements of inclusion and equity in the value chain. Most city level sanitation chains do not adequately implement principles of inclusion, particularly in the city sanitation planning, technology selection, institutional reforms, financial mobilization and managerial leadership. This impresses on the need for an ecosystem to mainstream inclusive sanitation processes in all

⁴ The Toilet Board Coalition, The Circular Sanitation Economy, November 2017, https://www.toiletboard.org/media/39-The_Circular_Sanitation_Economy.pdf

⁵ “Swachh Bharat: Industry engagement – Scope & Examples”, Shubhagato Dasgupta, DTV Raghu Ramaswamy, Kimberly Noronha, Smitha Rao, Seetharaman R., Nikhil George, Amandeep Singh, Tripti Singh, Swati Dhiman, Aditya Bhol. 2015. Swachh Bharat: Industry Engagement – Scope & Examples. SCI-FI: Sanitation Initiative, Research Report. New Delhi: Centre for Policy Research.

⁶ Ministry of Housing and Urban Affairs, Guidelines for Swachh Bharat Mission – Urban, October 2017, http://swachhbharaturban.gov.in/writereaddata/SBM_GUIDELINE.pdf

urban management endeavors, while strengthening capacities of the institutions (public, private and community) to accord priority to inclusive sanitation.

This alignment of equity and inclusiveness in the city wide sanitation needs to be built across planning, designing, implementation, regulatory, monitoring and management levels. It also needs to include designing innovative technology options to increase and facilitate access, safety and security of women, aged, differently abled, transgender and other vulnerable groups in the public locations like school, work place, health centers, markets, parks, travel hubs and others. Tracking access and usage of equitable sanitation infrastructure and understanding the reasons for inequitable access and variability across the sanitation chain will gain enormous traction in the years to come. Provisioning of FSM services to poor and marginalized in cities, keeping in mind the principle of justice and equity, has already gained grounds in few cities. Safety and dignity of workers, capacity building and skill building of poor and marginalized to operate and manage sanitation (including FSM) systems require integration in city wide inclusive approaches.

3.5 Scale and Institutional Capacities

With the thrust on water and integrating sanitation with water programs, emphasis on scale and institutional capacities of stakeholders is a key area for research and action. Under the new proposed subsidiarity principles in governance of the sector, capacity building of state level institutions as well as district and local government institutions (PRIs/ULBs) will be accorded priority. Institutional landscape in both water and sanitation space across all levels are faced with capacities which are inadequate, fragmented and often conflicted. Both water and sanitation programs are viewed in silos in terms of planning, designing and implementation, instead there is a need to see both sector integrated programmatically. There are other issues surmounting the institutional capacities, with different programmatic aspects dealt with overlapping roles and responsibilities. However, there is a need for compliance of principles of subsidiarity to guarantee independence to a lower authority in relation to a higher tiers of governance. This highlights the need for oversight or authority to monitor dovetailing of both water and sanitation programs and investments in integrated manner; resolve conflicting issues and taking necessary decisions. As per the 73rd and 74th Constitutional Amendment Act, the functions of water and sanitation rests with local bodies but the question remains whether these bodies are capacitated enough to manage the function, and whether funds and functionaries are present with the local bodies to play the role effectively.

4. ABOUT THE ORGANISERS

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4.1 Centre for Policy Research (CPR)

The Centre for Policy Research (CPR) is one of India's leading public policy think tanks since 1973. The Centre is a non-profit, non-partisan independent institution dedicated to conducting research that contributes to the production of high quality scholarship, better policies, and a more robust public discourse about the structures and processes that shape life in India. CPR is a long standing partner of the Indian Council for Social Science Research (ICSSR), and is a Department of Science and Technology (DST) recognised institution. It is also one of only 27 national social science research institutes recognized by the Indian Council of Social Science Research (ICSSR), Government of India. The institute has considerable impact on policy and public debates on a variety of issues including Water and Sanitation, Environmental law and governance, Public Health, Economic Policy, Law and regulation, Public Accountability and International relations and security.

Scaling City Institution for India (SCI-FI): Sanitation

Scaling City Institution for India (SCI-FI): Sanitation is a research group housed within the Centre for Policy Research (CPR) which aim to understand and broaden sector specific services level arrangements, related to governance institutional context and support reform. The key areas of interest of the program are sanitation, drinking water services, land, planning and housing with specific focus on urban poor. SCI-FI: Sanitation facilitates systematic research across different legal, social, economic, engineering and political contours of the mentioned focus areas. The SCI-FI: Sanitation program is supported by the Bill and Melinda Gates Foundation (BMGF), UNICEF and WaterAid India.

4.2 WaterAid India

WaterAid India is part of the global WaterAid network which seeks to improve access to clean water, decent toilets and good hygiene for everyone, everywhere. In India, WaterAid works with communities in rural and urban areas through partners. Thanks to our amazing supporters, we have reached millions of people with these three essentials—clean water, decent toilets, and good hygiene—enabling communities to unlock their potential to break free from the cycle of poverty and to change lives for good.

4.3 UNICEF

UNICEF has been working in India since 1949, to ensure that each child born in this vast and complex country gets the best start in life, thrives and develops to his or her full potential. UNICEF's goal is to advance the rights of children, adolescents and women to survival, growth, development, participation and protection by reducing inequities based on caste, ethnicity, gender, poverty, region or religion. It utilises a multi-pronged approach to addressing pressing issues of health, nutrition, sanitation, education and child protection by involving families

and community members in understanding their contribution to ensure their children thrive while providing a platform for young community champions to emerge and inspire. UNICEF India also works towards promoting community level knowledge and quality research to comprehend issues, create and introduce easily implementable innovative interventions that address the situation of children, and works with partners to create ground level change.

4.4 GIZ India

For over 60 years, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working jointly with partners in India for sustainable economic, ecological, and social development. Currently 312 national and 25 international employees, and 12 integrated specialists are working in the country (as of 31.12.2018). The thematic areas of GIZ in India are: Energy, Environment, Climate Change and Biodiversity, Sustainable Urban and Industrial Development and Sustainable Economic Development.



DAY 1

5. WORKSHOP PROCEEDINGS

5.1 Inaugural Plenary Session



The workshop began with an inaugural session which also set the agenda for the coming two days. **Mr. Shubhagato Dasgupta**, Senior Fellow and Project Director, SCI-FI: Sanitation, CPR laid the context impressing on the energies around water and sanitation with the launch of Jal Jeevan Mission. He further underscored the need of circular economy through waste water management and water use efficiency.

Following this, he introduced Workshop Partners- UNICEF, WaterAid India and GIZ India as pioneer organisations embedded in policy research, implementation and

advocacy in the space of water and sanitation space. He also invited the panellists- **Mr. Rajiv Ranjan Mishra**, IAS Director General, National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, **Mr. V.K. Madhavan**, Chief Executive, WaterAid India, **Mr. Nicolas Osbert**, Chief WASH UNICEF and **Ms. Yamini Aiyar**, President and Chief Executive, CPR to light the lamp and release SCI-FI CPR's reports.

SCI-FI CPR released three reports based on its recent studies. First of these reports, titled, '**Unearthed – Facts of On-Site Sanitation in Urban India (2019)**' recommends better and more applicable and responsive codes and greater emphasis on prefabrication. The report illustrates that out of 10 cities that were surveyed, less than 2% of on-site sanitation systems complied with the major requirements of the national technical codes.

The second report released during workshop is titled, '**Perceptions: Understanding On-site sanitation system choices in Large and Dense Villages in India (2019)**'.

It shows that households in large and dense villages including Census Towns, exhibit a preference for septic tanks. It also reveals that of all the toilets in a nationally representative survey, 26% were twin pits – underscoring the compelling need to safely manage fecal waste beyond the household-level unit integrating planning for contiguous urban and rural areas.

The third report, '**Bridging the Gap-Opportunities for Private Sector participation in Faecal Sludge and Septage Management (2019)**' argues that when local government responds to their presence with excessive regulation, it has the potential to crowd out these private businesses.





The workshop also saw the release of Project Nirmal Research Action learning Notes which shared experiences of Project Nirmal in two small towns (Angul and Dhenkanal) of Odisha. These notes,

1. *Implementing decentralized solutions for sanitation in small towns*
2. *Community Engagement Structures for Planning and Implementation of Urban Sanitation Programmes*
3. *Creating demand, ensuring usage and adequate maintenance of urban sanitation infrastructure through communication input*

demonstrate the role of sustainable sanitation service delivery in achieving increased coverage of households through enabling institutional and financial arrangements and increased private sector participation.

Following the release of reports, **Mr. Nicolas Obsert**, addressed the gathering and spoke on India's efforts in the Global WASH scenario towards achieving sustainable water and sanitation for all (SDG 6). Nicolas opined that SBM is a great narrative for driving SGD goals on ground. He also talked about the need of a cross sectoral approach on health & education in India & encouraged investment by Govt, private players & development partners. He articulated on how SDG 6 in the Indian context reflects a very exciting story with participation of all (Govt., Private players, Researchers and other development practitioners) towards achieving SDG goals across sanitation, health and education space and underscored the need for a regulatory framework for affordable private sector market, capacity strengthening of State, and local administration and sanitation (informal and formal) workers protection.



The keynote address was given by **Mr. Rajiv Ranjan Mishra**, wherein he impressed on integrated rural urban planning, source sustainability and water use, building from the NMCG experience. Advocating for cross integration of sectors, Mr. Mishra said that there is a need to take lessons from Namami Gange Programme on governance on peri urban planning, source sustainability & water use. He also opined that these learning can feed into the newly launched Jal Jeevan Mission and further underscored the need to prioritise attention to



water body management, wetland sustainability, river basin management, rainwater harvesting, wastewater treatment, solid waste management water reuse- urban, water use-agriculture and master plan under JJM.

After Nicolas, **Mr. V.K. Madhavan** spoke on 'Envisioning an Integrated approach to Water and Sanitation', and emphasised on various elements which will be crucial for ensuring an integrated framework for water and sanitation. He accentuated the need for Water Use Efficiency &

Waste Water Management through convergence of Jal Jeevan Mission with sanitation programme and also highlighted the need for a regulatory framework & capacity building of grassroots. These elements, Madhavan explained, would include, source sustainability, water quality, water use efficiency, rainwater harvesting, waste water (black and grey water) treatment, O&M of the WATSAN structures and data reporting.



