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PRIVATE SECTOR ENGAGEMENT TOOLKIT

A PRACTICIONER'S GUIDE ON DEVELOPING PARTNERSHIPS FOR SANITATION

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Cover Picture: Faecal Sludge Treatment Plant in Leh

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Foreword

With the launch of Swachh Bharat Mission-Urban (SBM-U) in October 2014, the issue of urban sanitation has been brought to the forefront of the development agenda in India. In fact, the past five years have seen a paradigm shift in the way India looks at development, especially in the area of sanitation and waste management. Currently, with 98% of cities declared Open Defecation Free, and scientific processing of solid waste gone up from 18% in 2014 to 60% presently, there has been significant progress achieved under the Mission. As India targets a five trillion economy, promising a better quality of life to its population of 1.21 billion (Census 2011), it needs no reiteration that sustainable development cannot be the responsibility of the government alone. While private sector has always been the engine spurring economic growth, its role in furthering social outcomes and its involvement has been limited to financing isolated endeavors or undertaking programs to fulfil its Corporate Social Responsibility (CSR) mandates. India's waste management sector is expected to be worth US$ 14 Billion by 2025, with an annual growth rate of 7.17%. With only a decade to go for achievement of Sustainable Development Goals (SDGs), it is time to reimagine private sector's role vis-à-vis our development challenges.

As we embark on the next phase of the Swachhata journey for Urban India, it is imperative that the government system work hand in hand with the private sector, not only to achieve outcomes under SBM-U, but also to contribute to the spirit of entrepreneurship in India, resulting in positive impact on the country's economy and GDP. The magnitude of this challenge far exceeds the capacity of any one organization and demands a strong partnership among governments, private sector, and development organizations. A collective vision with collaborative action is key to turning the construct of sustainable development into a tangible reality. Governments and businesses need to realize their shared interests and come up with innovative ways to fill gaps that hinder progress in creating a more resilient, prosperous and equitable ecosystem.

I am pleased to see a Private Sector Engagement toolkit being released, having been prepared by KPMG and WASHi under the USAID program to support SBM-U. I have been told that this document has been developed in consultation with key stakeholders from both public and private entities, such as government leaders, government partners (such as implementing partners, technical assistance providers, NGOs, etc.), funding agencies, and private sector entities. This toolkit will help practitioners to develop and mitigate project risks, make them more aware of the challenges faced by the private sector and showcase good practices through appropriate Indian and international case studies. I encourage ULBs to use this toolkit and identify areas where the private sector can be instrumental in improving operational efficiency, quality of service or reduce the cost of operations.

V. K. Jindal

(V. K. Jindal)

TABLE OF CONTENTS

ABBREVIATIONS

CAPEX	Capital Expenditure
CSR	Corporate Social Responsibility
HAM	Hybrid Annuity Model
KPI	Key Performance Indicators
MSWM	Municipal Solid Waste Management
ODF	Open Defecation Free
OECD	Organization for Economic Co-operation and Development
OPEX	Operational Expenditure
P&L	Profit & Loss
PPP	Public Private Partnership
PSE	Private Sector Engagement
PSP	Private Sector Participation
RfP	Request for Proposal
SBM(U)	Swachh Bharat Mission (Urban)
SoW	Scope of Work
SWM	Solid Waste Management
TA	Technical Assistance
ToR	Terms of Reference
ULB	Urban Local Body
UNICEF	United Nations Children's fund (Earlier known as United Nations International Children's Emergency Fund)

1. Background

India's rapid urbanization and burgeoning population have greatly increased the challenges of sanitation. As per Central Pollution Control Board (CPCB), India had the capacity to treat about 37 percent of the total sewage generated and the rest was being dumped in water bodies[1]. Another challenge in India is that, nearly 45.3% of urban India[2] depends on non-sewered sanitation systems. These have grave implications on human health, environmental balance and contamination of water bodies due to indiscriminate dumping of sewage and faecal sludge.

According to a United Nations report, 80 percent of diseases in human beings are water-borne and are caused due to water pollution/ contamination and waterlogging[3]. According to the Ministry of Health and Family Welfare in India, as of 2014, more than INR 12 billion was spent on treating illnesses such as diarrhea and other water borne diseases caused due to poor sanitation.[4]

An independent study conducted by UNICEF in India in August 2017 established that every Indian family can save about INR 50,000 annually if open defecation is eliminated. The study conducted across 10000 households in 12 states to measure the economic impact of sanitation at a household level discovered that a single rupee invested in sanitation, allows a family to save Rs. 4.30 by averting medical costs.[5]

On 2 October 2014, on Mahatma Gandhi's 145th birth anniversary, Prime Minister Narendra Modi launched the Swachh Bharat Mission (SBM) (referred to as the Mission), a mass movement to achieve a Clean India by 2 October 2019, the Mahatma's 150th birth anniversary.

The estimated cost of implementation of SBM (Urban), managed by the Ministry of Housing and Urban Affairs (MoHUA), was around INR 6.2 Trillion. The Government of India share as per approved funding pattern amounts to INR 1.46 Trillion. In addition, a minimum additional amount equivalent to 25% of GoI funding, amounting to INR 0.49 Trillion is contributed by the States as State/ULB share[6]. The balance funds are to be generated through various other sources of funds which include, but not limited to - private sector participation, corporate social responsibility initiatives, etc. One of the stated objectives under the mission is encouraging private sector participation. Over the last five years under the Swachh Bharat Mission (SBM), there has been an unprecedented growth in infrastructure development in sanitation with funding from the Government of India and States. However, private sector investment in the sector has remained subdued. India's waste management sector is expected to be worth US$ 14Billion by 2025, with an annual growth rate of 7.17%[7].

There can be two possible reasons for this subdued investment: misalignment of objectives or lack of coordination between the government and the private sector. While there has been several good examples of private sector participation in Government's sanitation programs for example 'Banega Swachh India' campaign by Reckitt Benckiser, 'Hathh Muhh Bum' campaign of Hindustan Unilever, collaboration of Pune Municipal Corporation with P&G and SWaCH for establishment of sanitary napkin recycling unit, installation of the Janicki Omni Processor, a fecal sludge treatment unit by Ankur Scientific in collaboration with the Vadodara Municipal Corporation etc., these are few numbers and limited in scope.

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[1] CPCB Bulletin Volume-1, July 2016, Updated on 6th December 2016
[2] https://www.downtoearth.org.in/coverage/waste/urban-shit-53422
[3] https://www.un.org/press/en/2003/sgsm8707.doc.htm
[4] Forgotten voices The world of urban children in India. Save the Children and PwC. 12 May 2015
[5] https://in.one.un.org/un-press-release/ministry-drinking-water-sanitation-unicef-announce-mahatma-gandhi-international-sanitation-convention/
[6] Guidelines for SBM -Urban revised as on 5th October, 2017
[7] Waste to Energy and Waste Management Market in India – 2019, Enincone, India, May 2019

India has committed to meet its SDG 6 target of providing clean water and sanitation to all, which is a humongous task in front of the public sector. Realizing this vision is ambitious, and hence plan for financing and implementation is needed. The magnitude of this challenge far exceeds the capacity of any one organization and demands a strong partnership among governments, private sector, and development organizations. The UN has emphasized on the critical role private sector can play to support government in achieving this target. Thus, there is a need to identify actionable ways forward for catalytic forms of engagement between public and private sector.

2. Defining Private Sector Engagement (PSE)

The OECD has developed a very broad definition of PSE as 'an activity that aims to engage the private sector for (2016) development results and involves the active participation of the private sector.'

For the purposes of the document, private sector could include, among others, the commercial for-profit sector including multinational corporations, social enterprises or any other non-government organizations. For more information, please refer Annexure 2.

Private sector engagement by the government could be through:

- Direct engagement with companies who are willing to support core government projects (or)
- Indirectly through engagement with private investors, funds and financial institutions for securing finance for sanitation projects (blended finance, and results-based finance, etc.)

3. Objectives of the toolkit

This Private Sector Engagement Toolkit has been developed to guide public sector stakeholders in engaging with private sector players. PSE can be defined as the deliberate, systematic collaboration of the government and the private sector to move national priorities forward, beyond individual interventions and programs. PSE has the ability to help in increasing the access, availability, quality, fund flow and other resources for sanitation services.

This guidance document will help identify opportunities, under Swachh Bharat Mission, where public and private sector parties can work together to increase access to sanitation and streamline interactions between all parties involved. This document has been developed in consultation with key stakeholders from both public and private entities, such as government leaders, government partners (such as implementing partners, technical assistance providers, NGOs, etc.), funding agencies, and private sector entities.

Each government institution may be at a different phase of private sector engagement; therefore, different steps or parts of the process defined in this document will be appropriate at different times/ stages.

It is important to note that this toolkit focuses on urban sanitation and liquid waste management predominantly. Though this toolkit discusses many forms of private sector engagement, it primarily focuses on public private partnership (PPP) as it is one of the most feasible, simple to execute and acceptable.

4. BENEFITS OF PRIVATE SECTOR ENGAGEMENT (PSE)

The key driver for Urban Local Bodies (ULBs), local government responsible for city/town administration in India, to engage with the private sector has been the shortage of staff with requisite skills and expertise to execute projects. Engaging the private sector can help reduce the ULB's role in project management and monitoring, thereby enabling them to focus on other tasks. In most cases, private contractors can offer higher service standards and competitive edge', without making any comparison with service provision by ULBs, some of which could be attributed to the ULBs ability to incentivize desired performance while discouraging non-performance with payment penalties. Other areas where the private sector can add value includes:

- **Enhanced operational efficiencies**
  The government can leverage the private sector's support to improve operational efficiency through information sharing, technical assistance or contracted outsourcing. This could be realized by developing new information systems, developing strategies for the last mile outreach ensuring that the services reach the end-users, and by improving overall monitoring mechanisms.

- **Allow governments to focus on core competencies**
  Public sector entities could outsource their non-core functions to private sector partners who are better equipped to provide them. This would allow the public sector to focus on their core competencies. For example, outsourcing (or contracting) non-core functions, such as collection, transportation, desludging, sweeping, etc., will allow the government not only to enhance the service delivery, meet environmental safeguards and free up public sector resources to focus on critical core areas such as governance, monitoring, planning etc.

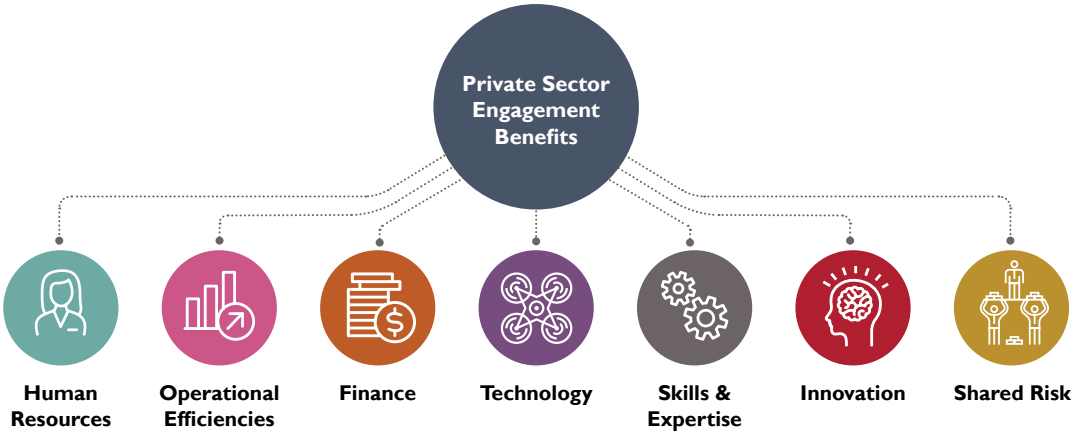
- **Shared risk**
  Every investment, operation, or service involves risks, including financial, political, security, infrastructure, and human resources. Partnering with the private sector allows these risks to be shared between the government and the private sector. For example, a long-term contract with the government may offer a stable cash flow for a private company, reducing their cash flow risk, while having a private sector partner may lower the infrastructure or HR investment risk the government would need to take on to build a new capability.

- **Access to skills and expertise**
  The private sector comes with the skills and expertise which the public sector can leverage to effectively execute projects. Private sector support could be further leveraged to build the capacities of government technical staff on several projects related aspects.

- **Access to innovation**
  Being profit oriented, private sector organizations actively seek out more efficient way of doing things and inherit a culture of innovation. The public sector can leverage on the methodologies, practices and tools developed by the private sector for creating an environment of innovation and adapt the same to suit their requirements.

- **Finance**
  According to the Standard Chartered SDG Investment Map, India needs to make an investment of USD 192.2 billion for clean water and sanitation by 2030 to meet its goal[8]. Hence to achieve SDG 6 target, public sector must leverage private sector investments.

[8]Economic Times (https://economictimes.indiatimes.com/news/economy/indicators/india-needs-2-64-tn-investment-to-meet-sdgs-by-2030-report/articleshow/73492931.cms?from=mdr)



5. Challenges in public sector and private sector collaboration

Both public and private agencies face challenges in collaboration due to clash of philosophies, mistrust and misunderstanding, lack of information sharing and the inability to engage. This could cause potential partnerships to collapse before they even get started. The drivers of engagement for each of them are fundamentally different; however, a mutual ground can be found through careful engagement processes.

5.1 Public sector challenges for engagement with the private sector

Governments that have attempted to engage with the private sector face challenges in aligning their philosophy to that of the private sector to foster a longstanding partnership. Some of the key challenges that are often raised by the public sector are listed below.

- **Motivation misalignment**
  Performance metrics of the private sector, such as profit margins, return on investment, and financial responsibility, are typically not a focus in the public sector, which is concerned more about achieving the target for timely service provision. This dichotomy leads to misalignment.

- **Limited capacity to engage the private sector**
  Typically, there is a lack of experience in public sector entities when it comes to working directly with the private sector, specifically around contract management, etc. This inexperience can lead to poorly designed contracts that place the government in a vulnerable situation. This may increase the likelihood of perceived conflict of interest.

- **Contracting and regulatory issues**
  Public sector often outsources projects to the private sector. However, this does not imply indemnification from impacts or accidents resulting from poorly managed operations by private sector. Another concern is that the private sector may not complete the project on time within the stipulated budget, drawing flak for the public sector.

[9] https://www.villagereach.org/wp-content/uploads/2009/08/UNCoLSC-Private-Sector-Engagement-Guidance-Document_FINAL.pdf

5.2 Private sector challenges for engagement with public sector

The experiences of private sector parties who have engaged in both successful and failed public/ private sector partnerships show that the public sector is less inclined to innovation around new tools, techniques, business modalities etc. Some of the key challenges faced by the private sector are listed below.

- **Delayed decision making by the public sector**
  Governments often have long drawn contractual decision-making processes. Private sector partners often feel that the cost implications of delayed decision-making and delayed payments are not well understood or taken into consideration when evaluating the real costs of an engagement.

- **Contracting issues**
  Many governments do not have standard and transparent tender processes resulting in prolonged contract negotiations. Additionally, governments typically provide shorter contracts, which does not allow enough time for return on investment for the private sector. Government contracts can ask the private sector to cover risk instead of sharing the risk, which is often untenable for the private sector.

- **Payment terms**
  Private sector entities must get paid on-time to support the resources needed to carry out the agreed-upon work. Due to bureaucratic processes and budget challenges, payment is often delayed by governments.

  This puts additional financial pressure on the Private Sector company. This can cause a partnership to fail if not addressed upfront or not resolved with mutually acceptable payment terms.

