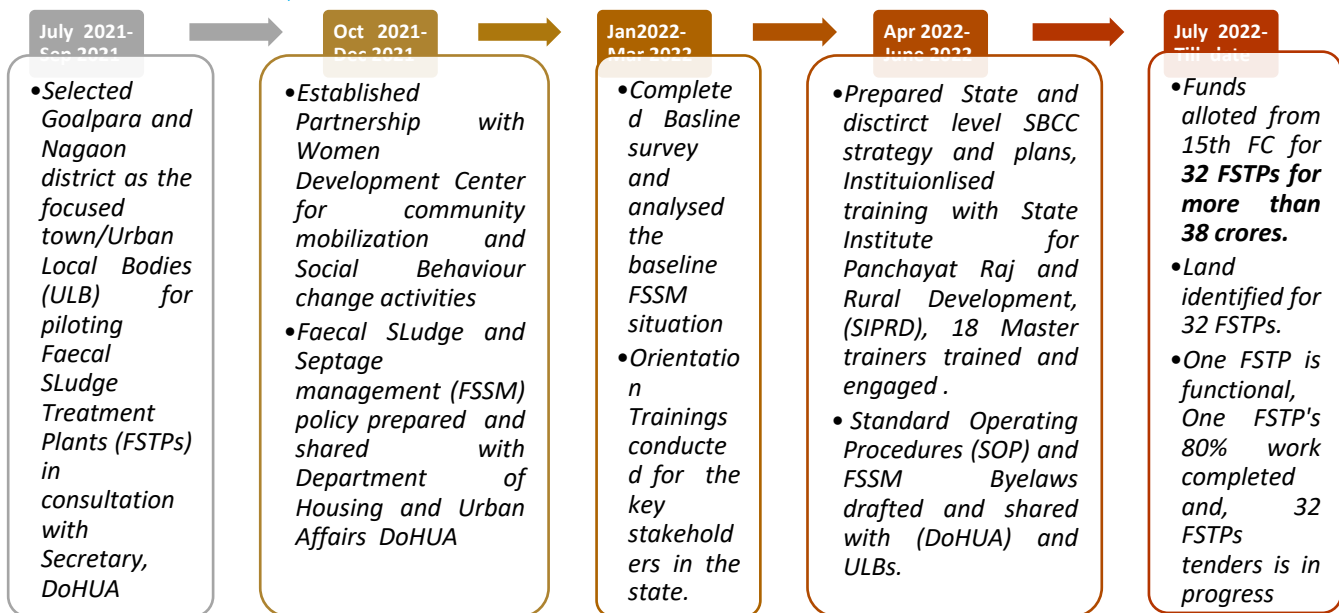




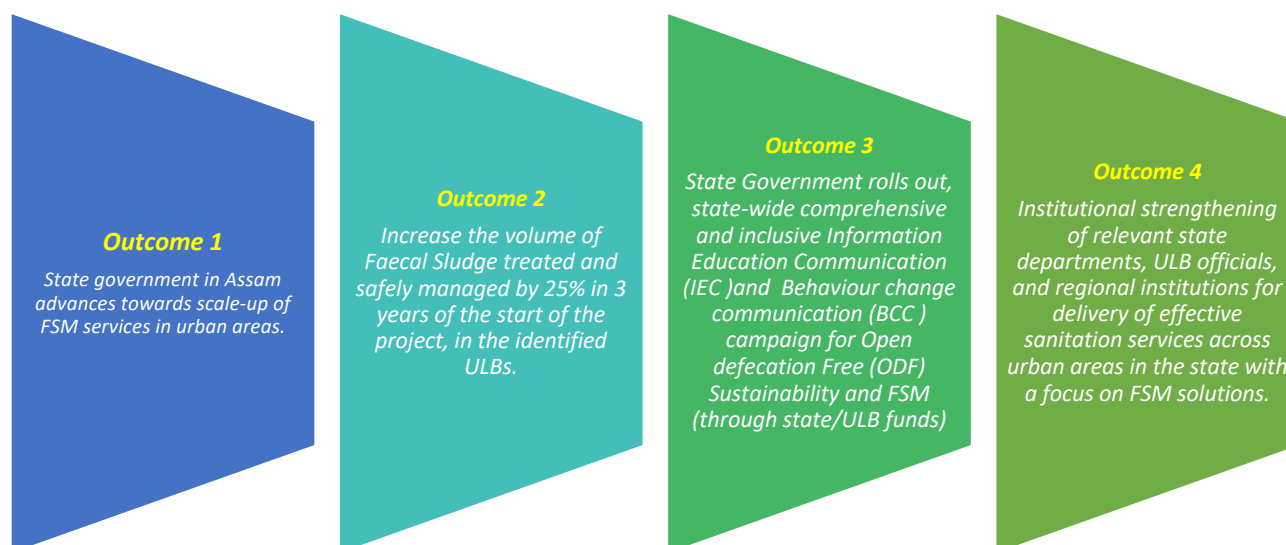
Assam

Journey Towards FSSM

Major Milestones Achieved



Key Interventions



The FSSM challenge in Assam: Getting Funds for FSTP and Scaling up needs Leadership

The Swachh Bharat (Clean India) Mission helped households to construct individual toilets and access at least basic sanitation during 2014-2019. The increase in toilet usage led to an urgent need for faecal sludge and Septage management (FSSM). Until September 2022, Assam did not have any faecal sludge treatment plant (FSTP) or Sewerage treatment plant (STP) to treat or scientifically dispose of faecal sludge. To address the issue UNICEF in July 2021 introduced FSSM and the Government of Assam in collaboration with UNICEF piloted FSSM models in the Nagaon and Goalpara Districts.