Ms. Yamini Aiyar talked about 'Towards sustainable WASH: Opportunities and Challenges' stressing on policies responding to deep and complex implementation realities to contribute better to decision making, effective and impactful programmatic coverage. She posed some key questions on – a) How can top down (hierarchical) programmatic machinery translate into decentralized and deliberated Jan Andolan approach? b) What are mitigation ways to reduce risks associated with high target oriented programs? c) Scope of capacity building of the State and local administration and other players in the governance space?

5.2 Technical Plenary Session – Integrating planning to address water and sanitation needs in the rural-urban continuum

The first Technical session of day 1 was held on 'Integrating planning to address water and sanitation needs in the rural-urban continuum'. This session set the context to analyze the water and sanitation infrastructure in the urban agglomerations and periphery of urban areas of India. It deliberated upon the scope of implementation of comprehensive water supply, drainage, and sanitation plans within a rural-urban continuum.

The session was moderated by **Mr. V.K. Madhavan**, Chief Executive, WaterAid India. He began the session by introducing the speakers which included **Mr. Raj Kumar**, Deputy Secretary, AMRUT, MoHUA, **Mr. Divyang**

Waghela, Head (Water Mission), Tata Trusts, **Mr. Dorai Narayan**, Specialist Consultant, and **Mr. Shubhagato Dasgupta**, Senior Fellow and Project Director, SCI-FI: Sanitation, Centre for Policy Research.



Mr. Raj Kumar was the first speaker for the session and gave an overview of AMRUT and pointed out how with rapid urbanization the pressure on water and sanitation infrastructure has grown immensely and that there is a need for improvement in the infrastructure delivery to harness the gains of economic growth.

He also remarked on the efforts undertaken by MoHUA to empower state governments which has led to speedy approval and implementation of projects.

Following Mr. Raj, Mr. Divyang Waghela talked about the challenges posed by technological aspects and about the economic and operational viability of implementing waste to resources models in India. He pointed out that a cluster-level approach is required to make higher gains in terms of liquid and solid waste management and that there is a need to focus capacity building of institutions and individuals to provide viable solutions in the future for solid waste management. Gains from such an approach are currently fragmented & need to be consolidated.



Mr. Dorai Narayan, followed him by explaining imperatives to capitalizing on sanitation improvement with water. He highlighted the need to look at water contamination and focus on how water sources are polluted by grey and black water. He cited sighted Malaysia as the best case for Water and WasteWater Management.

Following Mr. Narayan, Mr. Shubhagato Dasgupta spoke and focused on the Rural-urban contiguity and sector integration in his presentation. He gave an overview of the evolution of watsan policies and stated

that there have seen shifting targets based on earlier slippages. He also pointed out that there is a need to enable local government to collaborate especially in the rural-urban interface. This plenary session was followed by three parallel sessions which deliberated on key thematic areas of the workshop, namely, 'Decoding the Sanitation Mechanics', 'Private Sector Participation to bridge the sanitation market gaps', and 'Inclusive Sanitation'.

5.3 Parallel Session 1: Decoding the Sanitation Mechanics

The first parallel session of the workshop "Decoding the Sanitation Mechanics" was moderated by Sasanka Velidandla. The session began with a presentation by Neha Agarwal from CPR who discussed her work on onsite sanitation systems. Her research showed that only 2% of the septic tanks are constructed as per the standards and there is little institutional oversight over it. She argued that households and city administrator have different expectations from OSS and it can be resolved through innovation and introduction of new technology. Households want to reduce hassle and cost while authorities want OSS to be designed as per the standard. She

further argued that efficient working of OSS requires better regulation and it can be done only if issues like lack of data and low capacity of regulators are addressed.



Her presentation also set the tone for the panel discussion which consisted of Prof. Vinod Tare from IIT Kanpur, Mr. Dorai Narayana and Prof. Srikantha Munturi from BITS Goa. The panel discussion began with a presentation by Prof. Vinod Tare who argued that government-led solutions for existing challenges are less likely to succeed because of their limited resources and capacity and these issues can be resolved only when society take initiatives on their own. He also said that creating the right kind of awareness is the key to mobilizing people for finding a community-based solution.

Following Prof. Tare, Srikant Mutnuri from BITS Goa argued that participation of the private sector in providing desludging services can reduce the cost of desludging service through innovation. He also said that the evolution of toilet technology will be influenced by their preferences and willingness to pay for it.

Mr Dorai Narayana drawing from his Malaysian experience spoke next and said that retrofitting old toilets are difficult and the focus should be on regulating the construction of new toilets in an incremental manner. He also said that government regulation must be accompanied by collecting more information related to the on-site sanitation system. Further, Neha also added to the discussion by saying that there is a need to reorganise responsibilities in the management of OSS. Currently, all the onus is on households and by bringing the private sector in the management of OSS by households will become easier.

This discussion was followed by three breakaway sessions in which three different groups worked had discussions on-site sanitation system design, faecal sludge treatment system and recycle and reuse of treated products from FSTP. After a healthy debate and discussion on these topics, all the three groups presented the main points of their discussions and discussed the various strategies in the short, medium and long term. The group also discussed the regulatory, financial, technical and social aspects of planning.

The breakout session was followed by a closing session which was moderated by Mr. Sasanka with Mr. Prasanta Mohapatra and Prof. N.C. Narayanan as members of the panel. The closing plenary deliberated on two approaches of designing sanitation system. One approach Prof. Narayan focused was on 'collection of micro-level data with the support of local students and academicians and then planning based on it'. Another approach proposed by Mr. Mohapatra was on 'planning based on thumb rules and generalisation and then improving the planning based on learning from implementation'. The plenary concluded that both these approaches are complementary to each other and should not be looked as conflicting approaches to planning.

5.4 Parallel Session 2: Private Sector Participation to Bridge Sanitation Market Gaps

In the second parallel session of the workshop on 'Private Sector Participation to Bridge the Sanitation Market Gaps' the deliberations centred around the prevailing and emerging business models for private sector participation across the sanitation value chain. The introductory session was moderated by Mr. Suresh Kumar Rohilla with presentations on private sector participation in the FSM businesses by Ms. Anindita Mukherjee and Mr. Ramanujam SR. The presentations highlighted the small-scaled nature of FSM service providers, and emphasized the need for private operations to be market driven, with direct links between the customer and the service provider. They recommended that the private businesses in FSM must have a regulatory guideline which serves the overarching public and environmental health concerns, but should be void of any economic regulations (for example, price ceiling), which could potentially crowd out these businesses.



Mr. Rohilla set the stage for further discussions among the panellists who elucidated the viability of an FSM operation for a small-scaled operator. Mr. Shankar Venkateswaran recognised that despite the availability of relatively simple technology, the ability of a small-scale entrepreneur to take risks and attract finance is very limited. Mr. Manoj Gulati discussed the possibility of participation of SHGs through models like mutual benefit trusts and blended financing, and also pressed on the need for advocacy to encourage banks to extend credit facilities to FSM businesses. Mr. Manas Rath concluded the discussion by drawing on his experiences from Leh and Devanahalli and underscored the importance of long term planning and prioritisation of the FSM sector by all the stakeholders across the value chain.

The introductory session was followed by two breakout sessions – first one on 'Demand Segmentation and Risk Mitigation across the FSM value chain' and the second on 'Regulatory and Contractual Challenges for Private Sector Engagement'. The panellists and the participants dwelled on PSP vis-à-vis the topics of the breakout sessions, which were then summarised by the moderator, Mr. Manoj Gulati, in the final session. Ms. Sandhya Haribal, moderator of the first breakout session highlighted the importance of adequate knowledge about the types of OSS systems in order to implement scheduled desludging. She also pinpointed that bulk customers often do not construct STPs within their OSS systems, despite being mandated to do so, which increases the dependence of private operators on bulk customers due to the frequency of desludging requests.

Following this, Mr. Kumar Saket summarised the group discussion of the second breakout session, and cited entry barriers in the privatised FSTP businesses as one of the reasons for inadequate investments in the sector. He also pointed out the lack of adequate regulatory regimes in the present scenario, and the lack of enforcement of the same. Further, Mr. Yogesh Upadhyay commented on the complexity of contracts which is often disadvantageous to small-scale entrepreneurs. He also recommended that the location of an FSTP must be chosen in a way that minimises operational costs and contributed to the efficient functioning of the plant.

There was a consensus among the panellists that the privatised FSM operations must be market driven, within a conducive business environment, as articulated by Ms. Sapna Kedia. The session was concluded by Mr. Venu Gupta, who called attention to the large unserved markets in sanitation across the world for SMEs that do not have competition. Vocalising the panel view, he stated that the investors view the government as an enabler and not a contractor, therefore the government must address the prevailing roadblocks in the market and create an enabling environment for private businesses in FSM.

5.5 Parallel Session 3 – Inclusive Sanitation: Rhetoric or Reality?

While there has been a growing understanding of experiences of women, transgender persons, persons with disability (PWD), adolescent girls and sanitation workers yet, it remains a neglected area of focus in the sphere of sanitation. In this backdrop, the session discussed various mechanisms for inclusion through integration of inclusive planning, implementation and budgeting for 'poor and marginalised groups. It outlined a road map to address the last mile challenge to achieve sustainable and inclusive sanitation for all.



Mr. Divyang Waghela, Head (Water Mission), Tata Trusts, was the session moderator. He opened the session by setting the context on the need for inclusion and invited Ms. Anju Dwivedi, Senior Researcher, CPR to make the introductory presentation on 'Inclusive Sanitation: Rhetoric and Reality' to deliberate on thematic subject. She highlighted that the sanitation ecosystem in its present form does not adequately address elements of inclusion and equity and illustrated findings from 2 studies:

- The Bhubaneswar Case study explores how urban sanitation programmes like the Swachh Bharat Mission (Urban) promote inclusiveness.
- The Punjab case study on Self-employment Scheme for Rehabilitation of Manual Scavengers (SRMS) explores the effectiveness of the scheme.

Ms. Rashmi Singh, IAS, Secretary, NDMC, reflected on her experience of the Gender Resource Centre in Delhi argued that these forums help to create awareness and agency among the slum dwellers and impressed on convergent approach to infuse more into social consciousness to ensure better utilisation of states resources. Following this, Ms Akhila Sivadas, Executive Director, CFAR pointed out that there are a limited number of champions in the WASH sector who seek to safeguard and stand for the rights of the marginalised and vulnerable groups and there is a need to build voice and agency by sharing experiences of vulnerable groups. Further, Dr. Santosh Giri, Founder Secretary, Kolkata Rista reiterated that there is no clear data on transgenders people accessing toilets in institutions both government and private.