- **Information sharing challenges**
  Willingness and diligence in information sharing by public sector like policy frameworks, standards etc. which impacts the financial feasibility of the project is limited. Additionally, the lack of centralized actionable data compilation in the public sector running around for information. Both these aspects lead to project delays and cost overruns for the private sector.

- **Social risk**
  Consideration of public perception is as important as public welfare. If the local community or NGOs active in the area are against the project, there is a very high probability that the project will get delayed if not canceled altogether. This will result in the private sector spending considerable time, money and effort in addressing the resulting media fallout, social media reactions, legal issues & reputation loss. For example, private sector companies often face resistance from the local community whilst they attempt to construct community or public toilet(s) on government approved land.

These challenges can be overcome by developing a vision that is realistic for both stakeholders, building a partnership based on trust, fostering transparency, and demonstrating a commitment to the cause.

6. Private sector roles across sanitation value chain

SBM(U) has been a huge success in enabling India to achieve the status of being 'Open Defecation Free' (ODF). As a way forward GoI is now focusing on attaining the ODF+ and ODF++ status which is paramount to sustain ODF and enhance sanitation outcomes. The on-ground implementation to achieve ODF+ and ODF++ status can be achieved through institutional capacity building to oversee design, construction, and implementation of projects. The ULBs currently lack capacity both in terms of skill and manpower. This is further aggravated by the rising urban population and increasing burden of poor sanitation. In the face of these constraints, ULBs have begun to outsource various sanitation-related activities to the private sector. While private sector participation is not a solution for all issues under urban sanitation, it can certainly help address some of the bottlenecks like staff shortages, lack in the technical expertise or mobilizing initial capital expenditure. It is, therefore, important for ULBs to identify where the private sector can be instrumental in improving operational efficiency, quality of service or reducing the cost of operations.

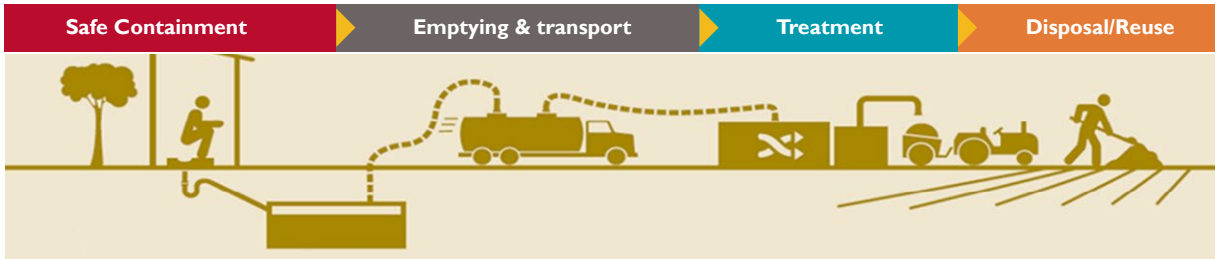
6.1 Roles of private sector across sanitation value chain

The general value chain of sanitation broadly consists of containment, storage, transportation, treatment and disposal. However, within this, we can define two scenarios:

- Decentralized sanitation system (Figure 2)
- Centralized sanitation system (Figure 3)

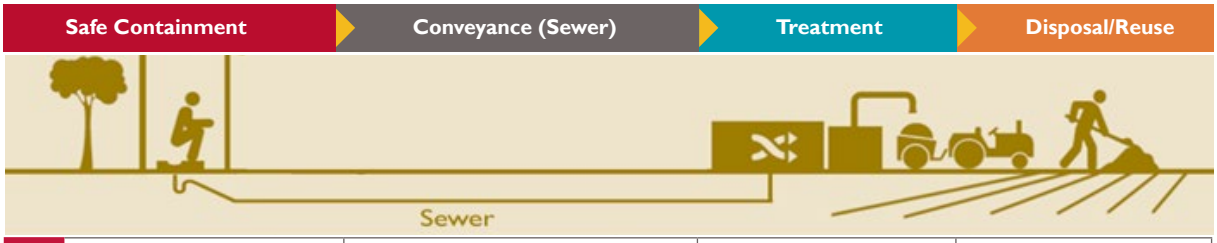
As far as sanitation is concerned, private sector players have a crucial role to play across the sanitation value chain beginning from

- Toilet construction, operation, and maintenance
- Creating demand for sanitation-related products such as soaps, toilet disinfectants, hygiene products, etc.
- Construction, operation & maintenance of on-site storage systems/septic tanks/sewerage network
- Setting up, O&M of Fecal Sludge Treatment Plants (FSTPs) or Sewage Treatment Plants (STPs)
- Marketing of the by-products of treatment plants
- Awareness generation, technology/ financial support, research and development across value chain



Private Sector Involvement				
	• Toilet construction • Production, distribution or retailing of key components required for toilet construction • Providers of toilet solutions- Low cost, portable, waterless and e-toilets • Operation and maintenance of public and community toilets • Producers of sanitation-related products like soap, toilet disinfectants, hygiene products etc.	• Construction and maintenance of on-site storage and septic tanks • Desludging of septic tanks • Providing transport facilities	• Setting up, operation and maintenance of FSTPs • Setting up, operation and maintenance of STPs	• Production and Marketing of by-products of treatment process for reuse
	• Awareness building • Behavior change • Research & Development • Technology Innovation | Technology Transfer • Financial support – Grants, Aid, Loans, Microfinance etc. Note: Private sector needs to focus on inclusive sanitation network, wherever applicable. Examples for how private sector can achieve this are provided in Annexure 3			

Figure 2: Decentralized sanitation system



Private Sector Involvement	• Toilet construction • Production, distribution and retailing of key components required for toilet construction • Connecting new toilets to sewage networks • Operation and maintenance of public and community toilets • Producers of sanitation-related products like soap, toilet disinfectants, hygiene products etc.	• Laying of new sewer lines • Operation and maintenance of sewer lines and drains	• Setting up, operation and maintenance of STPs	• Production and Marketing of by-products of treatment process for reuse
	• Awareness building • Behavior change • Research & Development • Technology Innovation • Financial support – Grants, Aid, Loans, Microfinance etc. Note: Private sector needs to focus on inclusive sanitation network, wherever applicable. Examples for how private sector can achieve this are provided in Annexure 3			

Figure 3: Centralized sanitation system

6.2 Other opportunities for the private sector to consider

- **Digitization of sanitation value chain**
  The digitization of the sanitation value chain can drive efficiencies, improve monitoring and potentially unlock new models of service. This would help ULBs improve the quality of services and how efficiently these services are delivered. Monitoring of toilet facilities, early detection of dysfunctional elements across the value chain, analyzing waste characteristics at source or treatment sites, real time monitoring of sludge collection trucks, fee collection through mobile payment applications etc., are few examples of digitizing sanitation value chain.

Few examples of digitalization are provided below:

- MIS systems can be used for data collection and analysis, logistics, and to generate timely reports. For example, data on treatment plant operations, desludging truck operations, toilet infrastructure operational data etc. can be stored and analyzed for improving efficiency
- Automating treatment plant operation can help in optimizing the treatment plant usage, improving operational efficiency and reducing the manpower requirement
- Global Positioning System (GPS), remote sensing and Geographic Information System (GIS) can be used to map sanitation infrastructure, track the movement of desludging trucks on a real-time basis
- Mobile applications can be used to provide real-time dashboards, collect fee payments, monitor desludging trucks, spread awareness, collate feedback from users & workers across value chain, etc.
- IoT technology and sensors can be used to make the toilet infrastructure 'Smart' i.e., automatic flushing, self-cleaning, monitor data like water level, malfunction, real-time customer feedback etc. Companies like Eram Scientific Solutions Pvt. Ltd. and Garv Toilets are already using sensors and IoT technology to provide some of the services in their toilet infrastructure

- **Safety equipment**
  Manual scavenging is regarded as inhuman and is a violation of several laws. It constitutes problems that encompass domains of health and occupation, human rights, social justice, gender, caste, and human dignity. Deaths of manual scavengers due to asphyxiation, inhalation of poisonous gases etc. further complicate this issue. The Union Ministry of Social Justice and Empowerment (MSJE) revealed that 282 sanitation workers have died while cleaning sewers and septic tanks in the country between 2016 and 2019[10]. To eliminate this practice, the Government of India has passed several laws over the years to little effect. A government survey conducted across 18 Indian states has identified 54,130 people engaged manual scavenging as of July 2019[11], the majority of these are women. Interventions by the private sector can prove to be instrumental when combined with government efforts for eliminating the risk to manual scavengers.

There are two clear pathways where the private sector can play a significant role:

- Protective Gear: The Prohibition and Employment of Manual Scavengers and their Rehabilitation Act, 2013 bans 'hazardous cleaning' of septic tanks and sewer pits, but only if the workers are not provided protective gear and other cleaning devices.'[12] Majority of the manual scavenger deaths occur due to the lack of protective gear. Several private sector companies manufacture personal protective gear such as Malcom India Ltd, Karam Industries, 3M, etc.
- Machinery replacing manual scavenging: The aim of eliminating manual scavenging can only be achieved by fully automating the sewer cleaning process. Several innovative technologies are being developed in this direction. A Pune based company called Kam Avida has developed the 'Hope Machine,' a jet-cum-rodding-cum-mechanical manhole desilting machine. Genrobotics created the Bandicoot, a manhole cleaning robot, and the Manhole Monitoring System

[10]https://www.orfonline.org/expert-speak/swachh-bharat-a-failed-mission-for-manual-scavengers-60538/
[11]https://www.thehindu.com/data/manual-scavenging-exists-in-india-despite-being-outlawed-in-2013/article29508476.ece
[12]https://www.news18.com/news/buzz/manual-scavenging-is-illegal-in-india-then-hows-there-7-lakh-foot-soldiers-of-swachh-bharat-1898891.html

7. Forms of Private Sector Engagement

There are many forms of engagement between public and private sector players. These include Technical Assistance (TA), outsourcing, Corporate Social Responsibility (CSR), a public-private partnership for project execution, consultation, innovation, tapping local markets and local manufacturing and co-creation. Each opportunity is described below in brief:

- **Technical Assistance (TA)**
  Providing technical assistance (TA) is an opportunity for the public sector to use the know-how of the private sector to meet project objectives and to learn from their knowledge and successes.

- **Outsourcing and Contracted services**
  More frequently, governments are considering options to engage the private sector to contract out different aspects of supply chain management to free up human and financial resources. Involving the private sector can help address some of the challenges faced by the public sector like shortage of manpower and expertise.

- **Corporate Social Responsibility (CSR)**
  Engaging a private sector, through their CSR initiatives, creates an opportunity to benefit from private sector expertise without the burden of a commercial relationship. Companies have specific CSR objectives or mandates according to which they make investments. If the public and private can find alignment regarding what they want to achieve, then it could result in a mutually benefitting partnership.

- **Public-Private Partnerships**
  Public-private partnerships (PPP) involve cooperation and risk-sharing between entities to deliver large scale projects (i.e., sewage treatment, fecal sludge treatment projects etc.) which no single entity, public or private, could have delivered on a standalone basis. This requires a good understanding of the roles and responsibilities of both parties in terms of financing, sharing of risks, etc. PPP's being the most used engagement form for large infrastructure engagements, its role in Sanitation has been explained in greater detail in the next section.

- **Consultation**
  Private sector engagement in policy development, information sharing, and coordination can be used to increase transparency, improve access to information, create greater involvement of all stakeholders in the policy or program making.

- **Innovation**
  Innovative operating models and product designs are among the core strengths of the private sector. Redesigning and optimization of systems and processes can help in improving the efficiency of the public sector. Governments around the world are embracing innovation-led economic growth. However, implementing innovation strategies is complex and highly situation dependent. To be successful, it is necessary to understand the country's or region's innovation ecosystem — its diverse array of stakeholders, the formal and informal interactions within it, and the environment in which they act. When leveraged correctly, they can be combined to drive ongoing innovation and economic growth.

Saudi Arabia Advanced Research Alliance (SAARA)[13, 14]

For the past several decades, the economy of Saudi Arabia has depended primarily on oil revenue — with 80% of its gross domestic product (GDP) comprised of oil exports. With increasing pressure to reduce dependence on oil, the Saudi government recognized the need to diversify its export economy and generate new sources of revenue. In December 2015, Saudi Arabia began building a coalition of key stakeholders now known as the Saudi Arabia Advanced Research Alliance (SAARA). SAARA is a first-of-its-kind collaboration among industry, academia, and Saudi government entities. The driving purpose of SAARA is to help develop and commercialize technologies to create economic impact.

- **Local Manufacturing and New Supplier Development**
  Engaging with local manufacturing entities is one way in which the public sector can develop a more diverse set of suppliers, thereby strengthening the supply chain and reducing costs. This can help in shaping the market and creating demand for locally produced products, leading to local economic growth and job creation.

- **Co-creation[15]**
  In a co-creation effort, multiple stakeholders come together to develop new practices. The essence of co-creation is the formation of new relationships. In a co-creation initiative, a public sector entity opens its value chain to the stakeholders whom it serves. These stakeholders insert themselves into the public service value chain and become active participants in it.

WaSH Hub, a project funded by Water for Women Fund supported by Department of Foreign Affairs and Trade (DFAT), Government of Australia. [16, 17]

This project aims to improve the WaSH access to urban poor, specially the Vulnerable and Marginalized Population through a composite community-government-private-sector platform called the WASH Hub. The WaSH Hub enhances private sector participation through community-led business models (for 'household' WaSH needs), citizen consultation models (for 'community' WaSH needs) and public private consultative models (for 'city' WaSH needs). It is current running in two Indian cities, Bhubaneswar and Jaipur.

[13] Source: https://www.rti.org/impact/saudi-arabia-advanced-research-alliance-saara
[14] Courtesy: RTI International, the implementation partner of SAARA
[15] Source: https://ssir.org/articles/entry/co_creation_in_government#
[16] Source: https://www.waterforwomenfund.org/en/project/water-for-women---india.aspx
[17] Courtesy: RTI International and Centre for Advocacy and Research (CFAR), the implementation partners of the WaSH Hub

Sanitation Innovation Hub (SIH)

In the latter half of 2019, the Telangana government, with support of Administrative Staff College of India, announced its' plans to set up a Sanitation Innovation Hub (SIH), which would serve as a sanitation and water 'lighthouse' for the State, the country, and South Asia. SIH will focus on innovative ideas, knowledge, technologies and processes required to catalyze markets across sanitation value chain. The SIH will also offer services to urban local bodies, corporations and innovators across four critical areas of sourcing, testing, accelerating and disseminating innovations by closely working with the private sector.

8. Public Private Partnerships (PPP) in Sanitation

The procurement of goods and services for sanitation through the private sector is generally in line with the Government of India governed public procurement rules. However, procurement for infrastructure projects is done through the Public Private Partnership (PPP) route. PPP is defined as an arrangement between a government/government-owned entity on one side and a private sector entity for the creation and/or management of infrastructure for the provision of services to the public for a specified period on commercial terms. Private sector participation is expected to bring in efficiency gains arising from innovation, management, and marketing skills and greater incentives for the control of construction, maintenance and operation costs.

8.1 Forms of PPP engagements

Traditionally in India, PPP's in Sanitation be it for the construction and maintenance of a Sewage Treatment Plant or a Composting Plant or Waste to Energy plant has been implemented in a combination of the following ways:

Service Contracts In case of service contracts, government bids out the right to deliver a specific service or gives part of the undertaking to the private sector for operation and maintenance of the assets.[18]	
Role Of Public Entity	• Retains overall responsibility for the utility while delegating only the specific, limited scope services to the private sector counterpart • Pays a contractual fee for the services provided by the operator plus bonus according to performance • Must finance fixed assets and working capital
Role Of Private Entity	• Manages its workforce and services efficiently • Implements its tools to provide the service and is responsible for the deliverables required in the terms of reference • Little or no fixed investment is required from the private sector
Duration Of Contract	• A short period, usually less than five years, maybe renewable, but the current trend is towards performance-based service contracts with a longer contract period
Benefits For Public Entity	• The private operator assumes technical and technological risk over the period of the contract • Fast, measurable results • Opportunities for follow-up services (if and when needed)
Risks For Public Entity	• Lack of liability placed on the private sector • Low levels of compromise to address significant infrastructural challenges • Does not attract private finance • Limited private participation in the overall scope of services delivery
Points To Note	• Not a 'one size fits all' approach. Adjustments must be made for each project type • Terms of Reference should be as detailed and inclusive as possible • Capacity building component should included in the Terms of Reference to ensure consistent improvement

[18] Department of Economic Affairs, Government of India (https://www.pppinindia.gov.in/faqs#q2)

Management Contracts

These types of contracts provide contractual arrangement for the operation, maintenance and management of a part or whole of a public facility or service by the private sector. Capital investment is typically not the primary focus in such arrangements.[19] Assets are publicly financed, and this is an appropriate form of contract where there is limited scope to raise private capital directly. However, these can help to leverage capital indirectly through Private Sector's know-how and management of the public facility or service by the private sector.

Role of Public Entity	• Assets are financed and owned by public grantor • Transfers responsibility for the management of the operation and maintenance of a system or part of a system including the management of associated workforce to a private operator • Provides working capital and investment funds
Role of Private Entity	• Acts on behalf of the public authority and is therefore an agent • Makes day-to-day management decisions without bearing any commercial risk • Gets paid in the form of a fee, generally linked to its performance
Duration of contract	• May be short, medium or long term depending on project needs
Benefits for Public Entity	• Promotes private sector innovation • Public entity focuses on core responsibilities • Delegation of tasks pertaining to day-to-day operations • Increased access to private expertise • Longer-term commitment (than service contracts)
Risks for Public Entity	• Requires constant monitoring of performance targets and contract objectives • Does not attract private finance directly
Points to Note	• More suitable to public utilities that have already reached a fair operational control and wants to take the service to a higher level • ToR should be objective and detailed. They should include KPIs and penalties for non-delivered targets • Public management should: (i) have robust control and leading skills; (ii) have financial capacity and (iii) provide working capital through regular payment to the private operator • Private operator must have control over the means which allow him to achieve performance targets • Capacity building component to be included in the ToR to ensure the sustainability of improvements • There should be a clear mechanism for day to day dialogue between parties and for resolving issues before they become disputes • Clear reporting requirements

[19] PPP toolkit- Water and Sanitation by Department of Economic Affairs, Government of India (https://www.pppinindia.gov.in/toolkit/water-sanitation/module1-oopmv-tmpmf.php?links=oopmv1b

Affermage-type lease contracts

In this type of contract, asset is leased, by the public entity to the private partner.[20] The public entity retains the responsibility for capital investment while contracting out the day-to-day activities of running the service to a private operator. The level of investment for operations and maintenance and system replacement, to be undertaken by the private sector, is determined on a case-by-case basis.

Role of Public Entity	• Assets are financed and owned by the public entity • The public entity is still responsible for capital expenditure, replacement of major works, debt service, tariffs and cost recovery policies • Transfers the public Profit & Loss to private operator • The lease is awarded to the highest bid (lease fee) and payment to the grantor is based on cost-plus • Affermage is awarded to the most competitive bid
Role of Private Entity	• The private entity is responsible for operation and maintenance and collects the tariff from consumers on behalf of the Public entity • May be asked to invest on behalf of the Public entity • May be asked to bring working capital to support day-to-day operations • Recovers costs, directly, or indirectly, from tariff collection from consumers
Duration of contract	• Medium to long-term duration, usually 10 to 15 years[21]
Benefits for Public Entity	• Full transfer of operation/management and commercial risk to the private operator • No need for the tariff to be set at 'full cost recovery' (CAPEX may be subsidized i.e. the public entity may choose to not to fully charge the customers to cover the capital costs) • Skilled management and significant potential for operational improvements • Improved quality of service and efficiency with economies of scale, innovation, and technology
Risks for Public Entity	• Subsidization of the sector in relation to the increase in tariff • Delays on public investment may compromise private partner's performance in meeting objectives • The separation of decision making between CAPEX and OPEX may create some problems as the private entity may focus only the OPEX recovery thereby not able to recover funds for future capital investment requirements • The low attraction of direct private finance • Setting up an unrealistic population/demand growth and service objectives

[20] PPP toolkit- Water and Sanitation by Department of Economic Affairs, Government of India (https://www.pppinindia.gov.in/toolkit/water-sanitation/module1-oopmv-tmpmf.php?links=oopmv1b

[20] ibid

Points to Note	• A clear contractual definition of Operation and Maintenance (O&M) and delineation of responsibilities with regard to replacement and renewal are mandatory • Mechanisms for identifying, carrying out and financing investments to be decided • ToR should include a disclaimer for all non-controlled variables, as well as penalties for non-delivered targets • Contracts should encompass a possibility to extend the contractual period to assimilate deviations that may occur • Proposals should be made with conservative forecasts and projections • The public sector needs to monitor the contract objectives and performance • There should be a clear mechanism for day-to-day dialogue between parties and for resolving issues before they become disputes • The operator can either bear the risk on volumes produced or on volumes sold • The public workforce may be transferred to the private developer under public personnel cession laws • Performance-based affermage-type lease contracts may be considered

Design-Build Operate (DBO), Build Own Operate Transfer (BOOT), Build Operate Transfer (BOT), Build Own Operate (BOO), Design-Build Finance Operate (DBFOT) contracts

- Design, Build, Operate (DBO) - The private partner is required to design, construct, and operate the facility for a specified period. The private partner is paid the cost of construction of the facility during the construction period and a service fee during the operations period to operate and maintain the facility
- Design, Build, Finance, Operate, and Transfer (DBFOT) - The private partner is required to design, build, finance, and operate the facility for a specified period. The private partner is usually paid a fee based on the services provided e.g. tipping for the quantity of waste accepted by a waste treatment facility. The financing risk is borne by the private partner.
- Build, Own, Operate and Transfer (BOOT) - BOOT is similar to DBFOT, except that the ownership of the facility is with the private partner for the duration of the concession, after which it is transferred to the public sector
- Build Operate Transfer (BOT) - In this type of contract, the private operator designs, finances, and builds infrastructure. Ownership of assets is assigned to the public sector; however, the private sector operates the project until service is delivered, and a suitable return has been earned
- BOO (Build Own Operate): In this case, the private investor retains ownership and complete control of the project. The private sector assumes all the risks with such a project[22]

Role of Public Entity	• Transfers to private operator operating and construction risk, plus design and finance risk • Responsible for determining the demand for the service being contracted and the size of the facility
Role of Private Entity	• Builds, owns, operates and may finance a specific new facility, rather than operation and further developments of an existing system • Is paid by the grantor a fixed monthly fee or a variable fee (per cubic meter delivered) or a mix of both • Optimization of infrastructure design and operating procedures

[22] Bracey, Najja. "Public Private Partnerships: Risks to the Private Sector." Gutman Conference Center USA, 15 Oct. 2006.

Duration of contract	• It depends on the time needed to cover the financial and operational costs • Contract period may vary from 3 to 30 or more years
Benefits for Public Entity	• Off-balance sheet financing of large facilities • Attracts private finance and accelerates construction • Transfers the risks of cost overruns and delays to the private sector • Transfers design risk to private operator that seeks a whole life costing approach
Risks for Public Entity	• Wrong forecasts in demand once public entity guarantees the demand • Funding guarantees may be required • No long-term risk transfer in case of technical challenges • Cost of re-entering the business if operator proves unsatisfactory
Points to Note	• Used for 'high tech' or cutting edge/pilot technology infrastructures, for investments in solving specific, concentrated problems (complex wastewater processing) and confined project areas (such as industrial cities) • Requires a strong public entity able to collaborate with Private Operator in integrating it into the overall system • Phasing of system is important to size the facility in line with demand growth

Hybrid Annuity Model (HAM)

Hybrid Annuity means that the government makes payment in a fixed amount for a considerable period and then in a variable amount in the remaining period. More recently, this model, which has been successfully implemented in the road sector is being tested in the sanitation space as well. The government realized that a large number of stalled projects are blocking infrastructure projects and at the same time adding to Non-Performing Assets (NPAs) of the banking system. In line with this the Hybrid Annuity Model (HAM) was introduced to rejuvenate PPP. Under this model, the government i.e. the ULB and the private partner share the cost of construction in the ratio of 40:60 respectively. The percentage of capital cost initially funded by the private partner is reimbursed in the form of annuity payments during the operation period. The HAM model is designed to reduce the financial burden on the private partner during the construction period and enhance the bankability of these projects.

Concession contracts

In this type of contract, private sector is responsible for construction (typically brownfield / expansions) and operations while ownership is retained by the public sector[23].

Role of Public Entity	• Assets are owned by a public entity and is entrusted to the concessionaire • Delegates to private operator risk of finance, design, construction, and operation • The fixed assets must be returned in the same (or improved) condition at the end of the concession
Role of Private Entity	• Has overall responsibility for the services (operation, maintenance, management, collection, and commercial), and capital investments for the expansion of services (including rehabilitation and replacement) • It is paid directly by the customer, based on the defined set of tariffs, generally related to consumption
Duration of contract	• Usually, 20 to 30 years (or more), depending on the level of tariffs, investment and payback period needed for the concessionaire to recover investment costs
Benefits for Public Entity	• Attracts private finance that may be important if public capital is a constraint • Faster initial investment plan • Technical, operational, collection and commercial risk are assumed by the private operator • Improves quality of service with economies of scale, innovation, and technology • If the tariff level ensures 'full cost recovery' and sustainability throughout the entire period of concession, the private operator may pay rent
Risks for Public Entity	• Tariff risk due to 'full cost recovery' concept • Possible subsidy from the grantor to ensure the sustainability of the project (if tariff affordability is compromised) • Public entities may be tempted to increase population and consumption forecasts in order to get lower tariffs
Points to Note	• Requires good legal framework • Both partners need to optimize investment and operations for the duration of the contract • The operator commitment must be in terms of results • Concessions need to be realistic from a perspective of performance, revenue, operational costs and maintenance • Conditions will change over a long period and concession contract should be reviewed at least every 10 years and preferably every 5-6 years in certain variables (fixed and known to all competitors during tender process) • Setting up a proper independent tariff regulation avoids sudden rate increases

[23] PPP toolkit- Water and Sanitation by Department of Economic Affairs, Government of India (https://www.pppinindia.gov.in/toolkit/water-sanitation/module1-oopmv-tmpmf.php?links=oopmv1b)

Points to Note	• ToR should include penalties for non-delivery or non-performance • Both ToR and proposals should be made with conservative investment plans, forecasts, and projections • The public workforce is usually transferred to the concessionaire under public personnel cession laws • The public sector needs to manage concessionaire and monitor performance • New trends rely on the combination of government and domestic loan financing rather than equity

Outright sale/divestiture

Outright sale/divestiture is a specific case of privatization of assets usually regulated by a government body (after divestiture it ceases to be a PPP). The public authority will receive a lumpsum payment for the sale of the asset and, from this time onwards, ends liabilities for the public entity. Here, the private owner may have a profit driven approach and hence a strong public regulator is advisable to guarantee affordability for everyone.

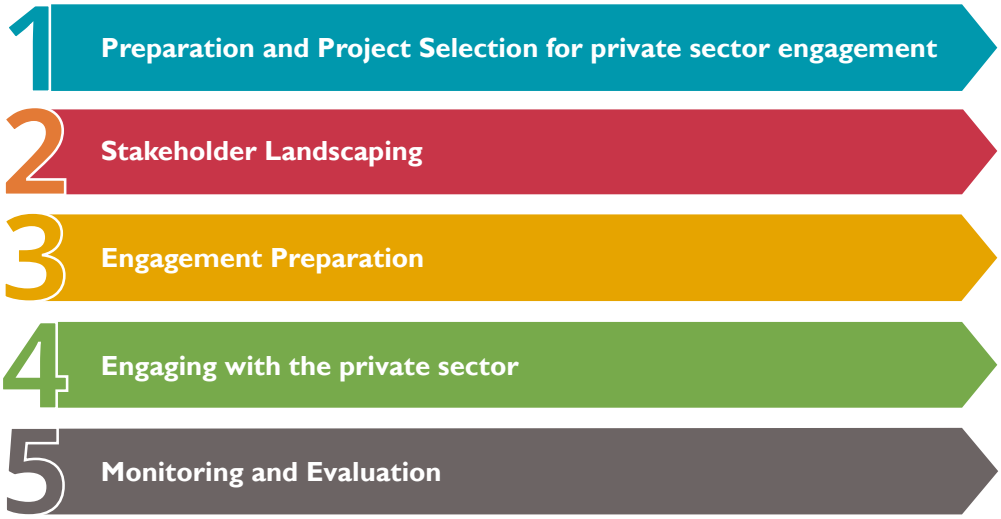
Role of Public Entity	• Buys and owns all or part of assets • Takes full responsibility for the services (operation, maintenance, management, collection and commercial), and capital investments for the expansion of services (and for rehabilitation and replacement)
Role of Private Entity	• Has overall responsibility for the services (operation, maintenance, management, collection, and commercial), and capital investments for the expansion of services (including rehabilitation and replacement) • It is paid directly by the customer, based on the defined set of tariffs, generally related to consumption
Duration of contract	• Unless a serious event happens, privatization is a deal for life
Benefits for Public Entity	• The authority will receive a lumpsum payment for the sale of the assets • No on-going liabilities for the public entity • Private entities may find it easier to obtain private long-term funding on capital markets
Risks for Public Entity	• Lack of acceptance or resistance by both internal and external stakeholders • Excessive benefits for the private operator may occur if public authority isn't vigilant or doesn't gather sufficient information • Loss of control over the long-term interest and sustainability of the sector
Points to Note	• Sectoral reforms and legislation implementation prior to asset sale to enforce performance guarantees • Transparent indicators to identify non-compliance • Need for a strong regulator for tariff setting, performance monitoring, and general oversight and clear restrictions on the sale of assets required for regulated business

8.1 Forms of PPP engagements

When engaging with the private sector ULBs are often faced with concerns such as:

- Which company should we work with?
- How do we formalize the engagement?
- What are the steps to implement our engagement successfully?

The steps to engage with the private sector is as illustrated below:



8.2.1 Preparations and project selection for potential private sector engagement for developing PPP projects

This step is the foundation for PSE and seeks to address:

- What are the key problems/challenges that the ULB is struggling to solve for?
- What kind of projects can be implemented through PPP to address these specific identified challenges?
- What private sector entities are available to address this objective by implementing the identified project?

In the step, ULB officials will need to:

- Define the problem and key objective, and scope out the potential areas for PSE
- Hold a public-private dialogue to discuss identified opportunity, constraints and actions to address barriers including the most appropriate contracting approach for the project scope and objectives
- Discuss pros and cons of PPP

At the end of this stage, a decision must be taken on whether a PSE is the best option for the problem in question - if yes then the key officials involved in the exercise can proceed with the next stage that is 'Stakeholder Landscaping'.