Ms. Neelima Thota, Founder, Sah-karta Foundation highlighted that there is no disaggregated data across groups, gender and vulnerabilities which impedes the governance and effectiveness of service delivery for marginalised groups. She suggested that there is a need to build an eco-system by strengthening market linkages so that trainings translate into jobs.

Following this, Mr. Harsh Mander, Director, Centre for Equity Studies (CES) argued that it is essential to address fundamental questions of social justice and equity while achieving complete sanitation goals. He further deliberated on the need to include homeless population in the sanitation chain. Further, Mr. Raman VR, Head Policy, WaterAid India reiterated that there is a need to look at WASH service delivery from the lens of equity and inclusion and illustrated that “Deep shit” campaign, accessibility audit and tool kit for female friendly Community Toilet (CT).

Ms. Meghna Malhotra, Deputy Director, Urban Management Centre (UMC) highlighted broad definition of vulnerabilities on type of settlement, gender, occupations that needs to be integrated with the alternative livelihoods. Following that, Dr. Kaustuv Bandyopadhyay, Director, PRIA pointed out undercounting of marginalised groups, or their settlement also results in exclusion, impressing on need to learn from the past while developing solutions for inclusive sanitation. Further, Ms. Arundhati Muralidharan, Manager- Policy, WaterAid, India suggested to shift from problematizing to move towards identifying solutions and need for collaboration through research and advocacy.



Day 2



5.6 Technical Plenary Session: Scale and Institutional Capacities

The second day began with a Technical session on Scale and Institutional Capacities. The session presented an overview of the need for scale and institutional accountability requirements through capacity building assessment of state-level institutions as well as local governance institutions and outlined a road map for the bridging the capacities of the concerned stakeholders.



This session was moderated by Mr. Sujoy Mojumdar, WASH Specialist, UNICEF. He introduced the panelists for the session and highlighted that capacity building of the PRIs and the local bodies are essential for the sustainability of a project.

The panellists for this session included Mr. Amarjeet Sinha, IAS, Secretary, Rural Development, Ministry of Rural Development, Government of India, Mr. PK Mohapatra, Project Director, Odisha Water Supply and Sanitation Board (OWSSB), Government of Odisha, Mr. Deepak Sanan, Former Additional Chief Secretary, Himachal Pradesh and Visiting Senior Fellow, CPR and Ms. Aparna Das, Senior Technical Advisor, Sustainable Urban Development – smart Cities, GIZ. The panelist presented their opinions and shared their experience on the importance of institutional accountability at the local level for successful implementation as well as operation and maintenance of the projects.



Mr. Amarjeet Sinha articulated the importance of governance at the local level must be recognised and can be further strengthened by leveraging the vibrancy of the community organisations. He also pointed out that technology can be harnessed to create a robust digital capacity. Further, databases across ministries can be converged, which will further promote evidence-based governance and can improve the role and capacity of the institutions. Following this, Mr. PK Mohapatra presented the case of Odisha and stated how Odisha has been able to leverage funds through numerous state and central schemes (like AMRUT), and mobilisation of private sector investments to enhance water and sanitation service delivery across various districts of the state.

Further, Mr. Deepak Sanan, followed by stated that in the current scenario, multiple communities and GPs are working at the local level towards achieving total sanitation, however, the importance of awareness and service delivery through the principles of subsidiarity is paramount and needs to be brought at the forefront.

The last speaker of the panel was Ms. Aparna Das, who highlighted the learnings from her experience in housing projects in Behrampur and Slum Rehabilitation project in Raipur. She correctly pointed out that the principles of subsidiarity it has to be addressed for all aspects of spatial planning, not only for planning basic services.

5.7 Closing Plenary: Moving forward on recommendations – Areas for research and action

The workshop concluded with a closing plenary session which underscored the 'Need and Ways to Move Forward on Recommendations and Areas for Action around WASH'. This session discussed on how to better integrate lessons from the service expansion of the last few years into the new "Subsidiarity" mantra, assimilating the discussion points of each session and presenting a road map ahead for key stakeholders.

The session was moderated by Yamini Aiyar, CEO and President, CPR and posed critical questions which took the discussion forward. The speakers included Mr. Deepak Sanan, Former Additional Chief Secretary, Himachal Pradesh & Visiting Senior Fellow, CPR, Mr. Asad Umar, Senior Program Officer, Aga Khan Foundation, Mr. Sujoy Mojumdar, Senior WASH Specialist, UNICEF, Mr. Arun Vyas, Chief Engineer Udaipur Municipal Corporation (UMC) and Mr. Shubhagato Dasgupta, Senior Fellow and Project Director, SCI-FI: Sanitation, Centre for Policy Research.



Some of the critical questions posed by Yamini Aiyar to the panel were – a) Challenges in addressing technical solutions in the existing governance framework and mission-mode, target-oriented approach ensuring sustainable service delivery? b) To what extent services can be delivered without putting citizens at the center of programmatic interventions? c) What are trade-off between decentralized and mission-mode program? d) How can going forward, decentralisation will be key to sustainability? e) How can the centre-state dynamic evolve when pathways for ODF & ODF Plus is determined centrally after bypassing state? f) What are some of the institutional challenges and those of inclusion in SLWM going forward? g) What are the challenges of capacity building of GPs in implementing the programmes? h) How ULBs in partnership with learning organizations address the implementation pressures at the local level? i) How to strengthen the role of NGO participation in the larger ecosystem given the behaviour change needs and scale required under SBM?

Asad Umar highlighted the concerns to gain priority post-SBM are leftover population, partial usage of toilets, availability of fully-functional toilet facilities and public and environmental health. He further articulated the role of empowered local institutions towards resolving issues of functionality, quality of infrastructure and last mile gaps. Further, he underpinned the need to address issues of SLWM, water quality and security, building capacities and demystify aspects of hydrogeology, climate change & resilience, and integrated water management in Jal Jeevan Mission and sanitation program going forward.

With the patronage politics still holding the dominant paradigm of political economy and embedded in the system, Deepak Sanan articulated it is hard to change subsidy driven ideology for empowerment-led development. He further underscored the need for decentralisation (principles) to evolve in its definition, discourse, narratives, and announcements over 2 decades. He further impressed on programme design to meet potential sustainability of solution with service delivery to be sustained over time. Lastly, he emphasized on tremendous potential for action research to handhold and support local action and document learning of successes and bottlenecks from the past.

Shubhagato Dasgupta underpinned the need to have 'learning organisations' which are open-minded and willing to learn from evidence and research. He further articulated need to drift from campaign-mode which deters these 'learning organisations' to operate given their strict programme design and targets. Following this, Sujoy Mazumdar, UNICEF talked about two planned interventions of the earlier programmes– a) Rapid action units placed within ministries to galvanize state governments and GPs through documenting best practices, and b) Key Resource Units to handhold districts for Behavior Change, which did not take off and got sidelined in the race to reach targets. Speaking from his experience from West Bengal, he shared how linking every GP to an NGO capacitated GPs perform better from an access and usage perspective. He further underlined all programmes are to be designed around subsidiarity to make it a success.

Arun Vyas impressed how SCM guidelines despite underpinning stakeholder participation and integrated approach lacks ineffective service delivery. He further articulated the need of research organisation like CPR and others to play a critical role in designing research questions underlying appropriate technologies. Following this, Avinash Kumar articulated the need to go beyond metros and large cities down to Community Toilets, Large Dense Villages, and remote rural regions; identify people as citizens through inclusive planning processes and recognize their right to services; diagnose system's output-driven design inhibiting action; and underline simmering ground before getting into mission mode. He further spoke about behavior change as a mere technical term deviant from broader mandate of empowerment and local leadership.

While the learnings from this workshop may seem micro issues compared to the national goal set by the government, they emphasize on various local issues. These local issues shape the success of the efforts of various government programs such as JJM, SBM and AMRUT. As a collective, these would inform the institutional reforms initiated by the formulation of the Ministry of Jal Shakti and contend that such reforms will need to be deepened across state and local institutions. Additionally, these reforms ought to be based on the principle of subsidiarity, allowing locally determined solutions for water and sanitation security.

Overall, National Workshop served as a platform for discussing SCI-FI's key research themes and arrive at key recommendations and strategies to strengthen institutional capacities at all levels for delivering integrated WASH solutions and provide insights in the formulation of schemes and policies aiming towards integrated water and sanitation. The workshop had over 100 participants who interacted during and between various sessions leading to significant knowledge sharing at inter-organisational and inter-sectoral level.

ANNEXURES
ANNEXURE 1: AGENDA FOR THE WORKSHOP
NATIONAL WORKSHOP
“WASH Futures: Subsidiarity for service delivery
AGENDA

Dates: 14 and 15 November, 2019

Venue: India Habitat Centre, Delhi

Day 1- Venue : Jacaranda Hall	
9:30 - 10:00	Registration
10:00 - 11:15	Inaugural Plenary Session
10:00- 10:10	Welcome & Objective Setting Mr. Shubhagato Dasgupta Senior Fellow and Project Director, SCI-FI: Sanitation, Centre for Policy Research
10:10-10:15	Lighting of the Lamp
10:15-10:30	India in the Global WASH scenario: Towards achieving sustainable water and sanitation for all (SDG 6) Mr. Nicolas Osbert Chief WASH, UNICEF
10:30-10:45	Envisioning an integrated approach to water and sanitation Mr. V.K. Madhavan Chief Executive, WaterAid India
10:45- 11:00	Towards sustainable WASH : Opportunities and Challenges Ms. Yamini Aiyar President and Chief Executive, Centre for Policy Research (CPR)
11:00- 11:15	Address Mr. Rajiv Ranjan Mishra, IAS Director General, National Mission for Clean Ganga (NMCG), Ministry of Jal Shakti, Govt of India
11:15-11:20	Vote of Thanks Ms. Anju Dwivedi Senior Researcher, Centre for Policy Research (CPR)
11:20 - 11:35	Coffee/Tea Break
11:35 - 13:00	Technical Plenary Session: Integrating planning to address water and sanitation needs in the rural-urban continuum <i>This technical session will set the context to analyze the water and sanitation infrastructure in the urban agglomerations and periphery of urban areas of India. In this regard, it would deliberate upon the scope of implementation of comprehensive water supply, drainage and sanitation plans within a rural-urban continuum.</i> Moderator : Mr. V.K. Madhavan Chief Executive, WaterAid India
11:35-11:55	Waste Water management in Statutory Towns and Census Towns Mr. Raj Kumar