8.2.2 Stakeholder Landscaping

In this step, stakeholder mapping is undertaken to get information on all available private partners, investigate, assess and understand their capacities, and, identify the best fit for the proposed project to ensure its success. The key outputs of this step include identifying key stakeholders, level of interest, and approach for engagement.

8.2.3 Engagement Preparation

This step involves identifying needs, collecting information, and defining the type of engagement. Some of the key steps in this phase will include:

- Identifying the competencies necessary to manage the PPP and appointment of a focal point of contact
- Collecting information and asking the right questions.
- Defining the type of engagement to initiate into one of the three areas: interaction, dialogue, or agreement
- Developing a SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) action plan for PSE

The key outputs of this stage against each of the steps identified above include:

- Private competencies identified, mapped and documented; the PSE focal point is identified
- The PSE team is well-informed and understands barriers in the project that the PSE can address
- The PSE team has identified the type of engagement

Some of the key considerations in this stage include:

- The PSE team could consider engaging a 'PPP Advisor' as a trusted third-party
- A PSE Unit could be established, depending on the level of engagement expected
- The collection of information should be mapped to the key barriers identified for which PSE is sought. The action plan developed should include an estimated costing/ suggested financing mechanism

8.2.4 Engaging with the private sector

This is the last and most important stage that has been divided into two phases:

- Interaction with the private sector - which involves the communication of information specific to the proposed project. In this phase, both parties should share information, concerns and challenges, leading to development of a successful project. Discussions should be well-documented and shared between parties afterward
- Agreement (MoU or Contract) -This is the most critical step while engaging with the private sector and has been broken down further into smaller steps, including:

    - Understanding MoU or Contract procedures and identifying who needs to be involved- Herein the PSE team should understand PSE engagement mechanism for the concerned project
    - Input into the procurement department's Terms of Reference (ToRs) for Request for Proposals (RFP) including evaluation criteria and proposed KPIs. ToRs for RFP should clearly explain the services desired
    - Define and publish the process of engagement with all the steps and respective requirements clearly laid out
    - Host a meeting for bidders (private partners) to answer questions and meet all shortlisted companies together for fair and equal dissemination of information
    - Manage questions, feedback, etc., during the private sector consultation. Private entities should be well-informed about the project and should be able to ask questions in a transparent manner. Questions should be logged and acknowledged as they are received

- Receive proposals from private sector organizations. The government should receive a sufficient numbers of quality proposals for a competitive bidding. Proposals should be logged and acknowledged as they are received
- Review and evaluate proposals to select the private partner. Reviewers should have consistent criteria and scoring rules for the review to ensure a genuine and transparent comparison of proposals
- Award notice letter sent to the awarded party
- Prepare and submit an MoU/contract for the partner. In addition, a Scope of Work (SoW) can be submitted to show the milestones, deliverables, expected timelines and payment plan including cost breakdown. A monitoring and evaluation plan should also be included. The contract should then be submitted to the service provider for signing
- Communication of award to stakeholders. This can be done in a meeting or through written communication
- Review operational activities such as SOPs, ToRs, job descriptions, governance, etc. and provide inputs into the implementation plan. Implementation of a project or program begins as per mutually agreed plans and documents. Implementation is the responsibility of both parties, ensuring that the expectations set out in the contracts are executed appropriately. There may be a need to allow some flexibility during this period, especially if both parties are working together for the first time and since the operational aspects of the engagement may need to change to accommodate changes in the environment
- Provide input into implementation plan - Put in place a plan to monitor and review contract/ supplier performance on a periodic basis. The performance should be reviewed against agreed-upon KPIs and other items within the contract agreement. Feedback from other stakeholders may be helpful. The review is best-done in a face-to-face format and recording of the performance review is advisable. Timely advise and action for mid-course correction should follow these reviews

8.2.5 Monitoring & Evaluation

Once the private partner has been selected and has been initiated work, it is essential to ensure periodic monitoring of their work on the ground to track progress against the set objectives. This stage should ideally include:

- Creating an M&E and a governance and review framework to track success
- Regular monitoring and tracking through periodic review meetings/assessments, identifying bottlenecks and deliberating on solutions for course correction.

M&E planning should start early as the project scope is being formed. Effective M&E should be a joint responsibility of the government and the private sector partner, which requires pre-planning and negotiation before any formal agreements are made.

In this context, USAID's Collaborating, Learning and Adapting (CLA) approach can be adopted to enhance the effectiveness of the M&E process. CLA involves strategic collaboration, continuous learning, and adaptive management. Broadly it includes collaborating intentionally with internal and external stakeholders to share knowledge and reduce duplication of effort, learning systematically by drawing on evidence from a variety of sources and taking time to reflect on implementation and applying learning by adapting intentionally. CLA acts as a force multiplier, making the government's work better coordinated and more efficient with respect to the private sector. It is essential to understand that CLA is not a separate workstream—it should be integrated into existing processes to strengthen the discipline of development & effectiveness.

8.3 Mitigating existing challenges in PPP projects

The existing sanitation rules encourage ULBs to partner with private companies to construct, operate and maintain sanitation facilities and associated infrastructure. While sanitation has recently witnessed increasing participation from private players, there are existing regulatory and sectoral challenges that impede private sector investment in these sectors.

8.3.1 Inadequate risk allocation in PPPs

The primary reason for the limited success of PPP models in the sector is the absence of balanced PPP contracts with appropriate risk-sharing between the ULB and private sector companies. Specific issues include:

- Payment delays not appropriately addressed
- ULBs limited financial resources lead to payment security problems
- ULBs inability to provide land in time for setting up of treatment facilities
- ULBs general lack of capacity to meet contractual obligations
- Delay in the grant of approvals
- Ineffective implementation of rules
- Limited market for the byproducts of waste processing

The above are some reasons why investment in the sector is viewed as high risk by private entities. To ensure the success of PPP projects in the sanitation sector, the allocation of risks between ULBs and private operators needs to be revisited and key project risks should be assumed by the party best placed to manage and mitigate these risks. Indicative allocation of risks depending on the contract structure is as shown in the table below:

Type of Risk	Risk Allocation		
	Service contract	Management Contract	BOT/Concession
Design Risk	ULB and/or state agency	Private developer	Private Developer
Construction Risk	To be borne by both the parties as per the provision of the contract	To be borne by the private developer other than the asset transfer delay	
Operation Risk	To be borne by the Private developer other than the change in scope of the project by the ULB and/or state agency		
Revenue Risk	ULB and/or state agency	Partly by ULB and Private player as per the provision of the contract	
Financial Risk	ULB and/or state agency	Private developer	Private developer
Environmental Risk	ULB and/or state agency	Private developer other than the pre-existing environmental liability to be taken care by ULB and/or state agency	
Force Majeure Risk	To be borne by the parties as per the provisions of the contract		

8.3.2 Ensuring adequate payment security

Payment delays and the absence of robust payment security mechanisms are some of the most significant challenges for raising capital for sanitation projects and the main reason for the limited interest of banks and financial institutions to lend to projects in this sector. To mitigate this issue and enhance the bankability of projects, ULBs need to provide adequate payment security to the private sector players. For instance, this could be in the form of escrow arrangement (with the account being funded with the tipping fee for 3-6 months). A tipping fee is a fee paid by the ULB on a per unit fixed basis to the private operator to handle one or more components of the waste or for the management of the landfill facility. This serves in helping with the maintenance and other operating costs of a processing facility or landfill. State governments could also consider setting up a payment security fund to backstop payment obligations by ULBs.

At present ULBs fund their sanitation activities through a combination of government grants and internal revenues e.g. property tax. Since the collection of property tax is poor, ULBs are unable to allocate adequate funds for these activities. ULBs should make it mandatory to levy user charges from citizens for the provision of public sanitation services.

8.3.3 Excessive focus on cost than quality

One of the challenges to PPP projects is the lack of understanding to assess the technical and financial needs of a project and to conceptualize and structure the project. This has resulted in unviable contracts and inadequately defined technical specifications which come in the way of project implementation. In such a scenario, ULBs typically award projects based on the lowest quote received. Cost-based selection criteria fail to recognize the importance of technical expertise and leads to the project being awarded to inexperienced players which affect the quality of services. The solution to this would be to adopt the Quality and Cost based (QCBS) system where the technical ability of the player is given weightage. This would result in improving the efficiency of service delivery and sustainability in the long run.

8.3.4 Standardization of bid documents/contracts

Lack of standards in existing bid documents has resulted in a higher degree of uncertainty among private sector players. While the one size fits all model will not work, model bid documents for PPP contracts may be issued at the center or the state level which clearly specifies the PPP model adopted, user charges, payment security, rights of lenders, compensation, termination, etc. This would also provide a higher degree of certainty and comfort to project sponsors and lenders improving the bankability of projects

8.3.5 Absence of Performance linked payments

One of the major reasons for failure in private sector performance is the lack of monitoring and the non-existence of linkages between performance and payments. This can be mitigated through the introduction of:

- Output linked payment: Most often the payment to contractors is linked to per unit of input, rather than output. Not only do input based payments provide opportunities to private players to inflate input estimates, but it is also harder to monitor inputs. Going forward, cities can improve private player incentives by focusing on payment on observable outputs. This will also help enhance the possibility of better capturing private sector efficiencies in service delivery.
- Specifying service levels: Current management contracts lack a description of minimum levels of acceptable performance. For example, contracts for the cleaning of community toilets specify that contractors will be paid per seat cleaned. However, there is no specific understanding of the level of cleaning expected (e.g., no waste matter on or around seats). Instead, contracts often specify inputs (e.g., use of phenyl for cleaning), which are easy to see, but its outcome is difficult to ascertain. Contracts should indicate service levels expected from private players, to enable ULBs to demand and receive higher service standards. The key is to define service levels that can be observed and monitored.
- Introducing performance-linked contracts: Once ULBs start monitoring outputs and service levels, performance-linked contracts can be enforced through payment incentives and penalties tied to observed outputs. For example, in the case of cleaning for community and public toilets, private players can be offered bonus payments beyond the standard rates for extraordinary performance based on reports filed by sanitary inspectors. Conversely, penalties can be imposed based on the number of unanswered consumer complaints.

8.3.6 Lack of clearly defined and practical monitoring processes

Current monitoring processes are cumbersome and difficult to adhere to. In most cases, sanitary supervisors are instructed to sign off each day on every activity performed by the private sector. This is often not possible, given the range of responsibilities that the sanitary supervisors hold. ULBs can leverage ICT based monitoring systems and community monitoring systems for additional insight into performance. Community monitoring systems could be in the form of a grievance redressal system or a regular feedback mechanism.

8.4 Risk Identification, Analysis and Mitigation

Risk identification is a process that starts with the preparation of the PPP business case and is a key component of any PPP project. Risks are typically allocated to the party that can most efficiently manage them and at the lowest cost. In PPP arrangements, the private sector has an incentive to manage risks as efficiently and innovatively as possible to control costs[24]. The creation of a risk-sharing arrangement is not easy as each project is unique, and a one size fits all approach cannot be applied. All parties to the PPP arrangement should consider the following during the contract preparation phase:

- Risk allocation should be consistent with market conditions and expectations (also based on outcomes of previous projects) in order to minimize tender and closure costs,
- Risk allocation should be mindful of the potential risks to both sides that may come up during the life of the project, and
- Flexibility should be incorporated into the risk-sharing arrangement so that both parties can deal with unexpected external shocks during the life of the project[25]

While risk allocation usually occurs at the contract negotiation stage, risk identification transpires well before the private sector firm or consortium and public sector sign any contract. Before a proposal is issued, the public sector should have done its due diligence via a feasibility study/preliminary risk analysis/market assessment. Such an evaluation should estimate the types of risks the public sector could potentially bear and what risks should be shifted onto the private sector[26]. Likewise, to increase its competitiveness, the firm or consortium should demonstrate in its response that preliminary risks associated with the proposed PPP arrangement have been identified with a strategic plan to manage these risks. At the earliest stage possible, all actors should ensure that risk assessment as well as quantification of the associated costs is completed and documented. Both parties need to get aligned and understand the project risks and mitigation plans and their cost implications.

8.4.1 Risk Analysis Process

The risk analysis process seeks to identify all key risks that could impact the success of the PPP. The key steps in risk management in a PPP include:

- Identify and understand the risk
- Allocate the risk to the party which would be best able to undertake and manage it, considering the party's ability to

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[24] Bracey, N. and Moldovan, S. (2006). Public-Private-Partnerships: Risks To The Public And [24 2] Private Sector. 6th Global Conference on Business and Economics., Boston, Massachusetts - http://www.gcbe.us/6th_GCBE/data/Public-Private-Partnerships%20Risks%20To%20The%20Public%20and%20Private%20Sector.doc

[25] ibid

[26] ibid

    - predict changes in the relevant risk factor
    - influence or control the risk factor
    - control the impact of the risk on the project, and
    - diversify or absorb the risk
- Check acceptability of risk – This process needs to be fair and equitable. It should be in close discussion with private entities
- Assess the probability and the impact
    - Assign a monetary value to the impact for each risk classification (What it will cost to correct or replace?). The value at risk is equal to (Monetary Value of Impact x Probability of occurrence)
    - Mitigation measures can reduce the value at risk; however due consideration must be given to the cost of mitigation i.e., mitigation is only justified if the value at risk is more than the costs involved
- Consider interrelationships and design the PPP arrangement to achieve the best allocation of risks and responsibilities; the risk assessment process has an important bearing on the selected preferred PPP structure
- Consider risks, impacts and mitigation strategies and their implied costs

Such initial risk analysis would need to be completed with a risk management strategy. For example, please refer to the table below:

Risk Management						Risk Management	
			Probability			Score	Risk management strategy
			High	Medium	Low	9	Action required
			3	2	1	6	Contingency plan prepared
Imact	High	3	9	6	3	3,4	Review and address
	Medium	2	6	4	2	2	Monitor
	Low	1	3	2	1	1	Accept and ignore

8.3.6 Lack of clearly defined and practical monitoring processes

Current monitoring processes are cumbersome and difficult to adhere to. In most cases, sanitary supervisors are instructed to sign off each day on every activity performed by the private sector. This is often not possible, given the range of responsibilities that the sanitary supervisors hold. ULBs can leverage ICT based monitoring systems and community monitoring systems for additional insight into performance. Community monitoring systems could be in the form of a grievance redressal system or a regular feedback mechanism.

8.4.2 Types of Risks

The different type of risks, definitions, and subcategories under each risk type are listed below:

Type of Risk	Definition	Sub Categories
Political Risk	The risk that the government changes in policy and legislation will affect the costs/viability of the project to the private sector player	• Legislative • Political opposition and/or political change • Political interference • Institutional restructuring
Regulatory Risk	The risk of regulatory change and the undue interference by regulator and/or government on project operations	• Compliance with economic regulations, corporate governance guidelines • Compliance with regulations around water and sanitation sector • Compliance with quality standards • Compliance with operating licenses, levies • Compliance with legal requirements
Investment Risk	The risk of failure to meet performance specifications; and/or time overruns; the risk of obtaining necessary permits, licenses and access to land in a timely fashion; not achieving projected ROE (Return on Equity)	• Preparation – faulty design • Preparation – site availability • Construction – site conditions • Construction – site permits • Construction liability risk • Construction – subcontract failure • Construction – cost overruns/ penalties • Construction delays – loss of revenue • Long term viability of investment decision
Operational Risk	The risk that operational failures or costs and/or maintenance costs are greater than anticipated	• Demand risk – loss of revenue • Demand vs supply – insufficient capacity • Service availability – condition of existing fixed assets • Availability of supply conditions (power, water) • Compatibility of assets condition with performance targets • Inadequate control of OPEX • Safety issues & Vandalism

Type of Risk	Definition	Sub Categories
Commercial Risk	The risk that the projected revenue will not materialise; or the project costs increase; demand risk; subject to change over the life of a project	• Inadequate billing • Non- payment by clients/customers • Non-enforceability of coercive measures for non-payment of charges • Concentration of large customers
Financial Risk	The risk associated with cost and availability of funds for the project. Also includes: risk of change in interest rate, inflation rate, foreign exchange rate etc.	• Non-mobilization of commercial debt on the merits of the utility • High existing debt of utility • Limited donor funds • Disbursement risk • High interest rates • Revenue collection efficiency • Liquidity risk • Increase in operations and maintenance costs • Inflation- lower purchasing power
User Charges/Tariff Risk	The risk of being unable to meet O&M costs with current user charges/tariffs; non adequacy of user charges/tariffs levels and structure	• Non-adequacy of user charges/tariff and structure • High inflation – lower purchasing power- utility unable to meet O&M costs with current user charges/ tariffs • Adverse political influence – user charges/tariff review
Environmental and Social Risk	• The risk of harmful effects (including drought and climate impact) to human health or to ecological systems resulting from exposure to an environmental stressor • The risk of general public backlash or dissatisfaction with the project; social protest and boycotting, and inappropriate stakeholder influence (vested interests)	• Non- compliance with environmental standards • Lack of climate resilience • Inadequate use of technology • Lack of social connection policy • Droughts/Climate Impact

RISKS THAT COULD DRIVE THE PRIVATE PARTNER AWAY

The following is a list of commonly encountered risks that are bound to drive the private partner away if left unaddressed:

- Political instability
- Unstable economic environment
- Political unwillingness to adjust the tariff regularly
- Lack of law enforcement
- No or limited possibilities to take dividends i.e. return to the private sector shareholders.
- Lack of track record or several failures or cancellations in DBFO / BOT project development
- Lack of strong rationale for DBFO / BOT format vs. DB / DBO
- Lack of trust in the bidding and evaluation process
- Record or fear of severe currency devaluation
- The project should be limited to one object;A project including too many different technical aspects requiring too many expertise will generate interface risks, and difficulty to set up strong consortium expertise
- Commercial risk/affordability issues: Tariff not affordable and/or lack of efficient tax collection system
- Absence or insufficient guarantees
- Overall unbalanced risk allocation
- Abusive termination clauses
- The inability of the local domestic market to provide some funding
- Arbitration process with a record of time-consuming judgments
- Non-availability of a local adequately trained labor force

8.4.3 Risk Mitigation

Risk mitigation measures can be drawn up by using the format below. These can then be included in the contractual agreement with the private entity.

Risk Type	Risk Description	Potential Consequence	Who bears the risk	Risk Mitigation
Example 1: Design, technology, and construction	• Failure to meet performance specifications • Cost and/or time overruns; Failure/delay of obtaining necessary permits, licenses, and access to land	• Delays in complying with service objectives • CAPEX and/or OPEX overruns.	• In Concessions, BOT, DBFO): Private Operator bears the risk for new facilities and further developments of an existing system	• PPP agreement to allocate the responsibility of timely land expropriation and securing necessary permits or licenses to the government entity • PPP agreement to include a performance bond and liquidated damage clause

Risk Type	Risk Description	Potential Consequence	Who bears the risk	Risk Mitigation
				• Pass the on-time / on-budget completion risk to the construction subcontractor by: i. including joint liability in the construction subcontractor agreement. ii. Including a fixed price in the construction subcontract – turnkey / fixed price iii. Including a clause of back-to-back responsibility for penalties that may come from PPP contract due to delays and/or non-performance • Involve extended insurance policy to protect assets and loss of profits
Example 2: Social	• General public backlash or dissatisfaction with the project • Increasing lack of public acceptance and political confusion with 'privatization'; • Inappropriate stakeholder influence (vested interests)	• Social protest and boycotting • Operational difficulties in performing the contract. • Delays • Cost overruns	• The public entity has overall responsibility for social risk, unless in some commercial respects, if duly identified in PPP agreement	• Promote public involvement from the beginning • Promote campaigns around the advantages and value-add after deciding to use a PPP

The transfer of risk is a feature in PPP, and it is vital to recognize that appropriate risk-sharing or risk transfer is a critical factor for PPP to be successful. It may be alluring for the public sector to be prudent and risk-averse; however, decision-makers in both public and private sectors should bear in mind that risk and opportunity go hand in hand. Transferring the risks to the other partner could reduce the total benefits from a PPP if the situation is not sustainable. The best approach would be to develop a partnership wherein the risk element is allocated to the party best able to manage it.

8.4.4 Renegotiations

At certain times during the implementation phase, failure to mitigate risks or unexpected changes in local conditions or circumstances may raise the need for renegotiation of the PPP agreement to realign risk-sharing. It is more common for PPP projects to be renegotiated rather than to be outright canceled.

There are, however, other situations where renegotiation is necessary, despite both parties' best efforts to avoid it. When such cases occur, either the public or private sector identifies either a shift in risk that was previously underestimated or a change in the perceived benefits. The longer the duration of the project, the more likely this is to happen. Renegotiation can be expected for at least 50% of PPP arrangements that reach the financing stage. The following are some examples of specific circumstances that can shift risk and perception of benefits.

- Difficulty in meeting project goals and targets due to outside circumstances
- The public sector has difficulty or lacks commitment to deliver its end of services so that the private sector can adequately do its job
- The poor or other members of civil society perceive their benefits reduced after some time, and therefore, make additional demands
- Delays in starting up the project (though no fault of the private sector) leading to losses
- Rapid depreciation or appreciation of local currency leads to unexpected excess profits or losses for the private sector entity
- Change of government sometime during the life of the project
- Revenues are too low to cover costs
- Encountering unforeseen structural problems in engineering projects after the project has already started

While renegotiating, both the private sector and the public sector, be it at the national/ministerial level or the municipal level, must agree to the terms of the contract/arrangement before any work of the PPP begins. The terms of agreement that are reached must be satisfactory to all parties involved in the negotiation- this is the first stage where both parties try to share expected losses and gains as equitably as possible. This, however, needs the assistance of mediators to facilitate the negotiation process.

There should also be flexibility left in the contract to ensure that both parties can respond efficiently to unexpected problems and shifts in conditions as the project moves along. During the initial phase of negotiation, it is especially important to create an atmosphere of trust and transparency. This will make it easier to manage renegotiations when necessary. Because of the likelihood of unforeseen circumstances arising during the life of a medium- to short-term PPP arrangement, both parties of a contract should consider incorporating a renegotiation clause in the original PPP contract. The contents of this clause should be discussed during the negotiation stage. The clause should first specify what acceptable conditions would qualify either side to initiate renegotiation discussions and what the renegotiation process would look like and what assistance would be used if an agreement could not be made. Contracts always have arbitration clauses, and in some cases, it might be more beneficial to have a thorough arbitration clause, outlining detailed procedures in place of a renegotiation clause.

9. Role of Public sector in enabling Private sector engagement

The public sector needs to build an enabling environment and a conducive business climate for the private sector to effectively and efficiently participate in sanitation service delivery. The table below defines the role that the public sector can play in encouraging private sector participation.

8.1 Forms of PPP engagements

Traditionally in India, PPP's in Sanitation be it for the construction and maintenance of a Sewage Treatment Plant or a Composting Plant or Waste to Energy plant has been implemented in a combination of the following ways:

Public Sector institution	Roles and Responsibilities
Central Government	• **Policymaking** - Develop enabling policies to enhance activities in the sanitation value chain that require private sector participation • **Technical support** - Assist line ministries and local governments in developing projects • **Procurement Support** - Empanelment of private sector players to ease the procurement process for ULBs • **Identifying projects** - Identify projects that can be structured as public-private partnerships (PPPs), or assist local governments in identifying suitable projects[27] • **Financing capital investments** - Provide capital investments through government budget allocation[28] • **Collation of best practices** - Collation of PSE best practices to encourage ULB to uptake services of the private sector for various activities in the sanitation chain • **PPP framework development and implementation** - Develop a PPP policy, institutional, legal, and regulatory framework. Assist in the implementation of PPP projects, which could include project appraisals, PPP structuring, and contract design, PPP procurement process, and PPP contract monitoring[29] • **Encouraging private and social investors, as well as foundations investment in initiatives, particularly early-stage innovations** - Through technical assistance, national governments and international donors can play a major role in increasing access to financing and catalyzing PSE
State Government	• **Assistance with identification of opportunities for private sector engagement** - State authorities can assist small ULBs with identifying opportunities for leveraging private sector capabilities through capacity building workshops

[27] Ndaw, Mouhamed Fadel. "Private Sector Provision of Water Supply and Sanitation Services in Rural Areas and Small Towns: The Role of the Public Sector." openknowledge.worldbank.org. World Bank Group, Mar. 2016. Web Link: https://openknowledge.worldbank.org/bitstream/handle/10986/23999/K8724.pdf?sequence=2
[28] ibid
[29] ibid

Public Sector institution	Roles and Responsibilities
	• **Creating a transparent process for the empanelment of private players** - The state can institute a clear, transparent process for cities to engage with the private sector locally
Urban Local Body	• **Provision of land for setting up a processing facility for sanitation activities** • **Development of favorable terms of engagement** • **Finalization of PPP contracts with due emphasis on both quality and cost** • **Asset ownership** • **Facilitating the provision of services to citizens**

10. Innovative Financing Mechanisms in Sanitation

Bringing about change at the pace and scale needs looking beyond traditional approaches of financing to discover new solutions that can bring about large-scale impact.

In sanitation, a key impediment to the construction of toilets at the household level is a lack of up-front money. While a government subsidy of INR 12,000 - 15,000 per household is available, this is disbursed only after the construction of the toilet is complete. Many households find it difficult to provide financing upfront and this can be tackled through the provision of credit financing options which can directly influence a family's choice to invest in sanitation facilities and convert this demand into a purchase. Credit financing models offered by private entities also promote accountability among the borrowers. It has also been observed that the usage of toilets is higher when the user has been involved in the design and construction of the toilet. Being involved in the design and borrowing for construction of the toilet results in sustainable usage when compared to usage patterns of consumers that have received free toilets constructed by a third party.

Credit financing is especially needed in cases where:

- Households are not yet ODF- those with dysfunctional toilets, toilets that need up-gradation, not eligible for incentives, etc.
- Households in ODF Cities that need retrofitting/up-gradation of toilets, the addition of bathing facilities, water connection, etc.
- Establishment of enterprises that work in the sanitation supply chain, among others

There are several models in the market for household sanitation lending. These include:

- Credit Linkage to SHGs
- Direct Lending to SHGs
- Individual Lending
- Bulk lending to business correspondents

Several other innovative financing mechanisms are available for sanitation. These include:

Impact Investment

Impact investment can be defined as investments made into companies, organizations, and funds to generate social and environmental impact alongside a financial return. Impact investing can be a vehicle to fund, catalyze, and scale approaches that can improve millions of lives at the bottom of the pyramid. India has an opportunity-rich environment and is emerging as one of the most attractive markets for impact investing worldwide.

For instance, to expand funding for sanitation and to unlock additional sources of strategic capital, a possible model could look at Corporate Social Responsibility (CSR) funds to be leveraged for approved uses in the impact-investing ecosystem. Private sector support can go a long way in increasing the availability of small, affordable loans that can scale sanitation lending through microfinance partners while growing a pipeline of enterprises that manufacture and distribute sanitation goods and services to unserved and underserved sections of the population.

Blended Finance

- Blending is a tool used by development partners to channel finance into impact investments
- Impact investors use blended finance if they leverage additional finance from financial service providers for development while expecting a financial return

Key Features

- Catalytic nature
- Contribution to development results
- Generation of financial returns

Types

- Blending finance from different sources - Public & Private
- Blending of different types of finance, using a variety of blending instruments (grant/non-grant) e.g. Guarantees, currency hedging, political risk insurance
- Blending of finance with different purposes (development/profits)

Payment by Results/ Results based Finance

Instruments that pay for profit service providers or investors for development results achieved, based on robust verification

Development Impact Bonds (DIBs)

A tool to encourage impact investor to provide upfront risk capital to impactful projects involves a service provider, investor, outcome payer and evaluator

Private Sector Engagement through Corporate Social Responsibility (CSR)

The Companies Act 2013 in India has made it mandatory for large corporates to devote at least 2% of their profits for CSR. This will provide much-needed funds for financing household sanitation. Corporate investment in India is mostly in the space of sanitation and covers the following areas:

- Support hardware interventions in the sanitation value chain - this includes creating or supporting the construction of toilets, the operation, and maintenance of sanitation facilities and other related activities pertaining to solid and liquid waste management
- Support software-related programs that look at creating awareness and undertaking activities that influence socio-cultural attitudes and behavior.

The key drivers for corporate investments in sanitation are:

- **Strategic interest** – These include companies that have relevant products or services (FMCG, Pharmaceutical, Healthcare) – such as soaps, detergents, medicines, and have a marketing or business goal in addition to on-ground impact. Such companies may be open to partnering with other players to create collaborative WASH programs. Another set of companies include Mining, Manufacturing, Oil & Gas that invest in comprehensive programs which benefit communities around their areas of operation.
- **Impact oriented companies** – This includes companies that have an interest in replicating or scaling existing programs that have reported high levels of impact. They may also wish to invest in innovative sanitation models. These include Banking Financial Services and Insurance (BFSI) companies or those in the service industry.
- **Catalytic competencies** –These include companies that seek to leverage their core competencies to execute strategies for change, e.g. Media companies with specialized programming, IT companies developing products or monitoring tools, etc.

The flow of funds through CSR investments can be ensured by making knowledge on various aspects of the sanitation value chain accessible to corporates, listing out potential projects for investment, making accessible a list of NGOs or partners for on-ground implementation of CSR projects, streamlining tools and methodologies for impact measurement important for CSR reporting and issuing technical advisories that clearly outline areas for CSR investments for WASH. All of this can be done by creating a 'CSR Marketplace'- an online platform for corporates, social enterprises, and NGOs to engage and

interact with one another, to gain insights about the need and demands of the sector enabling long-term partnerships towards the cause of sanitation. Such platforms have the potential to drive large scale social impact while helping the government achieve targets set under the mission.

Case Study: Reckitt Benckiser's (RB's) Dettol Banega Swachh India (BSI)

Reckitt Benckiser's (RB's) Dettol Banega Swachh India (BSI) is an innovative approach that aimed to improve the health status of 100 million people by 2020. Its initiatives are bundled under four key areas: behaviour change communication (BCC), product access, capacity building and infrastructure creation, operation and maintenance. The company is making 200 villages ODF by using advocacy, communication and social mobilisation targeted towards natural leaders, faith leaders, front line health workers (Accredited Social Health Activists and Auxiliary Nurse Midwives) and mothers. The project was rolled out through Jagran Prakashan India Limited's social arm, Pehel. A significant element of the BSI programme - actively supporting SBM - is the Dettol Schools Hygiene Programme. This three-year education initiative helped positively change hygiene behaviour. Comprising 15 lessons per annum, it is available in both online and offline formats. The programme is currently being rolled out directly to 10,000 schools in India plus another 100,000 schools across the country in partnership with state governments.