	Deputy Secretary AMRUT, Ministry of Housing and Urban Affairs (MoHUA), Govt of India
11:55-12:10	Solid and Liquid Waste management in Rural India Mr. Divyang Waghela Head, Tata Water Mission, Tata Trust
12:10-12:25	Water and Wastewater Management: Case of Malaysia Mr. Dorai Narayan, Specialist Consultant
12:25 -12:40	Integrating planning to address water sanitation needs in the rural urban continuum Mr. Shubhagato Dasgupta Senior Fellow and Project Director, SCI-FI: Sanitation, Centre for Policy Research
12:40-13:00	Q&A and Open Discussion
13:00 - 14:00	Lunch
14:00 - 17:00	Parallel Sessions
Parallel session 1: Decoding the Sanitation Mechanics (Venue: Willow Hall)	
14:00-15:00	<i>The parallel session will discuss on the systemic approach to address the prevalent challenges of safe, adequate and affordable technologies in the sanitation landscape. It will give a comprehensive insight on each components of the sanitation service chain by exploring alternative technologies and service delivery models, with the goal of increasing access to safe and sustainable sanitation in urban areas.</i>
	Introductory Session
	Moderator: Mr. Sasanka Velidandla , Independent Consultant, WASH Presenter: Ms. Neha Agarwal, Research Associate, CPR Discussants: <ul style="list-style-type: none"> • Mr. Dorai Narayana, Specialist Consultant • Professor Srikanth Mutnuri, Birla Institute of Technology and Science, K K Birla Goa • Professor Vinod Tare, IIT Kanpur
Breakout Sessions	
15:00-16:15	Breakout Session 1: On-site sanitation system design Moderator: Mr. Santosh Raghavan, Senior Specialist - Tamil Nadu Urban Sanitation and Support Programme, Indian Institute for Human Settlements (IIHS)
	Breakout Session 2: Faecal Sludge Treatment System Moderator: Mr. Santosh GS, Project Manager, Consortium for DEWATS Dissemination (CDD) Society
	Breakout Session 3: Recycle and Reuse of treated products from FSTP Moderator: Ms. Priska Prasetya, Business Developer for Circular Economy in Sanitation, WASTE, Netherlands
16:15-16:30	Coffee/Tea Break
16:30 - 17:00	Closing Sessions- Parallel Session 1
	Moderator: Mr. Sasanka Velidandla , Independent Consultant, WASH Panelist: <ul style="list-style-type: none"> • Mr. Prasanta Mohapatra, Project Director, Odisha Water Supply and Sewerage Board, Department of Housing and Urban Development, Government of Odisha • Professor N. C. Narayanan, IIT Mumbai

Parallel session 2: Private sector participation to bridge sanitation market gaps (Venue: Maple Hall)	
14:00-15:00	<i>The parallel session will elucidate on the prevalent and emerging practices and business models underscoring private sector participation across the entire sanitation service chain and discuss the applicable regulatory and governance frameworks. It will deliberate upon the market potential of sanitation services, risk mitigation strategies adopted by various stakeholders, and practices that can encourage partnerships, entrepreneurship and financing in the sanitation sector.</i>
	Introductory Session
	<p>Moderator: Dr. Suresh Kumar Rohilla, Program Director, Centre for Science and Environment</p> <p>Presenter: Ms. Anindita Mukherjee CPR, and Mr. Ramanujam S.R, Independent Consultant, CPR</p> <p>Discussants:</p> <ul style="list-style-type: none"> • Mr. Shankar Venkateswaran, Chairperson, Oxfam India Board • Mr. Manas Rath, Senior Advisor, BORDA • Mr. Manoj Gulati, Executive Director India, Water.Org
Breakout Sessions	
15:00-16:15	<p>Breakout Session 1: 'Demand segmentation and Risk mitigation across FSM Value chain'</p> <p>Moderator: Ms. Sandhya Haribal, Project Manager, Consortium for DEWATS Dissemination (CDD) Society</p>
	<p>Breakout Session 2: 'Regulatory and contractual challenges for private sector engagement'</p> <p>Moderator: Mr. Nilachal Mishra, Partner, KPMG</p>
16:15-16:30	Coffee/Tea Break
Closing Sessions- Parallel Session 2	
16:30 - 17:00	<p>Moderator: Mr. Manoj Gulati, Executive Director India, Water.Org</p> <p>Panelists:</p> <ul style="list-style-type: none"> • Mr. Yogesh Upadhyay, Consultant, Centre for Policy Research (CPR) • Ms. Sapna Kedia, Partner, Senior Manager, Government and Public Sector Advisory Services, EY • Ms. Sandhya Haribal, Project Manager, Consortium for DEWATS Dissemination (CDD) Society • Mr. Venu Gupta, Director of the Accelerator Program, Toilet Board Coalition
Parallel session 3: Inclusive Sanitation: Rhetoric or reality? (Venue: Jacaranda Hall)	
14:00-15:00	<i>The parallel session will aim to underscore the need to align the concerns of city wide inclusive sanitation for one and all and to deliberate on the steps taken by partners- Government, CSOs, and CSRs to promote inclusive approaches in Sanitation to facilitate access, and ownership of FSM services in the city. In this context, the session will discuss the various models adopted for inclusive sanitation in a sustained manner and to draw recommendations.</i>
	Introductory Session
	<p>Moderator: Mr. Divyang Waghela, Head (Water Mission), Tata Trusts</p> <p>Opening remarks: Ms. Rashmi Singh, IAS, Secretary, NDMC</p> <p>Presenter: Ms. Anju Dwivedi, Senior Researcher, CPR</p>

	Discussants: <ul style="list-style-type: none"> Ms. Akhila Sivadas, Executive Director, CFAR Ms. Neelima Thota, Founder, Sah-krrta Foundation Dr. Santosh Giri, Founder Secretary, Kolkata Rista Mr. Raman VR, Head Policy, WaterAid India
Breakout Sessions	
15:00-16:15	Breakout Session 1: 'Serving the unserved- poor, women, transgenders and differently abled' Moderator: Ms. Arundhati Muralidharan, Manager- Policy, WaterAid, India
	Breakout Session 2: 'Dignity of labour in the sanitation service chain' Moderator: Dr. Kaustuv Bandyopadhyay, Director, PRIA
16:15-16:30	Coffee/Tea Break
Closing Sessions- Parallel Session 3	
16:30 - 17:00	Chair: Mr. Harsh Mander, Director, Centre for Equity Studies (CES) Panelists: <ul style="list-style-type: none"> Dr. Kaustuv Bandyopadhyay, Director, PRIA Ms. Arundhati Muralidharan, Manager- Policy, WaterAid, India Ms. Meghna Malhotra, Deputy Director, Urban Management Centre (UMC)
Day 2- Venue : Amaltas Hall	
10:00 - 11:45	Technical Plenary Session: Scale and Institutional Capacities <i>This session will aim to present the need of capacity building assessment of state level institutions as well as local governance institutions and outline a road map for bridging capacities of the concerned stakeholders. While the principle of subsidiarity and decision making at the lowest effective scale could hold the key – this session will explore how these principles can be operationalized at a national scale?</i> Moderator: Mr. Sujoy Mojumdar WASH Specialist, UNICEF
10:00-10:20	Keynote Address: Strengthening institutional capacities for improving WASH services Mr. Amarjeet Sinha, IAS Secretary, Rural Development, Ministry of Rural Development, Govt. of India
10:20-10:40	Multi-sectoral Approach to address Safe Water and Sanitation Cycle in Odisha Mr. P.K Mohapatra Project Director, Odisha Water Supply and Sewerage Board (OWSSB), Government of Odisha
10:40-11:00	Overcoming structural challenges in building state capacities Mr. Deepak Sanan Former Additional Chief Secretary, Himachal Pradesh & Visiting Senior Fellow, CPR
11:00- 11:20	Improved capacities for scaling: Planning as an enabler Ms. Aparna Das Senior Technical Advisor, Sustainable Urban Development- Smart Cities, GIZ
11:20-11:45	Q&A and Open Discussion
11:45 - 12:00	Coffee/Tea Break

12:00-14:00	Closing Plenary: Moving forward on recommendations - Areas for research and action
	<p><i>This session with a mix of presentations and a panel discussion will discuss the prospects of resource planning, service delivery, pollution abatement, and recycling through an integrated lens. Connecting with the discussions of all the technical sessions, the future of government initiatives in WASH and the key challenges towards sustaining efforts for the unserved and underserved will be explored. It will deliberate on what is understood to be gaps in knowledge given the broader consensus on the need to adopt principles of subsidiarity and decision making at the lowest effective scale. These issues will be discussed from the perspectives of practitioners in Government, Development partners and Researchers in the field.</i></p> <p>Moderator: Ms. Yamini Aiyar President & Chief Executive, Centre for Policy Research</p>
12:00-12:15	Summarizing discussions from the workshop Ms. Anindita Mukherjee, Senior Researcher, Centre for Policy Research
12:15-13:30	Panel Discussion
	Practitioners Government participants <ul style="list-style-type: none"> ● Mr. Deepak Sanan, Former Additional Chief Secretary, Himachal Pradesh & Visiting Senior Fellow, CPR ● Mr. Arun Vyas, Chief Engineer, Udaipur Municipal Corporation
	Development Partners <ul style="list-style-type: none"> ● Mr. Sujoy Mojumdar, WASH Specialist, UNICEF ● Mr. Avinash Kumar, Director, Policy & Programme, WaterAid India
	Researchers <ul style="list-style-type: none"> ● Mr. Asad Umar, Senior Programme Officer, Aga Khan Foundation ● Mr. Shubhagato Dasgupta, Senior Fellow and Project Director, SCI-FI: Sanitation, Centre for Policy Research
13:30-13:55	Q&A and Open Discussion
13:55-14:00	Vote of Thanks
14:00	Lunch