Sanitation as a business

An extremely sustainable model of financing would be if companies could make a return on their investment in sanitation. That is a significant reason why profitable ventures in this sector have become increasingly common across developing countries in Asia and Africa. It incentivizes companies to get involved in sanitation above and beyond their contributions towards their corporate social responsibility which often limits their expenditure to a small percentage of their profits. Profitable business models would enable larger-scale investments and a reduction of the financial burden on the government to address sanitation issues across the country.

Incentivizing entrepreneurs and established businesses

There are several ways in which businesses (new or established) can be incentivized to invest in sanitation. This includes providing:

- **Supporting framework:** There must be little to no barriers of entry for entrepreneurs or businesses wanting to invest in the sector. Possible barriers could consist of unavailability of land, lack of transportation options, necessary permits or licenses or road connectivity. The provision of essential services and an encouraging business atmosphere in the state are some essentials to attracting private investment.
- **Financial Incentives:** Financial incentives like availability of cheaper land, tax cuts or benefits, subsidized services from the government may be considered to promote companies to cut through any entry barriers to investing in the sector.
- **Encouraging start-ups:** Additional incentives may be provided for start-ups and small businesses such as low-interest loans for sanitation start-ups and assistance in capacity building/training to encourage new ventures in the sector.

- **IEC campaigns:** Currently, there are few financially viable business models of significant scale in the country. Case studies of such models from other countries or tier 2 or tier 3 urban towns in India may be advertised and promoted targeting private companies. Campaigns promoting the positives of setting up business ventures in the field of sanitation should be run to spread awareness regarding the same.

This section provides two case studies that exemplify that profitable ventures in the sector are indeed possible.

Case Study: Ikotoilet – Kenya

Ikotoilet was a concept started in 2007 as a social enterprise and is a product made by Ecotact. Before the idea, there were unusable bathroom facilities that were being used for drugs, robbing and vandalism. Most people were defecating in plastic bags and disposing them at will. Ikotoilet is clean, comfortable and hygienic places for people to use. There are full bathrooms with multiple toilets, showers, and sinks that provide clean water and soap.

For a price of only KES 1, the people of Kenya get to use an extremely clean public loo. In order to expand the concept of going to a toilet to socializing, convenience stores were developed where people could buy food, drinks and other products as well as visit salons and get a haircut. Within just three years, they had 10 million customers with an average of 30,000 customers per day in 50 toilets installed. The toilets used waterless terminals, converted human waste into biogas for cooking fuel and fertilizer for community gardens. The concept has been so successful that they are now looking at expansion into 4 other African countries and ultimately to the entire continent.

Sanitation, as a business, could also look at the collaboration between different public and private actors. This includes:

- Community institutions such as SHGs as opinion leaders/motivators, etc.
- Entrepreneurs to adopt the project for suitable income-generating opportunities
- Micro Finance Institutions (MFI) - To provide loans to individual households and enterprise loans to the entrepreneurs for setting up their businesses
- Financial Institutions/Banks - To provide funding to the MFIs/SHG federation for investment in the sector
- Communities as beneficiaries to the services
- The case study presented below shows how the interaction of various stakeholders in the sanitation ecosystem can contribute to a scalable business model

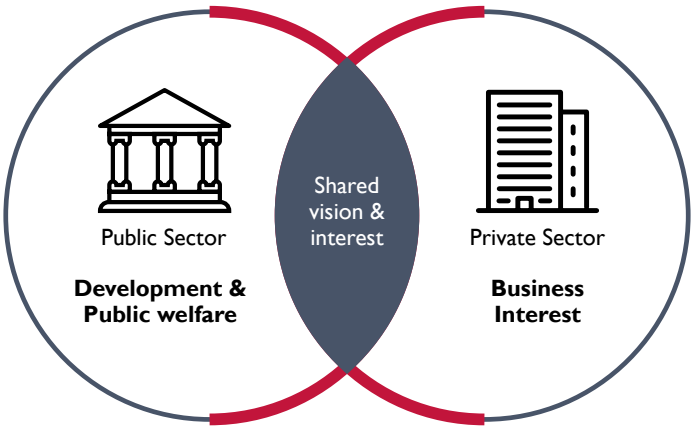
Case Study: Domex Toilet Academy (DTA)

Domex Toilet Academy is a unique market-based, entrepreneurial model where community entrepreneurs are trained to offer affordable toilets for the local communities while orienting them to better sanitation and hygiene behaviour. After the toilets are constructed, they sell sanitation products to the communities to sustain their business. They are also responsible for checking the usage and maintenance of toilets. In partnership with the social enterprise eKutir Management Services Pvt. Ltd., the DTA programme identifies and selects microentrepreneurs to be trained in executing the project in their local communities. These micro entrepreneurs set up Sani-Shops to supply and build affordable toilets for their local communities. Training provided to the micro-entrepreneurs covers finance, operations, human resources, and procurement. In select cases, DTA also provides loans to kick-start the entrepreneur's sanitation business. DTA also collaborates with masons and raw-material providers to ensure that the entrepreneur-provided toilets are affordable to the target households. These trained micro-entrepreneurs then go door-to-door in the local communities to generate awareness on sanitation and hygiene, which, in turn, helps to generate demand for household toilets. These entrepreneurs further supply hygiene products by partnering with FMCG companies. DTA also works with local self-help groups (SHGs) linking them to microfinance institutions to enable them to buy toilets from the local microentrepreneur. To date, the programme has trained more than 100 local entrepreneurs and through them reached out to over 15,000 people by building over 3,000 toilets across Odisha and Maharashtra.

11. Conclusion

Private sector engagement will help the public sector achieve greater scale, sustainability, and effectiveness of project and initiatives. Effective private sector engagement leverages the comparative advantages of the public sector and the private sector to deliver more effective and sustainable outcomes. Unfortunately, there is no single, one size fits all approach that can be adopted to engage with the private sector. Private sector engagement must be an iterative process that considers the capabilities, scope of work, and risk profiles of private-sector partners. However, there are some practices, listed below, that can be adopted by the public sector to identify, develop, expand and deepen collaboration with the private sector.

- **Engage early-on and frequently:**
  The public sector can achieve better outcomes from their projects and initiatives by engaging with the private sector early-on and on an ongoing basis. This type of engagement allows the public sector to incorporate the knowledge of the private-sector, resolve any barriers that might hinder private sector participation and develop a shared vision.



- **Create a conducive environment for private sector engagement by adopting a system strengthening approach**
  Delivering universal access to sanitation requires creating an enabling market ecosystem, i.e., integrating capacities and capabilities across the sector. This means having in place (a) appropriate policies and strategies that identify goals and pathways for PSE, (b) supporting institutional framework, (c) favorable environment for private investments, (d) effective monitoring and evaluation systems with learning loops for improving PSE over time and (e) capacity development of sector stakeholders to innovate and adapt to engage in a collaborative manner[30].

- **Actively explore pathways to unlock the potential of the private sector:**
  The public sector must actively explore pathways to engage with the private sector to achieve the intended outcomes through market-based approaches.

- **Build-on and course-correct based on what works, and what does not:**
  Over time, the public sector must develop and maintain a knowledge (evidence) repository to identify what types of private sector engagement (knowledge sharing, innovation, co-creation etc.) will work best under different circumstances. Additionally, the public sector should also develop metrics and learning loops (feedback loops), including all relevant ecosystem partners, to monitor, evaluate, learn and take corrective measures to deliver desired outcomes.

[30] Developed drawing inspiration from the Sanitation and Water for All (SWA) framework.

To encourage the private sector participation in PPP projects, both supply and demand side conditions need to be improved:

Supply Side Conditions

- **Policy and Institutional Environment:** A market-friendly policy environment not only encourages private sector participation but also is more likely to produce positive results. In such an environment, the government should play the role of "steering rather than rowing" and the Private sector should play the leading role in producing and distributing the goods and services.

- **Effective Regulatory Mechanism and Contract Enforcement:** Time and cost optimized regulatory mechanism is expected to provide incentive for competition and ensure socially desirable outcomes. Given that the private sector's main motive is profit, regulatory mechanisms have a greater role to play under private sector participation. A regulatory contract with a private operator could most likely succeed under three conditions:

In line with this some steps that can be taken to mitigate the regulatory and sectoral risks and unlock the full potential of private sector investment include:

- Enforcement of rules and notification of byelaws to ensure compliance by ULBs
- Issue of bankable bid documents with proper payment security mechanisms
- Award of the project through a transparent and competitive bidding process based on Quality and Cost based system
- Introduction of single-window clearance for all approvals required for the implementation of sanitation and waste management projects
- Providing incentives for initiatives/schemes that require uptake such as Source Segregation, Plastic Bottle Recycling, Regular Desludging of toilets, etc.
- The imposition of penalties to reduce the amount of waste reaching landfills, including through a landfill tax

- **Reduced Information asymmetries:** Information asymmetry can be reduced by introducing competition and by monitoring. In seeking contracts with the private sector, a transparent tendering and information disclosure yields better conditions for consumers.

    - **Incentives:** The regulatory mechanism should include effective incentives to induce the private sector to reveal more information and not to act opportunistically. Incentives like setting specific targets, sharing risks and rewards, or price regulation could help to evaluate work efficiency, control expenditure, expand services or result in profits.

    - **Commitment to abide by the contract and credible enforcement:** Commitment of the government to effectively enforce the contract and resolve disputes plays a critical role in successful private sector participation. Such mechanisms should also include penalties for reneging on the contract, including fines, forfeiture of bonds, and revocation of the contract. The regulator also needs to be shielded from political interference.

    - **Credible regulatory frameworks** exist where the operator has some autonomy from the executive branch, arms-length relationships between governments and public agencies, and cordial relationships between government and private investors. The government needs to support a regulatory environment that is transparent, consistent, and accountable to ensure the success of the PSE.

Demand Side Conditions

- Willingness to pay and cost recovering tariffs: This includes ensuring the sustainability of private sector initiatives through sustainable revenue streams such as user charges, sale of byproducts. The user-pay principle whereby a consumer pays for the services he/she uses, should be followed. The need to recover costs is universally accepted and the service charges should be high enough to make the projects/services economically feasible with the provision to support market for the sector-based products. However, assessment of willingness to pay and the public's preference for private sector provision of projects/services, and the participatory assessments on feasibility of tariff increases, should precede the introduction of private sector. Projects that had paid attention to these demand aspects and had considered price elasticity in revenue predictions have performed better.

- Context Specific factors: Tailoring the services according to local circumstances can help make these acceptable to the customers. For instance, providing differentiated services to different customer segments. Additionally, appropriate involvement of the community and civil society organizations in designing the projects/services also enhances the acceptance of private sector among local communities.

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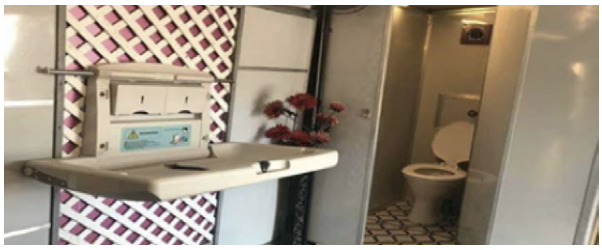
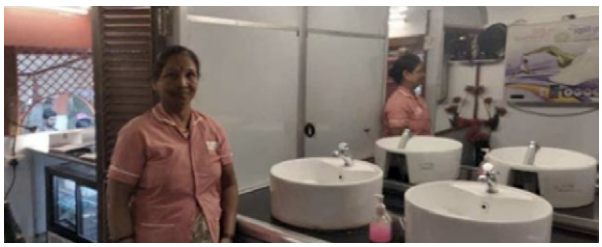
Annexure I- Case Studies

Development of Mumbai's Most Sustainable Public Toilet at an Iconic Location – The Marine Drive

Name of City	Greater Mumbai
Name of the private sector with which ULB has tie up	Funded by: Jindal Steel Works Implemented by: Municipal Corporation of Greater Mumbai (MCGM) in collaboration with sanitation partner Samatech Foundation
Background	Municipal Corporation of Greater Mumbai (MCGM), serves an area of 480.24 sq.km and a population of 1,24,42,373 as per census of India 2011 in the metropolitan city. This metropolis is a major part of India's total international trade, government revenue, education, scientific and technological research, and is the leading center of progress. The Marine Drive is an iconic 3.6-kilometre-long Boulevard in South Mumbai in the city of Mumbai, India. Marine Drive is also known as the Queen's Necklace because, if viewed at night from an elevated point anywhere along the drive, the street lights resemble a string of pearls in a necklace. Marine Drive is considered as the largest viewing gallery of the world. The architectural beauty has gained the prestigious UNESCO Heritage site recognition for the region, recently. The key objective of this innovative and novel project was to create Mumbai's most sustainable public toilet which will suit the heritage site at Marine Drive. Also, the earlier Public Toilet was not in alignment with the heritage structure of Mumbai. Earlier, the visitors could use only 2 urinal seats each for Ladies and Gents which were not sufficient.
Private Sector Engagement type	CSR Initiative and collaboration between MCGM and JSW, Samatech Foundation.
Implementation Mechanism	JSW and their sanitation partner Samatech Foundation in collaboration with the Municipal Corporation of Greater Mumbai, came together to develop a world class toilet facility on Mumbai's most iconic promenade, Marine Drive. MCGM is responsible for operation & maintenance of the toilets.

Overview of the Private Sector Innovation/Intervention	Designed by Serie Architects, the structure of this facility combines creative design with the latest sanitation technology to embody the government's vision for a sustainable sanitation movement.
Key Results	• Clean and hygienic Public Toilet serving 1500 users per day • Robust structure with long-lasting durability. • Use of renewable source of energy and savings in electricity • 2.6 million liters of sewage prevented from entering the Marine Drive bay each year. • Water conservation- Every flush uses 0.8 liters as compared to the 7 to 8 liters used in a regular toilet. Frequency of cesspool vehicle visits reduced to one visit per week as the amount of sewerage is reduced.
Lessons learnt (If any)	The Marine Drive toilet is a testimony to the fact that an Urban Local Body combined with the expertise of a strong private player can arrive at a sustainable, eco-friendly yet aesthetically appealing public toilet solution suiting the needs of the common public as well as the sanctity of a heritage structure.

"Ti" – Toilet Integration Centers, mobile toilets for women

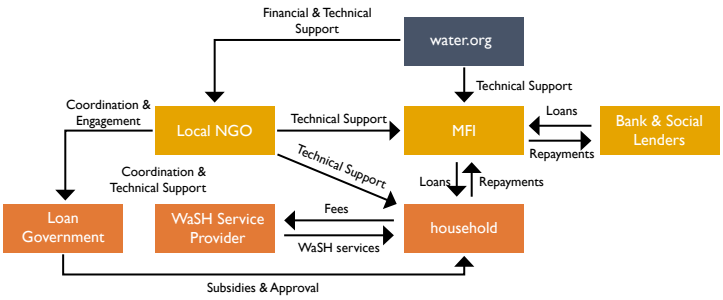

Name of City	Pune, Maharashtra
Name of the private sector with which ULB has tie up	3S - SaraPlast Pvt Ltd[31]
Background	Most Indian cities do not have adequate public sanitation. In India it's a task to find a public toilet, and even if you succeed in finding one, the chances that it will be clean and well equipped are very slim. When it comes to sanitation facilities for women in public toilets the scenario is even worse. Around 355 million women in India lack access to adequate sanitation facilities. Number of female public toilets is comparatively less than the male public toilets. Improved sanitation would result in many benefits like better health, relief from the fear of assault, girls continuing to attend school post puberty etc. In order to improve the sanitation situation for women in Pune, the Pune Municipal Corporation decided to launch mobile toilets exclusively for women. This innovative idea initiated by 3S – a division of SaraPlast Pvt Ltd along with Pune Municipal Corporation in association with their CSR partner - Indus Towers Limited. The key objective of the Toilet Integration Centers is to increase access to quality & affordable sanitation and hygiene services. The three target segments were: women in slum clusters, women among floating populations, women vendors/ workers in public places like market yards and small informal business centers.
Private Sector Engagement type	The Pune Municipal Corporation did not have to undertake any financial expenses other than the cost of providing out of use public transport buses. The subsequent maintenance of the public utilities was on the "Pay & Use" basis against Advertisement rights. The Municipal Corporation also had to designate places of high footfall for parking the toilets.