ANNEXURE 2: LIST OF PARTICIPANTS

	Name	Organisation
1	Air Marshal R. Singh (Retd.)	Independent Consultant
2	Mr. Arun Rana	Independent Consultant
3	Mr. Rahul Mishra	Saraplast Pvt. Ltd.
4	Mr. Ganesh Parida	Practical Action
5	Ms. Nikita Purty	Oxford Policy Management (OPM), Delhi
6	Ms. Srinithi Sudhakar	Indian Institute of Human Settlement (IIHS), Chennai
7	Mr. Pawan Daniel	World Vision India
8	Ms. Tora Saikia	GIZ India
9	Ms. Surbhi Mauray	Angaja Foundation
10	Dr. L.C. Dutta	Assam Agriculture University, Jorhat
11	Mr. A K Jain	Independent Consultant
12	Dr. P. K. Jha	Foundation for Environment and Sanitation
13	Ms. Meesha Tandon	Independent Consultant
14	Mr. Mohit Kapoor	National Institute of Urban Affairs (NIUA)
15	Mr. Rahul Mankotia	Centre for Science and Environment (CSE)
16	Ms. Rithika Sangameshwaran	Piramal Sarvajal
17	Ms. Pulama Mukherjee	Outline India
18	Ms. Ruchi Khurana	Independent Consultant
19	Mr. Deepesh Jain	Tata Institute of Social Science (TISS)
20	Ms. Moushumi	ThePrint
21	Mr. Pradeep Mehta	S M Sehgal Foundation
22	Mr. Dhiraj Santdasani	National Institution for Transforming India (NITI) Aayog
23	Ms. Harmi Wadhwa	H.B. Impex (India)
24	Ms. Shikha Shukla Chhabra	Independent Consultant
25	Mr. Rahul Raja	Centre for Environmental Health, PHFI
26	Ms. Archana Pandey	Vigyan Foundation
27	Mr. Aamir Manan Deva	Government of J&K
28	Mr. Sudhir Gupta	Independent Consultant
29	Mr. N.K. Sagar	Independent Consultant
30	Mr. Rahul Sachdeva	National Institute of Urban Affairs(NIUA)
31	Ms. Swathi Manchikanthi	UNICEF
32	Mr. Ramkrishna Paul	Athena Infonomics
33	Mr. Cearat Sood	Centre for Policy Research(CPR)
34	Ms. Samayita Ghosh	Public Health Foundation of India (PHFI)

35	Mr. Banibrate Choudhary	National Institute of Urban Affairs(NIUA)
36	Ms. Urvashi Prasad	Practical Action
37	Ms. Jessica Brooks	Independent Consultant
38	Ms. Shamindra	Centre for Policy Research(CPR)
39	Ms. Sharonee	Centre for Policy Research(CPR)
40	Mr. Rakesh Solanki	Solanki Enterprises
41	Mr. Raka Sinha Bal	Angaja Foundation
42	Mr. Sandip Sahoo	Centre for Policy Research(CPR)
43	Ms. Vanita Suneja	Water Aid
44	Mr. Sunil Mishra	Centre for Policy Research(CPR)
45	Ms. Kriti Seth	Delhi University
46	Mr. Rakesh Mishra	IIT Kanpur
47	Mr. Nitya Jacob	Swasti
48	Mr. Sanjeev S Jha	ISC-FICCI
49	Ms. Aparajita Ghatak	National Institute of Urban Affairs(NIUA)
50	Mr. Raj Bhushan	WaterAid
51	Mr. Md. Noor Alam	MARG
52	Ms. Gurpreet Kaur	Action in Community and Training
53	Ms. Kanika Singh	WaterAid India
54	Mr. Arvind Pandey	Supreme Court Lawyer
55	Mr. Mir Anayat	Govt. of J&K
56	Mr. Bhitush Luthra	Centre for Science & Environment (CSE)
57	Mr. Carla Berke	KfW
58	Ms. Shruti Appalla	NLSIU
59	Mr. Partha Pratim Das	Delhi Technical University
60	Mr. Jay Shah	Blue Water Company
61	Mr. Sanjay Kumar	Pollution Monitoring
62	Ms. Marije Broekhuijsen	UNICEF
63	Mr. Vijay Saini	ICLEI South Asia
64	Mr. Himanshu Kumar	Global Village Foundation
65	Ms. Amita Dahiya	Earth Watch Institute
66	Mr. Rajendra Jaiswal	PRAVAH Ahmedabad
67	Ms. Trisha Agarwala	CBGA
68	Ms. Sonali Sarkar	Jaldhara
69	Mr. Ben Williams	Aga Khan Foundation
70	Mr. Anil Handa	GLA
71	Dr. Sushil Kumar	RIS

72	Mr. Tapan Chatterjee	ACT
73	Mr. Punit	GJU
74	Mr. Samuel Sathya Seelam	Jawaharlal Nehru University (JNU)
75	Mr. N. Raghava	World Bank
76	Mr. Sukumar Ghosh	Individual Consultant
77	Ms. Ritika Rastogi	IDinsight
78	Mr. Abhishek Andasu	Centre for Policy Research(CPR)
79	Ms. Bindu Bhushan Dubey	Gramalaya
80	Mr. Sasanka Velidandla	Independent Consultant
81	Mr. Himalaya Ahuja	Outline India
82	Mr. Arpan Mazumdar	GIZ
83	Mr. Trinankur	Individual Consultant
84	Ms. Shalmoli	Halder
85	Mr. Akshay	Individual Consultant
86	Mr. L. Ravi	Centre for Policy Research(CPR)
87	Mr. P.K. Khanna	Centre for Policy Research(CPR)
88	Mr. Rupendra Chahar	Centre for Policy Research(CPR)
89	Ms. Pooja Gupta	Centre for Policy Research(CPR)
90	Mr. Mir Iqbal	Individual Consultant

ANNEXURE 3: SPEAKERS' PROFILE

Ms. Akhila Sivasdas	Akhila Sivasdas currently serves as the Executive Director of the Centre for Advocacy and Research and is one of the founding members of the organization. Ms Sivasdas has a work experience of over thirty years in various fields, ranging from academia, research to journalism, and advocacy. Through her media advocacy, she aims to strengthen media's perspective on gender and development issues. Her organizational leadership at CFAR has provided tremendous expertise and insight in strengthening public and policy discourse on social inclusion and rights of all marginal communities, bettering their representation in mass media, building sustained relationships with e- media, and increasing sensitivity to the new developments happening within the media. She has an M.Phil in Modern Indian History and Master degree, both from JNU.
Mr. Amarjeet Sinha, IAS	Amarjeet Sinha is a 1983 batch IAS Officer of the Bihar Cadre, holding the post of Secretary, Ministry of Rural Development, Government of India. He has over 30 years of experience in government, largely in the social sector. He has had the unique distinction of having played a major role in designing Sarva Shiksha Abhiyan (India's main programme for universal elementary education) and the National Rural Health Mission. He has also been training Indian Administrative Service Officer Trainees at LBSNAA Mussoorie on the social sector over the last one and a half decade. Amarjeet has also served as the Education/Human Development Adviser with the Department for International Development, Government of the United Kingdom, 2001-2005. Shri Amarjeet Sinha is a Graduate in History.
Ms. Anindita Mukherjee	Anindita Mukherjee is a Senior Researcher at the Centre for Policy Research working with the Scaling City Institutions for India (SCI-FI): Sanitation project. Her key sectors of experience are urban economics, slum up-gradation, inclusion, housing & urban basic services (water & sanitation) for the poor and other marginalized section of the society, issues pertaining to land and land tenure in urban areas, mainstreaming gender concerns in policy formulation and associated research work. With a career spanning over almost 15 years, she has worked with different sector partners; Government agencies including the Ministry of Housing and Urban Affairs and urban local body in Kolkata, civil society organisations, and other bilateral agencies such as DFID India. Ms. Mukherjee is an economist by training and has a specialization in Statistics and Econometrics.
Ms. Anju Dwivedi	Anju Dwivedi is a Senior Researcher at CPR, working with the Scaling City Institutions for India (SCI-FI): Sanitation project. Her role focuses on managing and supporting the project in Odisha on sustainable Fecal Sludge Management (FSM) systems through Project Nirmal. She has been associated with the research on ethnography of small towns on urban sanitation and Capacity building for Urban local bodies on Sanitation besides providing support to the project as manager. She has over 25 years of experience in the development sector, in both rural and urban areas and has worked extensively on areas and sectors of local self-government, education, water, and sanitation, citizenship, gender, housing, and livelihood with a wide array of stakeholders, including National and State government, Local governments- Panchayats and ULBs, Civil Society organisations, poor and marginalized communities.
Ms. Aparna Das	Aparna Das is working as a Senior Advisor, as part of the Sustainable Urban Development- Smart Cities (SUD-SC) project at GIZ. She works with the central, state and local level government to implement various housing and urban development programs; recent years of her work focuses on urban land contestation and equity concerns. Spanning almost twenty years of her career, and she has worked with different sector partners, national and international NGOs, multi and bilateral agencies such as the World Bank, UNICEF, UNDP, DFID India. Internationally she has worked in