[31] https://www.3sindia.com/innovations/

Overview of the Private Sector Innovation/Intervention	Saraplast has designed an innovative sanitation solution called the mobile Toilet Integration Center (TiC) targeted at women users from low-income backgrounds in Indian cities. TiCs are created by refurbishing and converting old transport buses into integrated sanitation hubs thereby easing the burden on the government to acquire land/ space for building toilets. These toilets would be designed by Pune Mahanagar Parivahan Mahamandal Ltd. (PMPML) buses that are no more in use for commuting purposes. This was the first attempt to develop mobile toilets by making modifications to PMPML buses that have completed their on-road life. Key features of the Toilet Integration Center are as follows: • Trained female attendant • Western & Indian Toilets • Digital Feedback Systems • Wifi Connection • Clean water supply for flush & handwash • Panic Buttons • Sanitary Napkin Dispenser • Solar operated lights • Breastfeeding & Diaper changing station • Health Center • Smart City Connect • Advertisement space inside & outside the bus • Café • **Footfall:** Tic has a footfall counter which tracks the number of users on daily basis • **Feedback Tab:** A tab installed on the inside that has a digital feedback form that helps the users to rate the service. • **Behaviour change:** Nudges (Pictures, educational videos etc.) that encourage people to wash hands & maintain the toilet hygiene • **Knowledge Sharing:** The toilet displays the methods & mechanism used to keep the toilets clean as well as other information on hygiene maintenance • **Diagnostics camps:** The Municipal Corporation holds period diagnostic camps to spread awareness about importance of sanitation, diseases resulting from disuse of sanitation services & living in unhygienic environments etc
Key Results	The project has resulted in: • Direct beneficiaries: Total no of women users from July 2018 till date is1.2 lacs • Sanipreneurs: Women from economically weak background have been trained and employed at Ticentres and are instrumental in providing a safe and hygienic environment for the other women. They are entrepreneurs who run their own food cafés in the centre. They also sell women hygiene products and other packaged products and earn their livelihood independently.
Lessons learnt (If any)	• Recycling is the key concept behind this project. Successful transformation of public transport busses into fully functional toilets demonstrated the reuse capacity of old resources for providing sanitation services. • The mobile nature of the toilet also eliminated the cost of land, one of the major considerations while providing toilet facilities.

WaterCredit program by Water.org to increase access to credit and capital for safe water and sanitation

Photos sourced from Water.org

Name of City	12 states within India
Name of the private sector with which ULB has tie up	Water.org
Background	One of the major barriers to safe water and sanitation is affordable financing. To address this challenge, Water.org came up with the WaterCredit initiative. WaterCredit brings together Micro Finance Institutions (MFIs), NGOs, Local government bodies, Financial institutions, and related service providers to increase access to safe water and sanitation especially for the Bottom of the Pyramid (BoP) segment. Water.org plays the role of a facilitator by connecting NGOs, MFIs and local government bodies to develop water and sanitation loan products and provide technical support, directly to the NGOs and MFIs, as needed. Additionally, Water.org also engages closely with the local government to foster growth of civic capital and grassroots, public sector investment.
Private Sector Engagement type	The typical model adopted for the delivery of WaterCredit is an MFI-NGO partnership, whereby an MFI sources capital (usually at market rates) & administers the loans and its NGO wing focuses on demand generation and technical support. To foster the development of WaterCredit portfolios, Water.org provides partner organizations with 'smart' subsidies and technical support. The smart subsidy funds are targeted towards specific activities, such as baseline assessments, product development, community mobilization, monitoring & evaluation etc.
Overview of the Private Sector Innovation/Intervention	The engagement model is provided below: 

Key Results	The project has resulted in the: • Since 2005, Water.org has helped to mobilize more than 2.5 million loans, providing more than $522 Million in loans to families in need of safe water and sanitation in India[32] • Empowered more than 10 million people across twelve states with access to safe water and sanitation • By partnering with different types of organizations, including MFIs, self-help group federations, housing finance corporations, commercial banks, payment banks, social enterprises, and local government bodies, Water.org is mobilizing resources and sharing knowledge to increase access to improved sanitation and safe water
Lessons learnt (If any)	The key lessons learnt include: • Microcredit can unleash considerable amounts of finance for water and sanitation improvements and amplify the reach and impact of donor funds and government policies • Access to loan capital for water and sanitation products is a key challenge, particularly for smaller MFIs • Water and sanitation microfinance programs lower tolerance of open defecation, and supportive local government leaders • Co-creation with end-users in the community can be a major contributor to the success of sanitation projects

[32] Source: https://water.org/our-impact/india/

Suvidha Centre by Unilever

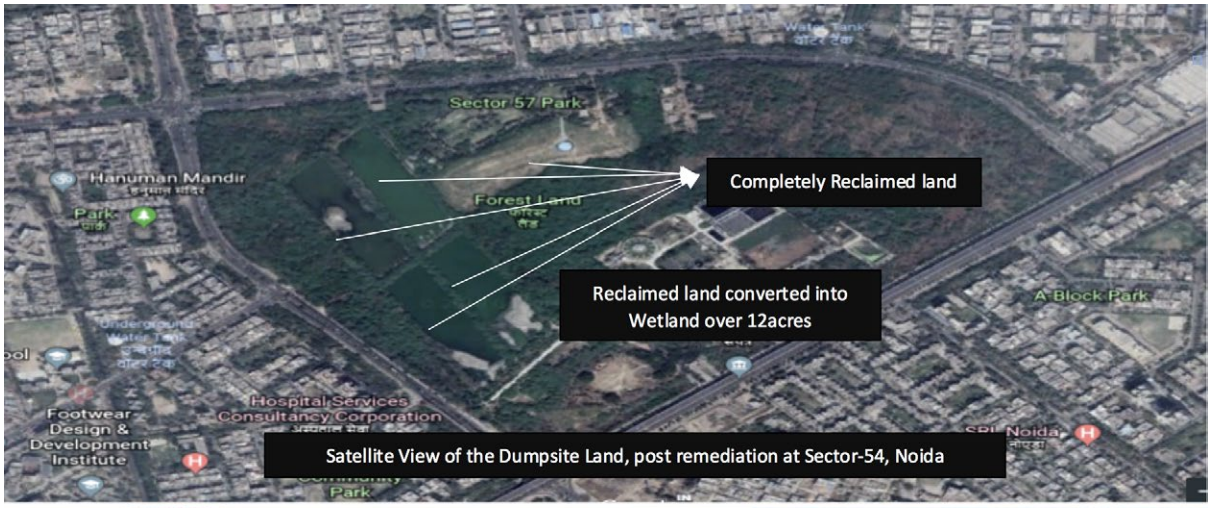
Photos sourced from Hindustan Unilever Website and Hindustan Unilever twitter account

Name of City	Mumbai
Name of the private sector with which ULB has tie up	Unilever & Pratha (a non-profit, community-based organization)
Background	With a population of 1.3 billion and accelerated urbanization, India faces intense pressures on its cities. As a result, its slum population has more than doubled in the past decade and is projected to continue growing. This growth poses challenges for ULBs to provide water, hygiene, and sanitation. Improving access to these basic needs is essential to offer people a better life and overall development of the region. Realizing this challenge, in 2016, as a part of its Unilever Sustainable Living Plan (USLP), Unilever partnered with Municipal Corporation of Greater Mumbai (MCGM) and Pratha (NGO) to launch the first pilot project of Suvidha ('convenience') Centre. The Centre offers toilets, handwashing, showers, washing machines, and safe drinking water to slum dwellers while considering the environmental impact of water. Unilever plans to implement this affordable and replicable model pan India to increase slum dweller's access to WaSH facilities.
Private Sector Engagement type	Public Private Partnership (PPP) Model
Overview of the Private Sector Innovation/Intervention	The Centre offers toilet, handwashing, showers, washing machines and safe drinking water to slum dwellers. Besides these necessary facilities, Suvidha Centre also comprises of a rainwater harvesting system and water recycling unit. Rainwater is harvested from the roof through to treating and re-using 'grey' water from showers and laundry to flush the toilets. Around 9 to 10 million liters[33] of water are recycled annually. It also consists of a safe children's play area and a separate entry for female safety. Specific toilets open at night reduce the risk of violence that is prevalent at many slum toilets.

[32] Source: https://www.hul.co.in/Images/suvidha_hygiene_centre_tcm1255-495963_en.pdf

Key Results	The project has resulted in: • Enhanced safety, time saving and employment opportunities for females of slums • Improved WaSH practices and resulting benefits • Paid employment opportunities to run, clean and manage the center • Cheaper sanitation services
Lessons learnt (If any)	The key reasons for the success of the model include: • Co-create to innovate and ensure success: Getting insights from a wide range of different stakeholders, including end-users, municipal corporation, regulators and NGOs, helped to come up with a more resilient model • Partner to realize the opportunities: It's essential to select the right partners based on a set of shared objectives and values. • Expect the unexpected: Being flexible and adaptive to an unpredictable environment helped to put together teams to overcome the barriers and make the model successful • One-stop solution for all water & sanitation needs: These centers cater to over 1,500 slum dwellers and meet almost 80% of their basic water needs for laundry, showers, toilets and handwashing. It also helps in enhancing the lifestyles of slum dwellers by providing improved water and sanitation services at an affordable rate. Thus, users have positively accepted it and made the project a success • Importance of functional toilets: The solution to improving hygiene and sanitation will not come from increasing the number of toilets alone but from creating a system for efficient functional services

Dumpsite Remediation- Noida



Name of City	Noida, District Gautam Buddha Nagar, Uttar Pradesh
Name of the private sector with which ULB has tie up	M/s Zigma Global Environ Solutions Pvt. Ltd.
Background	Noida since its inception in 1976 has been struggling to develop a scientific system for waste management. The traditional crude practice of dumping of waste in nearby vacant plots or low-lying areas was prevalent till November 2017. This practice, resulted in serious environmental threats and challenges, because of which the public residing near the dumpsite objected to the existing practices and approached National Green Tribunal (NGT) seeking immediate relief. The Hon'ble bench of NGT in Sept. 2017 thereafter directed the Authority for early clearance of the existing dumpsite and mandatory compliance with the SWM Rules, 2016. Three sites were primarily identified at Sector 138, 68 & 54 respectively having a total estimated quantity of approx. 2.0 Lakh Metric Tons (MT) of legacy waste.
Private Sector Engagement type	The project involved dumpsite reclamation and landfill mining ensuring all legal compliances in place. The company had a Joint Venture (JV) with South Korean Company named M/s Forcebel, having over 20years of expertise in landfill mining and reclamation.
Overview of the Private Sector Innovation/Intervention	The project involved dumpsite reclamation and landfill mining ensuring all legal compliances in place. The company had a Joint Venture (JV) with South Korean Company named M/s Forcebel, having over 20years of expertise in landfill mining and reclamation.

Implementation Mechanism	To engage a firm having expertise in landfill bio-remediation process, a global tender was called on QCBS (Quality & Cost Based Selection). The project was finally awarded to M/s Zigma Global on a DFBOOM basis in the month of July 2018. Noida Authority's only obligation was to provide electricity and water connection up to the site and arrange disposal of processed inert, good earth and compost with the help of its Public Health and Horticulture Department. All other responsibilities were taken up by the private agency, besides ensuring legal environmental compliances in accordance with EPA, 1986.
Monitoring of performance	• The dumpsite was centrally controlled, monitored and operated by a team sitting in the Panel & Control Room using the SCADA mechanism • The entire facility had been bifurcated into two parts. One part having accumulated stabilized waste, which through windrow formation and spraying of bio-culture solutions has been stabilized. The second part having all necessary infrastructure required to process this waste. To keep a check on the operations of the entire facility and quantity of the waste treated and processed, a weighbridge of 40 tonnes load bearing capacity was placed between the junction of two bifurcated parts, which was electronically controlled and centrally monitored through electronic surveillance system (CCTV) placed at every corner of the facility
Key Results	The entire site was reclaimed in less than 6 months period after which the land as reclaimed was handed over to the Authority. Post Lab Report analysis of the land, authority has developed the reclaimed site as a wet Land.
Lessons learnt (If any)	With the help of private sector support and by spending approx.~Rs.18.0crore, the ULB was able to recover land worth Rs.1100.0crore. This has also resulted in reduction in GHGs emissions and have prevented ground water pollution.

Materials Recovery Facility (MRF) for decentralized dry waste management




Name of City	Bengaluru
Name of the private sector with which ULB has tie up	Saahas Waste Management Pvt. Ltd. (SWMPL)
Background	The lack of adequate transportation and processing infrastructure to manage 5,500 MT/day of waste being generated in Bengaluru, resulted in a need to set up a decentralized waste management system to address the problem to ensure maximum recovery of resources. The scope of the project was to establish a proven decentralized waste management system that can help solve the dry waste management issue while ensuring maximum social and environmental benefits. SWMPL has been operational in this industry for the last 18 years and has the expertise to set up and sustain the infrastructure (MRF) needed to address this issue of waste management. SWMPL in the current engagement with the ULB, Bruhat Bengaluru Mahanagara Pallike (BBMP), manages 50T of waste per day.

Private Sector Engagement type	**PPP Type - Annual service contract** **ULB obligation -** • Provide land at the appropriate strategic location • Provide shed with appropriate specifications • Support with capital investment in the equipment required at the MRF • Deliver dry segregated waste to the MRF daily. Ensure any mixed waste is landfilled scientifically • Provide service fee to SWMPL towards the processing of waste at MRF **Private Sector obligation -** • Operate the MRF to ensure maximum social and environmental impact. • Ensure compliances are met at the MRF • Use of best waste management practices with a regular update of industry standards • Provide regular reports with waste metrics • Support the municipality with necessary training on handling waste and updates on awareness pertaining to waste management
Overview of the Private Sector Innovation/ Intervention	A decentralized waste collection and management system supported by a semi-mechanized MRF ensures that the waste processing is done with three times the efficiency and the waste is connected to authorized end dealers for maximum resource recovery. The primary source of revenue is through scrap sales. However, that does not suffice to cover the operational costs. Thereby, a service fee is also charged to the waste generators to fill in the existing gap.
Implementation Mechanism	The key steps for project implementation include: • Survey and recommendation - Mapping the waste management ecosystem including stakeholder mapping • MRF solution design – Definition of the problem-solution, stakeholder partnerships, identification of the requirements of the MRF - location, development of Standard Operating Protocols (SOP), authorizations, compliances, design changes, etc. • Project management - Identify and design infrastructure for the MRF and collection and transportation systems, release designs and procurement guidelines of MRF equipment, overseeing operations until steady-state • Audits and checks to ensure all compliances and responsible practices are met
Monitoring of performance	SWMPL charges a service fee based on quantities of dry waste processed (on a per tonne basis). This is further validated with the data of material processed along with full traceability of the material from the beginning to the end of the value chain. SWMPL provides a monthly report along with invoices to BBMP as supporting documentation.
Key Results	SWMPL has demonstrated through their MRF at Jigani, Bengaluru the following: • Social impact - Social inclusion of informal waste workers • Environmental impact - Diversion of waste from landfill, prevention of open burning, responsible waste management to ensure maximum resource recovery especially for non-recyclable waste streams
Lessons learnt (If any)	The MRF at Jigani, Bengaluru has been operational for 2 years and there is sufficient data to prove the success of the model. 10T per day of dry waste is processed within a limited space of 10,000 Sq. ft. with less than 10% of waste diverted to the landfill. Further, the model has also proved that full compliance can be achieved with the management of dry waste including labor compliances, operational health and safety compliances, traceability of material, responsible management of waste, etc.

Organic Waste to Bio-CNG and Organic Manure




Name of City	Bengaluru
Name of the private sector with which ULB has tie up	Carbon Masters India Private Limited
Background	India suffered from illegal dumping and overfilled mismanaged landfills, leading to pollution, chemical leaching and greenhouse gas emissions. It is so bad that the renowned 'Garden City' of Bangalore is today known as the "Garbage City." The need for the hour was to handle the waste in a decentralized manner i.e. a solution had to be designed to ensure that the waste from individual wards are treated within the ward. Carbon Masters has the expertise to provide end-to-end waste management solutions, wherein they can successfully build waste processing plants with a low carbon footprint suitable for urban areas. They are also equipped to commercialize the by-products of processing which can then help sustain the operational cost. BBMP signed a contract with Carbon Masters to process 50 tonnes per day of organic waste in 5 different locations in BTM constituency of Bangalore and convert it into Bio-CNG and Organic Manure. The agreement between BBMP and Caron Masters states that BBMP will provide land, waste, and 85% of capital while the private entity i.e. Carbon Masters, will build, operate and sustainably process the waste. Carbon Masters will sustain the operations through the sale of Bio-CNG to nearby restaurant kitchens and Organic Manure to farmers.

Private Sector Engagement type	In the existing partnership model, BBMP invests 85%, i.e. 2.8 crores and Carbon Masters invests 15% i.e. 50 lakhs per 10 TPD project. The first phase of the project is designed to process 4 TPD of waste. Carbon Master is obligated to ensure processing of 10 TPD of waste in each location, while BBMP is obligated to supply segregated organic waste continuously.
Overview of the Private Sector Innovation/Intervention	Carbon Masters has developed the Carbonlites-in-a-box solution which is a patent-pending technology to process organic waste. This technology has the following features: • The containerized model has a low carbon footprint in comparison to conventional digesters. The requirement for civil work is minimal. As a result, these digesters can be easily relocated. Minimal civil work also ensures cost savings and a reduction in carbon emissions • A modular design ensures that plant capacity can be easily increased for future requirements. • As a result of this intervention, organic waste is processed on-site and not sent to landfills saving both tipping fees and GHG emissions
Key Results	The project has resulted in the: • Reduction of waste reaching landfills • Reduced cost of compactors • Better segregation of waste
Lessons learnt (If any)	The key reasons for the success of the model include: • No operational cost to be paid by BBMP- Many projects fail because of high operational costs to be paid on a monthly basis. • The availability of market for the byproducts of processing

Annexure 2- Private sector in sanitation

The following private sector categorization[34] has been done considering their role in the value chain, profit orientation and operating scale of business. The legend for the same in provided in the following page:

Increasing Scale

	Broad Business type	Example of business	How do these businesses add value?
National/ Regional/ Local	**CATEGORY I** Sole traders, Micro/small enterprises (1-19 employees)	Masons	Produce and cast sanitation slabs, chamber boxes and lids; some are involved in installing toilets
		Construction enterprises	Build full toilet sets according to customers' specifications
		Micro-franchises	Local micro entrepreneurs trained to build and sell toilets as part of larger social enterprises/initiatives (e.g. SaniShop – India/ Cambodia/Mozambique; Domex Toilet Academy, India)
		Pre-fabricated cement manufacturers	Involved in casting cement platforms and rings, and constructing latrines
		Hardware stores	Retailing toilet components and producing items themselves (e.g. bricks, slabs, etc.)
		Faecal sludge emptying operators	Truck-based septic tank emptying and disposal enterprises
	CATEGORY II Medium-sized businesses (20-99 employees)	Toilet Fixture Manufacturers	Produce and sell plastic latrine slabs
		Construction and plumbing service companies	Build full toilet sets according to customers' specifications and connect them to sewage network, if existent, or septic tanks
		Regional hardware stores	Relatively larger stores with a diverse product line of materials and pre-fab items
		Providers of non-networked toilet solutions	Low-cost toilet units (e.g. Sanergy – Kenya)
			Rental/portable toilets (e.g. Clean Team – Ghana; Saraplast – India)
			Providers of waterless toilet units (e.g. X-Runner Venture – Peru)
			Waterless, portable toilets (e.g. Banza Ltd – Kenya)
			Low-cost/ biodegradable solutions (e.g. Peepoople – Sweden)
		Waste treatment Companies	Renewable fuel company (e.g. Pivot Works – Kenya, Rwanda)
International	**CATEGORY III** Large companies (>100 employees)	Toilet Fixtures Manufacturers	Wide range of sanitary products (e.g. AquaSanTech – India)
		Chemical Suppliers	Producing disinfectants and treatment chemicals
		Cement Companies	Producing key component of latrine or toilet set and engaging in creating demand (e.g. Ambuja Cement - India)
		Wastewater/Sewage Operators	Utilities that operate sewer systems
	CATEGORY IV Foreign-based companies/ multinationals	Fast-Moving Consumer Goods companies	Developing sanitation-related products and engaging in creating demand (e.g. Unilever – Domestos)
		Wastewater/Sewage Operators	Companies treating wastewater (e.g. Veolia)
		Manufacturing companies	Researching and developing sanitation technologies (e.g. Lixil)
		Chemical Suppliers	Producing disinfectants (chemical blue toilet additives)

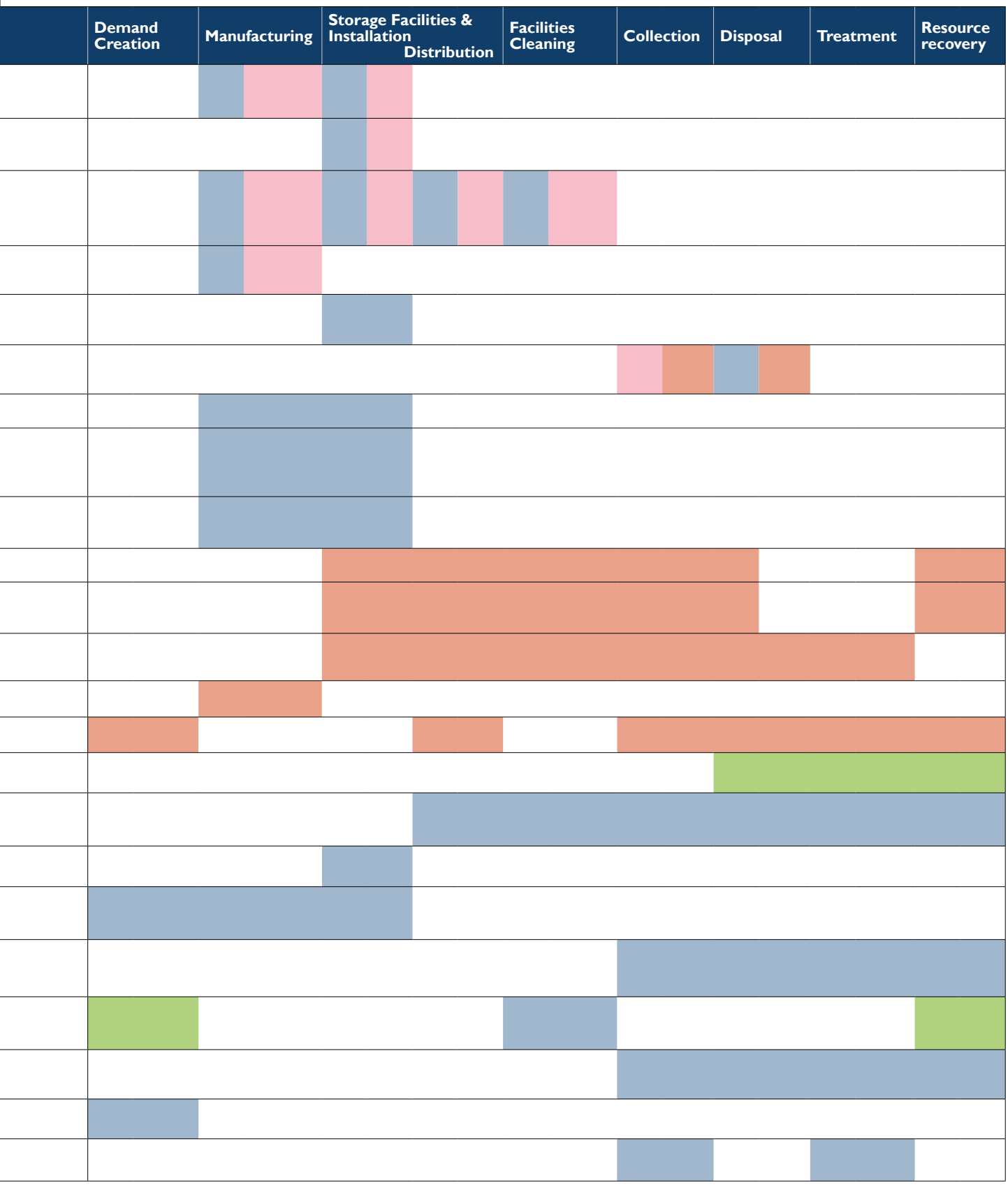
Social enterprises that run as a business, charging for products and services, but supplement revenue with grant-based finance

Social enterprises that are entirely reliant on sale of products and services but operate on a not-for profit basis

For-profit commercial enterprises with some net income reinvested to social purposes

[34] Private Sector and water supply, Sanitation and Hygiene, ODI, 2015

Value-added links in the Sanitation chain

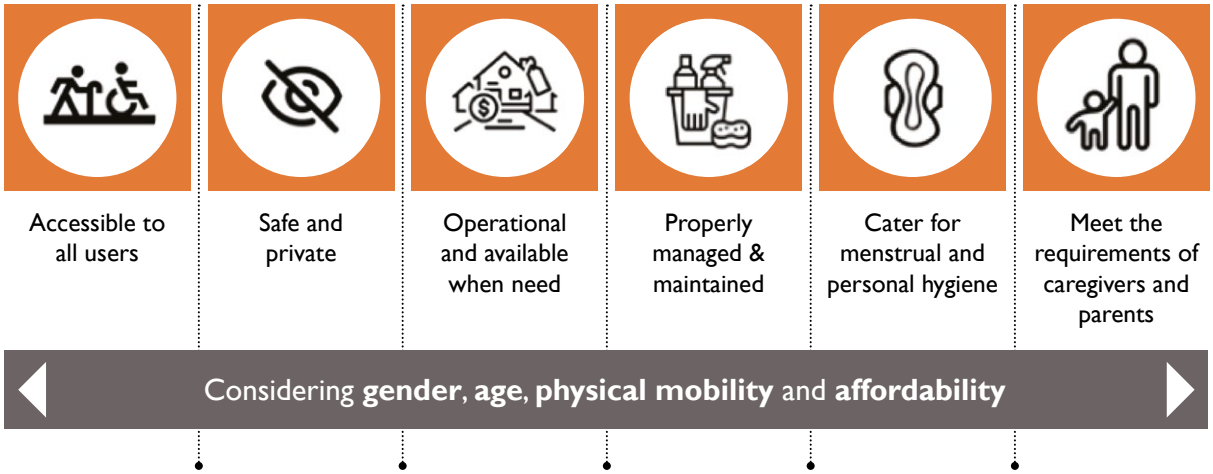


For profit commercial enterprises with all net income redirected to business growth or shareholder return

For profit commercial enterprises with all net income redirected to business growth but not legally constituted (informal business)

Annexure 3- Example of Inclusive Sanitation Network

One of the ways of achieving inclusive sanitation network is to have an inclusive sanitation infrastructure, which focuses on needs of all user groups, including Vulnerable and Marginalized groups (VMGs), in the overall design, and service delivery processes. VMGs would include, but not limited to, women, adolescent girls, transgender people, aged populations, people with disabilities and children.



Government is already taking steps in this direction. Central Public Health and Environmental Engineering Organization's (CPHEEO) advisory on community & public toilets, includes guidelines to cater needs of women, differently abled and transgender people. By focusing on needs of all VMGs, private sector can go beyond the norms and lead the way towards 'sanitation for all' facilities in India. **Examples of inclusive aspects to be considered in community and public toilet design are as follows:** A dedicated toilet cubical for transgender people, door latches and handles at lower heights for children, accessible water and soap for children and disabled, railings for elderly, creating awareness, ensuring equal opportunities to all users (irrespective of caste or income).

Apart from easy accessibility, safety and privacy, menstrual hygiene management also is a key factor for female toilets. With the government already taking efforts towards setting up incinerators and vending machines at railway stations[35], airports[36], education institutes[37], public offices[38], slums[39] etc., the private sector can play a key role in providing competitive, reasonable, innovative and user-friendly technologies. Such machines can be also be set up at other public places like malls, cinemas, hotels, tourist spots, bus stops, private offices/ factories/ hospitals, residential complexes etc. Apart from providing vending machines/ incinerators, the private sector can also be involved in creating awareness about how and why to use these facilities (especially in schools and marginalized or lower-income groups), and operation and maintenance of these facilities. With approximately 78.7% urban females using sanitary napkins in India[40], there is considerable need and demand for such facilities. Females either throw sanitary waste in dustbins, making it a part of Municipal Solid Waste (MSW) or flush them into toilets, leading to choking of drains. If this waste is treated or handled at the source of origin, i.e. toilets, it will prohibit its entry into MSW stream or drainage system. This in turn will reduce ULB's burden of handling sanitary waste along with MSW and help in better maintenance of drainage network.

[35] https://www.hindustantimes.com/india-news/railways-to-install-sanitary-napkin-dispensers-at-200-stations-by-march-8/story-KUIJmgTQ92Wd5OrKn8OUHJ.html
[36] https://swachhindia.ndtv.com/hyderabad-airport-strides-towards-menstrual-hygiene-management-installs-sanitary-napkin-dispensers-18098/
[37] https://www.shethepeople.tv/news/all-kerala-higher-secondary-schools-to-have-sanitary-napkin-vending-machines
[38] https://www.indiatoday.in/lifestyle/what-s-hot/story/western-railway-sanitary-pad-dispensers-female-staff-womens-welfare-lifest-1153814-2018-01-25
[39] https://indianexpress.com/article/cities/mumbai/mumbai-2-slums-in-city-get-incinerators-to-burn-used-sanitary-napkins-2802473/
[40] The percentages have been taken from National Family Health Survey 2015-2016 Report, page 130/671, table 4.10.

स्वच्छ भारत
एक कदम स्वच्छता की ओर