	Cairo, Egypt, and Bangladesh. Ms. Das has Master degree in Urban Development Planning from the University College London. She was also part of the Special Program for Urban and Regional Studies (SPURS) Fellow at the Massachusetts Institute of Technology (MIT), USA, during 2018-19.
Mr. Arun Vyas	Arun is Chief Engineer with Udaipur Municipal Corporation, Govt. of Rajasthan.
Ms. Arundhati Muralidharan	Arundhati Muralidharan is Manager Policy (WASH in Health & Nutrition, and Schools) at WaterAid India. She has 15 years of experience as a public health practitioner and qualitative researcher with expertise in menstrual health and hygiene management, gender and sanitation, and sexual and reproductive health. Previously, Arundhati has worked with the Public Health Foundation of India, SNEHA, and Population Services International (PSI). She has a Doctorate in Public Health from Boston University and holds a Masters in Social Work from Tata Institute of Social Sciences, Mumbai.
Mr. Avinash Kumar	Avinash is Director, Program and Policy for WaterAid India. Avinash has 14 years of work experience and has been a member of key national networks on a range of development issues. He has also been instrumental as a founder of some new networks on the right to education and governance. Having been previously associated with Oxfam. He has extensive experience in basic services, governance, policy advocacy, research and campaigns. Avinash is a PhD in Modern History from Jawaharlal Nehru University, New Delhi. He has also been a Charles Wallace Post-Doctoral Fellow at the School of Oriental and African Studies in London University.
Mr. Asad Umar	Asad Umar is the Senior Programme Officer Health and WASH at Aga Khan Foundation (AKF). In his professional career, he has been a part of some important programs including World Bank and KfW supported Maharashtra rural water supply and sanitation programme, Water Aid supported rural WASH projects in Madhya Pradesh and CG, DFID supported WASH project under MP Health sector reform program. He has extensive experience in exploration, assessment, and management of groundwater and execution of water security plan. A recipient of International fellowship on "Groundwater Governance in Asia" awarded by IWMI, he has published fifteen International/National papers on WASH issues. Currently he represents AKF on Technical advisory committee, National Rural Livelihood Mission, Govt. India on Solid and Liquid waste management and State Level Advisory Committee on Plastic Waste Management constituted by Urban Development Department Government of Bihar.
Mr. Deepak Sanan, IAS Retired	Deepak Sanan is a Senior Visiting Fellow at CPR and a former civil servant. He retired from the Indian Administrative Service, the centrally recruited senior civil service of India in January 2017. Major areas of his interest include public policy in the areas of state capacity, land governance, public finance, water and sanitation. His other current affiliations include advising at the National Council of Applied Economic Research (NCAER), Delhi and the Indian Institute for Human Settlements (IIHS), Bangalore on a variety of subjects related to his experience and special interests. He has also been on the staff of the World Bank as the India Country Team Leader in the Water and Sanitation Program (South Asia) for two years between 2005 and 2007. Sanan has completed an MA Politics (International Relations) from JNU.
Mr. Divyang Waghela	Divyang Waghela currently heads the TATA Water Mission of TATA Trust. He has experience of more than 15 years in the field of water and sanitation management. His efforts aim at facilitating behavior change communication, technological use and effective stakeholder engagement for addressing pressing water issues in India. Previously, he worked at the position of 'Executive Director' in Coastal Salinity Prevention Cell. He has an MBA degree in Finance and Financial Services from the SK Patel Institute of Management.
Mr. Dorai Narayanan	Mr. Dorai Narayanan is an experienced Specialist and professional Engineer with a demonstrated history of working in the utility industry. Previously, he headed the

	Planning & Engineering Department in Indah Water Konsortium Kuala Lumpur; and also served as Senior Sewerage Engineer in Penang ULB. He joined Indah Water Konsortium in March 1996 as the Regional Planning Manager (North). His areas of expertise include Water Resource Management, Strategic Planning, Business Strategy in the water and sanitation sector. He holds a Bachelor of Technology degree in Civil Engineering from IIT Madras and a Graduate Certificate in Engineering (Environmental Management) from Melbourne University.
Mr. Harsh Mander	Harsh Mander serves as the director of 'Centre for Equity Studies' and a Special Commissioner to the Supreme Court of India in the Right to Food case. Previously, he has worked as an IAS officer in the states of Madhya Pradesh and Chhattisgarh for almost two decades. Mr. Mander has lived the life of an activist and worked towards securing people's right to food, land, housing, and health. He has authored several books, namely ' Looking Away: Inequality, Prejudice and Indifference in New India', 'Unheard Voices: Stories of Forgotten Lives', among many others. He is also a recipient of many awards, such as the Rajiv Gandhi National Sadbhavana Award for peace work, the M.A. Thomas National Human Rights Award 2002, the South Asian Minority Lawyers Harmony Award 2012, and the Chishti Harmony Award 2012.
Dr. Kaustav Bandyopadhyay	Kaustav Bandyopadhyay is currently the Director of PRIA. He has worked with the organization for more than two decades and provided valuable research, consultancy and training inputs in the areas of urban development, democratic governance, citizenship and civil society building (including organisation development, strategic planning, participatory planning, monitoring and evaluation) and Social Accountability both at the international and national level. He has extensively worked on capacity building projects with particular emphasis on participatory learning, monitoring and evaluation, organisation development, strategic planning, and participatory training methodology. Based on practical experience, Mr. Bandyopadhyay has authored and published articles, manuals, books, and other publications, mostly in Asian context. He holds a Ph.D. in Anthropology from Ranchi University.
Mr. Manas Rath	Manas Rath is the Honorary Advisor, for BORDA South Asia. His work focuses primarily on developing business models for increasing coverage of sanitation services in under-developed communities, overseeing projects, and developing partnerships, particularly in the private sector. He is also the founder of Blue Water Company, which aims to deliver world-class FSM (Faecal Sludge Management) and Wastewater Management services to smaller cities and campuses, to reduce water pollution and increase the reuse of treated wastewater. Earlier, he was a Director at Dasra, and supported social enterprises to become more effective and scale. Manas is a graduate of MIT and the Sloan School of Management and has attended programs at the University of Chicago-Booth School of Business.
Ms. Meghna Malhotra	Meghna Malhotra is a co-founder of the Urban Management Centre and currently serves as the deputy director of the organization. She has an experience of over 17 years in the field of local governance, urban management, urban sanitation, performance measurement, and local government associations' development. Meghna has led preparation of various tools for sanitation planning, management, and monitoring in cities and has assisted in setting up and management of the e-learning portal of the Swachh Bharat Mission (Urban) of the Government of India. She has also been a technical facilitator for USAID supported programs in Afghanistan, Sri Lanka, and Indonesia. Meghna is a graduate in Architecture and has a Masters in Environmental Planning.
	Neha Agarwal is a Research Associate at the Centre for Policy Research, New Delhi with the Scaling City Institutions for India initiative. She is currently studying decentralized

Ms. Neha Agarwal	sanitation systems in urban and rural India. Her research interests lie in combining engineering principles and a systems approach to understand and tackle to better the complex environmental challenges in the context of evolving demographic transitions in developing countries. She is especially interested in creating evidence-based practical knowledge to respond to the most pressing developmental and policy needs towards sustainable growth. She holds a Masters in Chemical Engineering from IIT Bombay.
Professor N. C. Narayanan	N.C. Narayanan is a professor at The Indian Institute of Technology, Bombay. His areas of work include Water Policy and Governance, Environment and Development (Political Ecology), among many others. He started his career as a hydrogeologist and worked on land-use planning using remote sensing techniques and later joined as a faculty in the Institute of Rural Management Anand (IRMA). He moved on as Senior Fellow and Executive Director of the South Asia Consortium for Water Resources Studies (Saci WATERS), interdisciplinarity in Water Engineering programs linking Wageningen University, NL, and four South Asian Universities in Sri Lanka, Nepal, Bangladesh and India. He has M.Phil in Applied Economics from JNU (CDS) and Ph.D. in Development Studies from the International Institute of Social Studies, Erasmus University, The Netherlands.
Ms. Neelima Thota	Neelima Thota is the founder of Sah-krrta foundation. She has over two decades of experience in the developmental sector. She has worked towards basic services for the urban poor with a special focus on education, healthcare, water, sanitation, and livelihoods. In the past, she has played an advisory role with agencies such as GIZ, ADB, USAID, ASCI, and worked closely with several state governments, MoUD, MoHUPA, CPHEEO, Planning Commission and the Finance Commission. She has also worked closely with United Nations University to enhance a broader knowledge-sharing platform in water and sanitation sector through their flagship nexus observatory program. She has completed her post-graduate from ISB and has a Civil Engineering degree from Andhra University.
Mr. Nicolas Osbert	Nicolas Osbert is Chief, WASH at UNICEF India. He leads technical teams working in 15 states for WASH Programming, notably to support the Clean India Mission. As a WASH, Chief, he is responsible for developing WASH strategies, programs, and emergency response in collaboration with the central government, state governments, NGOs, the private sector and other developmental agencies. He has more than 20 years of work experience in WASH and Public Health in Africa, Latin America, and Asia. Mr. Osbert is a chartered architect (Paris Villemin, France), specialized in urban development in developing countries, as well as a water and sanitation engineer. He holds a Master's Degree in Drinking Water and Sanitation from ENGEES, France.
Mr. Prasanta Mohapatra	Prasanta Mohapatra is working as a Project Director at Odisha Water Supply and Sewerage Board, Department of Housing and Urban Development, Government of Odisha. Prior to this, he was working as an Executive Engineer at Public Health Division, Berhampur. He joined PHEO as an assistant engineer in 1989, and over the three-decade, he has held various positions with the government of Odisha in Odisha Water Supply and Sewerage Board and Health Department. He has an M.SC degree in Sanitary Engineering from the UNESCO IHE Institute for Water Education and M.Tech in Water Resource Engineering from IIT Kharagpur.
Ms. Priska Prasetya	Priska Prasetya is Business Developer for Circular Economy in Sanitation, WASTE, Netherland. She has more than 10 years of studying and working experience in Australia, the Netherlands, Vietnam, Ghana, India, Bangladesh, and Sri Lanka. She is an experienced professional with social entrepreneurship and business development in a circular economy, specifically in the field of faecal sludge and solid waste management. Her engagement in the circular economy in sanitation focuses on how

	to maximize the impact of SDG 6 on Clean Water and Sanitation. Besides, other Sustainable Development Goals her work focuses include SDG 2: Zero Hunger, SDG 7: Affordable and Clean Energy and SDG 13: Climate Action. She has a Master's degree in Urban Environment Technology and Management from Wageningen University.
Mr. Raj Kumar	Raj Kumar is the Deputy Secretary, AMRUT division in Ministry of Housing and Urban Affairs, Govt. of India.
Mr. Rajiv Ranjan Mishra, IAS	Rajiv Ranjan Mishra is an IAS officer (1987) of Telangana cadre and is presently the Director General (DG) of National Mission for Clean Ganga (NMCG) and holds the rank of Special Chief Secretary in Government of Telangana. He has previously held crucial positions such as those of Principal Secretary, Infrastructure & Investment, Govt. of Andhra Pradesh; Senior Deputy Director, LBSNAA. Mr. Mishra holds a B.Tech degree from IIT Kanpur and a Certificate of Advanced Studies in Public Administration from the Maxwell School- Syracuse University, USA.
Mr. Raman VR	Raman is currently the Head of Policy with WaterAid India. He is an honorary Advisor to Public Health Foundation of India and one of the founders and former Principal Fellow of the Health Governance Hub. Mr. Raman has over two decades of experience in research, policy, planning, implementation, advocacy, community mobilisation and capacity building in the areas of public health, water/ sanitation/ hygiene, education, literacy, and grassroots development, in several states of India and at national level. For water, sanitation, and hygiene sector he is supporting the formulation and implementation of various policy initiatives at the national and state levels. He held important positions with organisations such as Public Health Foundation of India, Secretariat of the High-Level Expert Group on Universal Health Coverage, State Health Resource Centre Chhattisgarh, and Bharat Gyan Vigyan Samiti. He has served/ is serving several boards and expert committees. Raman is an alumnus of the School of Public Health at the University of the Western Cape, Cape Town, South Africa and the University of Calicut, Kerala, India.
Mr. Ramanujam S.R.	Mr. Ramanujam S. R is an independent urban sector consultant with more than twenty years of experience in urban infrastructure financing and PPPs. His work Public Private Partnerships, government reforms, project finance and public policy in water, housing, urban infrastructure and transportation sectors. His work focused on infrastructure privatisation and government reforms. Ramanujam S. R has developed toolkits for the Government of India for facilitating PPPs in the water and urban transport sectors. He has worked with several National, State and City level infrastructure providers, private sector developers, infrastructure regulators and multilateral and bilateral funding agencies such as World Bank, Asian Development Bank, DfID and KfW. He holds PGDMB in Finance from IIM Calcutta and M.Sc. from BITS Pilani.
Ms. Rashmi Singh, IAS	Dr. Rashmi Singh is an Indian Administrative Service officer and is presently serving as the Secretary in New Delhi Municipal Council. Prior to this, she served in various capacities such as Director (Welfare) in New Delhi Municipal Council (NDMC), Director (Mission Convergence) in Delhi government. She has also served as the Executive Director in National Mission for Empowerment of Women in the Ministry of Women and Child, Government of India.
Ms. Sapna Haribal	Sandhya Haribal is currently working as a Project Manager at Consortium for DEWATS Dissemination (CDD) Society. She is a consultant in the Infrastructure space with varied work experience spanning over 16 years, including transaction advisory, capacity building & business development (particularly under the PPP framework), estimation, quantity surveying, contracting in the real estate sector & marketing of financial services. Her specialized areas include project feasibility assessment, project structuring, PPP transaction advisory, training, and capacity building activities. She has

	an MBA in Finance from the Institute of Technology and Management and Civil Engineering degree from Bangalore University.
Dr. Santosh Giri	Dr. Santosh Kumar Giri is the founder and the Executive Director with KOLKATA RISTA, a Transgender community based organisation working for Gender and Sexual minority (LGBTH) communities in India. She is the first transgender activist working towards gender justice by engaging men and boys. Santosh has extensive experience in facilitating workshops and trainings for the community on issues of Health, Sex, Sexuality and Gender, and Human Rights etc. 'No Conditions Apply' a campaign against gender biases has been one of the most instrumental campaigns in her career. She has been a part of many of the committee such as the steering committee of Men Engage Alliance South Asia (MESA), Member of Global Men Engage Alliance, and Steering Committee of UHC 2030 among many more.
Mr. Santosh GS	Santhosh Garakahalli S. is a Project Manager at CDD Society. He has over 6 years of working experience in conceptualize, design, implementation, operation and maintenance of both the wastewater and faecal sludge treatment plants. At CDD, he is currently using his skills to redesign and re-imagine the historic lakes of Coimbatore city. His passion is teaching, and as of date, he has trained more than 65% of the government engineers in Tamil Nadu on sanitation. Further involved in design and implementation of India's first of its kind FSTP in Devanahalli, Bengaluru. Santhosh conducts trainings and takes up capacity building of all stakeholders in sanitation. He has studied Sanitation Engineering at UNESCO – IHE, Netherlands.
Mr. Santosh Raghavan	Santhosh Raghavan is a Senior Specialist at the Indian Institute of Human Settlements (IIHS), Bangalore. His area of interest includes urban sanitation and methods to scale up sanitation. Currently, he is working on Tamil Nadu Urban Sanitation and Support (TNUSSP) program on planning, engineering, and implementation. In previous roles. In his previous roles, he has worked on energy and environment services including environmental assessment of coal-based power generation, municipal and industrial waste treatment systems – design, construction, and O & M; agricultural energy and water demand management projects covering asset/ infrastructure mapping, energy and water efficiency project implementation; indoor and ambient air quality and its impact on human health. He has a Masters in Environmental Health from Cyprus International Institute.
Ms. Sapna Kedia	Sapna Kedia is a Senior Manager with the Government and Public Sector Advisory Services of EY. She has over 12 years with experience in working with multilateral like Asian Development Bank and World Bank in the infrastructure development sector. She has worked on programs for development of Public Private Partnerships with ADB in close coordination with the Central Line Ministries and State Governments. Some of her relevant works include working with Ministry of Finance for management of pilot projects in various sectors including roads, solid waste management and water. Ms. Kedia has done Post Graduate Diploma in Business Administration from Narsee Monjee Institute of Management Studies, Mumbai.
Mr. Sasanka Velidandla	Sasanka Velidandla is an Independent Consultant, WASH. He has more than 16 years of experience in the industry and development sector. He has sought to demonstrate self-sustaining economic models for managing solid waste in mid-sized cities. Sasanka had been working with various organisations like CDD Society since 2010 – helping develop projects, draining modules, and mentoring young engineers. He was instrumental in deploying a technical innovation called the Vortex System, in coordination with a research partner, to reduce the foot-print of anaerobic sewage treatment plants by 50%. Before 2009, Sasanka was working with General Motors, Detroit, USA, as an Engineer for about 8 years. He has an MBA degree from IIM Ahmedabad.

Mr. Shankar Venkateswaran	Shankar Venkateswaran is a member of the governing body of Oxfam India Board. He has about 35 years of experience of working in the corporate and social development sectors. Shankar started his career in mainstream management consulting before going on to set up Partners in Change, a pioneering non-profit specializing in corporate sustainability and CSR. He has also set up the India office of the American India Foundation and served as its Executive Director, India and Director of the think-tank and consultancy firm, SustainAbility, before joining PwC as Director, Sustainability. In 2017, he retired as Chief of Tata Sustainability Group. Shankar has held board and advisory positions with several non-profits and academic institutions in India and overseas. Mr. Venkateswaran holds an MBA and an engineering degree.
Mr. Shubhagato Dasgupta	Shubhagato Dasgupta is a Senior Fellow at CPR and Director of the Scaling City Institutions for India (Sci-Fi) Sanitation project. His work focuses on drinking water and sanitation in India and the world, with particular reference to flagship government programs and service delivery challenges in smaller cities. Other major areas of work include urban infrastructure and service delivery financing, housing and slum rehabilitation, urban sector public finance, and urban environmental infrastructure planning, and management. Mr. Dasgupta was trained as an architect at the Centre for Environmental Planning and Technology in Ahmedabad and held an MSc in Housing and Development Planning from the University College London. He is also currently undertaking a Ph.D. at the Centre for Urban Studies at the University of Amsterdam.
Professor Srikanth Mutnuri	Srikanth Munuri is a Professor at the Department of Biological Science at Applied and Environmental Biotechnology Laboratory, BITS Pilani, KK Birla Goa Campus. The focus of his work Sustainable Development Goals with major emphasis on Clean water Sanitation, Zero Hunger, Affordable & clean energy, Climate Action, and Responsible consumption and production. He has been a grant recipient of Reinvent the Toilet Challenge 2014 from DBT BIRAC and Bill & Melinda Gates Foundation. He holds a doctoral degree from Anna University in Environmental Microbiology and Master from the University of Madras.
Mr. Sujoy Mojumdar	Sujoy Mazumdar is a Senior WASH Specialist at UNICEF. He provides technical assistance on sanitation to the governments' efforts on rural sanitation, including Swachh Bharat Mission. During a career spanning 25 years, Sujoy worked in various capacities in the states of Chhattisgarh and Madhya Pradesh, been associated with the Director of the flagship National Rural Drinking Water Programme (NRDWP). With the launch of the Swachh Bharat Mission, he became the Director Swachh Bharat Mission, Ministry of Drinking Water and Sanitation, Govt of India in October 2014. Sujoy has represented the Government of India and UNICEF in many International conferences, including South Asian Conference on sanitation. SACOSAN V at Kathmandu. Having a Master's in physics from University of Delhi, Sujoy Mojumdar joined the India Forest Service (IFS) in 1991.
Dr. Suresh Kumar Rohilla	Dr. Suresh is the Senior Director at CSE, New Delhi, and Academic Director at the School of Water and Waste - an education and training unit of CSE. He has over 25 years of experience in the development sector, both at the international and national level in strategic planning, fundraising, operational management, leading large program teams and people management working in different cultural contexts. Having extensive teaching and research experience and association at leading academic institutions in India and abroad, Dr. Suresh has served as an expert member of various committees set up by the central and state governments in India, including professional bodies, think tanks and international peer-reviewed journals. He has completed his Ph.D. in Urban Environment, Development, and Planning – Water/Ground Resources Management from Queen's University Belfast, M.Planning from the School of Planning and Architecture, New Delhi and MA Geography from JNU.

Mr. V.K. Madhavan	V.K Madhavan is the Chief Executive, WaterAid India. Prior to joining WaterAid in June 2016, Madhavan has worked as a development professional for 20 years and made significant contributions in the areas of health, education, natural resource management, and community development. Madhavan commenced working with the Urmul Rural Health Research and Development Trust in Bikaner. Since then, he has worked with ActionAid and The Hunger Project and subsequently spent eight years working in Uttarakhand with Central Himalayan Rural Action Group (Chirag). Prior to joining WaterAid India, Madhavan was the Managing Director of Skills Education Private Limited. He holds the prestigious TED Global Fellow and a TED Senior Fellow. He has earned his Master's in International Politics from Jawaharlal Nehru University
Mr. Venu Gupta	Venu Gupta is the Director of the Accelerator Program for Toilet Board Coalition. He is responsible for helping sanitation businesses achieve scale for investment. He has over 19 years of experience as an entrepreneur and senior executive in corporate sector driving critical initiatives across logistics, private equity, and, more recently, in the venture acceleration space. Venu is also a start-up specialist with expertise in logistics, private equity, and, in the venture incubation and acceleration space. Prior to this, he was Country Manager for an emerging market real estate private equity firm and Head of India Corporate Development for a global industrial real estate investment firm. His roles have spanned corporate development, joint ventures and building execution teams. Venu holds an MBA from INSEAD.
Professor Vinod Tare	Vinod Tare is a Professor with the Department of Civil Engineering, IIT Kanpur with specialization in Environmental Engineering. He has been felicitated with Sir M. Visvesvaraya Chair and is also the Founding Head at Canga at Centre for Ganga River Basin Management and Studies. His research interest is Processes for Natural Resource Conservation and Regeneration, Physicochemical, Biological and Ecological Processes, Water and Wastewater Treatment, Modelling and Simulation of Environmental Systems, EIA & EA. He holds a doctoral degree from IIT Kanpur with specialization in Environmental Engineering.
Ms. Yamini Aiyar	Yamini Aiyar is the President and Chief Executive at the Centre for Policy Research (CPR). In 2008, she founded the Accountability Initiative at CPR. Under her leadership, the Accountability Initiative has produced significant research in the areas of governance, state capacity and social policy. It pioneered a new approach to tracking public expenditures for social policy programs and is widely recognized for running the country's largest expenditure-tracking survey in elementary education. Yamini's research on social accountability, elementary education, decentralization, and administrative reforms has received both academic and popular recognition. Yamini Aiyar is a TED fellow and a founding member of the International Experts Panel of the Open Government Partnership. Ms. Aiyar is an Alumna of the London School of Economics, St. Edmund's College Cambridge University, and St Stephen's College, Delhi University.
Mr. Yogesh Upadhyay	Yogesh Upadhaya is the co-founder of "Ask-How India", a social initiative to analyse and communicate complex issues and possible solutions for policy issues in India. He serves on the Board of PRS (Parliamentary Research Services), an independent research initiative which analyses issues, local and global, surrounding bills introduced in the Parliament, and produces a concise report that is mailed out to all MPs. He has previously worked in CRISIL as an infrastructure consultant in the power sector and as a credit rating analyst. Mr. Upadhaya holds an MBA degree from IIM Calcutta and B.Tech from IIT Bombay.

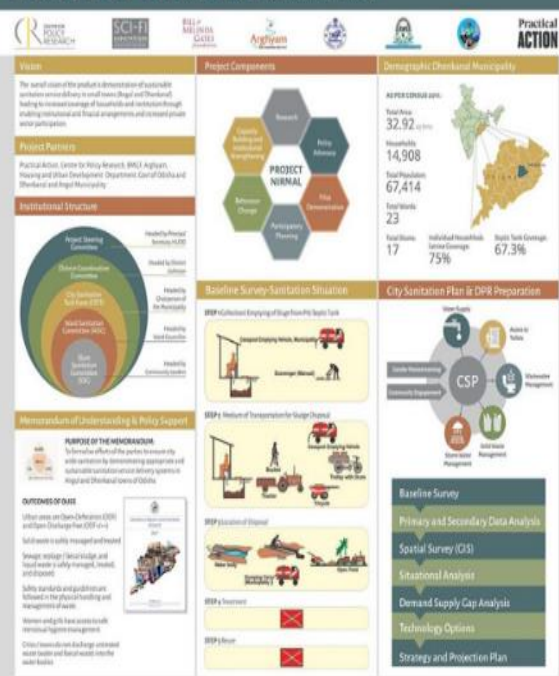
ANNEXURE 4: POSTER EXHIBITION

As a part of the workshop, SCI-FI CPR also organised a poster exhibition reflecting upon various research studies conducted in the past few years. A brief description of exhibited posters has been given below:

1. **‘Project Nirmal – Co-production Model and Outcomes (Planning Phase)’ by Anju Dwivedi:** The poster demonstrated sustainable sanitation service delivery in small towns (Angul and Dhenkanal) leading to increased coverage of households and institution through enabling institutional and financial arrangements and increased private sector participation.
2. **‘Project Nirmal – Co-production Model and Outcomes (Implementation)’ by Anju Dwivedi:** The poster highlighted the integrated model for private sector participation in Faecal Sludge Management. It also talked about the journey of states & urban local bodies in addressing serious environmental pollution concerns through effective management of faecal sludge.
3. **‘Partnering for Mewar (Managing Environment Through Waste Reuse)’ poster by Tanvi Tomar:** The poster detailed the interventions made for grounding inclusive sustainable sanitation system in the city of Udaipur.
4. **‘Understanding Urban Sanitation Market in Udaipur’ by Abhinav Kumar:** The poster outlined how the demand and supply chain in sanitation is caught in a vicious cycle in which demand for the same technology does not motivate the market to introduce new technology and because market does not offer choices, the consumers keep using the same technologies.
5. **‘Unearthed-On-Site Sanitation Systems in an ODF Urban India’ by Neha Agarwal:** The poster sheds light on the on-ground typology and other facts of On-Site Sanitation Systems - the dominant wastewater management technology in urban India - as revealed through a primary survey of ten Indian cities.
6. **‘Sustainable Sanitation Ecosystem Matrix’ by Deepti Raj:** This poster demonstrated - Sustainable Sanitation Ecosystem Matrix: A new framework for comprehensive sanitation ecosystem and infrastructure in urban and rural India.
7. **‘Sanitation in Large and Dense Villages of India’ by Aditya Bhol:** This poster divulges the key findings from CPR’s survey in identified Large Dense Villages in 5 states of India. The findings highlight a nuanced analysis of socio-economic and infrastructural parameters that influence the choice of on-site sanitation systems (OSS) at household and village level, thereby, underscore the need for integrated planning to augment sanitation services for the predominant OSS found in these settlements.
8. **‘The New Entertainment Paradigm for the Urban Poor’ by Pooja Gupta:** The poster demonstrates OTT consumption pattern and behavior, OTT content- choices and preferences among urban poor through household surveys in select cities.
9. **‘Inclusive Sanitation: Way forward for Cities’ by Bharti:** The poster discusses the need for inclusion and equity in the existing sanitation value chain and proposes a road map for achieving an Inclusive Sanitation Framework in cities.
10. **‘Inclusive Sanitation: Rhetoric or Reality? Case study of Bhubaneswar’ by Tripti Singh:** The poster discusses whether inclusive sanitation is rhetoric or reality. It explores how urban sanitation programmes like the Swachh Bharat Mission (Urban) promote inclusiveness. It deliberates on strengthening participation of the most vulnerable group in planning, implementation and monitoring of sanitation programmes in slums in Bhubaneswar.
11. **‘Self-Employment Scheme for Rehabilitation of Manual Scavengers’ by Aastha Jain:** It talks about the evolution of SRMS scheme and its various components. Also, based on the analysis of primary and secondary data, it highlights the gaps in the design and implementation of the scheme.

12. **‘Documentation of learnings from Beneficiary Led Individual Housing Construction’ by Baisakhi Sarkar Dhar:** The poster highlights the findings in terms of access to basic services for the "Beneficiary Led Individual Construction" (BLC under PMAY) beneficiaries in selected cities of Odisha and Kerala.
13. **‘Private Sector Participation in the FSM Service Provision’ by Arushi Gupta:** The poster highlighted the demand and supply trends of PSP in the sanitation value chain – as observed from the CPR’s studies across 8 Indian cities.
14. **‘Framework for Ease of Doing Small Business in FSSM’ by Kshitij Jaiswal:** The poster highlighted a framework which will help local governments and business operators in closing the prevailing knowledge gap, assessing the business environment in FSSM, and create area specific recommendations for future action.
15. **‘WASH Scenario in Small and Medium Towns’ by Chanchal Kumar Modi , Nirma Bora and Shivani Sood:** The poster discusses WASH scenario in Small and Medium Towns and talks about the challenges and possible solutions relating Water and Sanitation space in these urban regions.
16. **‘Improving Sanitation Safety and sustainability’ by Kanika Singh:** This poster talks about learnings for retrofitting based on preliminary findings from assessment in 6 terrains (across 5 states) of India and gives recommendations at policy, administrative and community level.
17. **‘Building Inclusive Cities’ by Farurukh R. Khan and Shishir Chandra:** The poster discusses the challenges faced by the urban poor due to inadequate design features and recommends a sustainable tool to hold authorities accountable for basic services.
18. **‘Female Friendly Public and Community Toilets’ by Kanika Singh:** The poster talks about the need and essential features of female friendly community and public toilets. It also highlights some of the initiatives in the sphere.

PROJECT NIRMAL CO-PRODUCTION MODEL AND OUTCOMES (PLANNING PHASE)



SELF-EMPLOYMENT SCHEME FOR REHABILITATION OF MANUAL SCAVENGERS



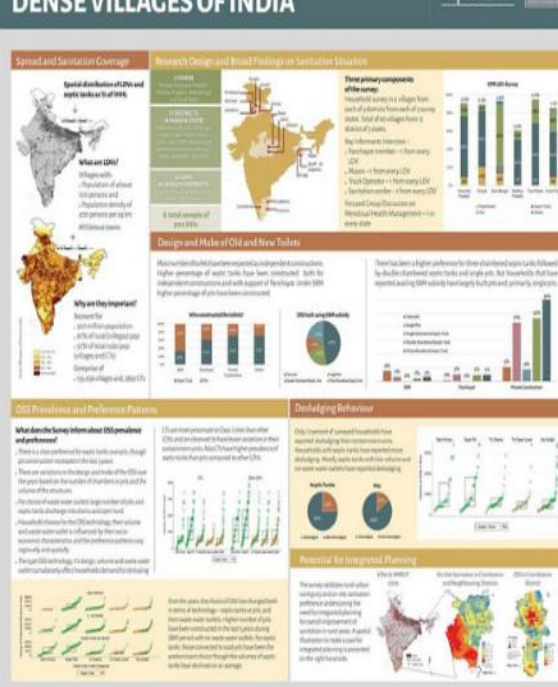
FRAMEWORK FOR EASE OF DOING SMALL BUSINESS IN FSSM



UNDERSTANDING URBAN SANITATION MARKET IN UDAIPUR



SANITATION IN LARGE AND DENSE VILLAGES OF INDIA



INCLUSIVE SANITATION: RHETORIC OR REALITY? CASE STUDY OF BHUBANESHWAR



Scaling City Institutions for India: Sanitation



Sanitation programme at the Centre for Policy Research (CPR) is a multi-disciplinary research, outreach and policy support initiative. The programme seeks to improve the understanding of the reasons for poor sanitation, and to examine how these might be related to technology and service delivery models, institutions, governance and financial issues, and socio-economic dimensions. Based on research findings, it seeks to support national, state and city authorities develop policies and programmes for intervention with the goal of increasing access to inclusive, safe and sustainable sanitation. Initiated in 2013, the programme is primarily funded by the Bill and Melinda Gates Foundation (BMGF).



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