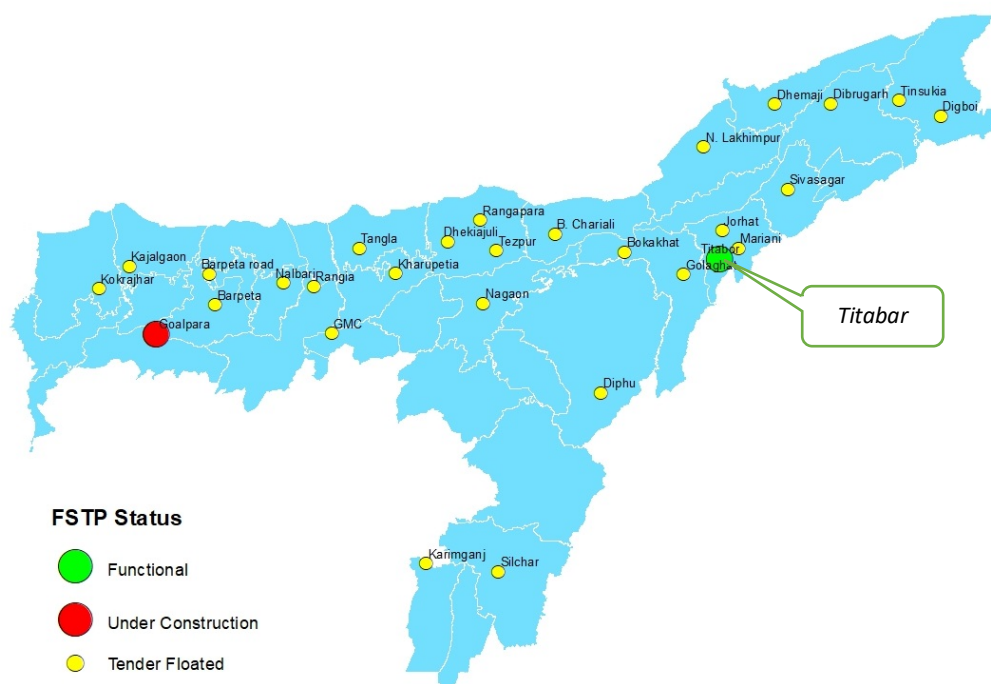
TSU was set up in July 2021, the Swachh Bharat Mission Urban (SBMU) reported that the State was declared Open Defecation free (ODF). Under SBMU they had constructed 46,000 toilets in 2019. It was suggested by DoHU that Goalpara and Nagaon ULBs to be taken as pilot Districts because they were listed in the NGT for pollution of rivers and was closer to Guwahati. Works started in earnest to introduce what is FSSM as no one was aware of FSSM and FSTPs as there were no such example in the state.

By September 2022, one of the Urban Local Bodies (ULBs), Titabar Municipal Board (MB) constructed the state's first FSTP-based on the Moving Bed Biofilm Reactor (MBBR) + Sludge Drying Bed (SDB) technology in a cost-effective manner. The Work FSTP Construction work started in Goalpara but due to public opposition due to misconceptions the work had to be stopped temporarily for 2 months and then resumed. In Nagaon there were difficulties of finding land which led to delay in starting construction and finding the funds.

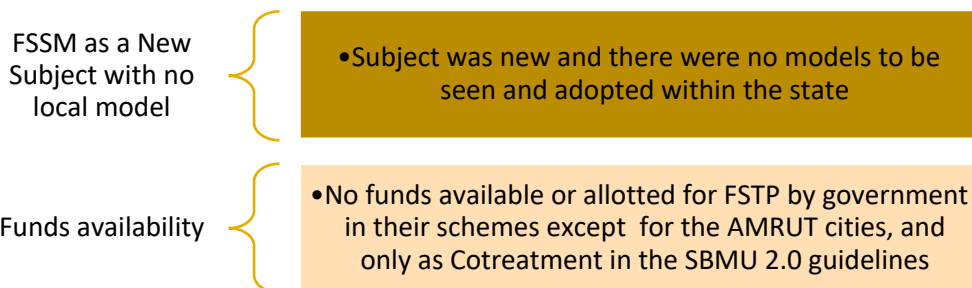
The State of Assam has 35 districts and 104 ULBs consisting of only one (01) Municipal Corporation (Guwahati Municipal Corporation) with a 3.4 million urban populations (2011 Census). The state has six (06) autonomous council districts that come under the Bodoland Territorial Council (BTR). All the towns are administered by ULBs which is responsible for delivery of infrastructure services.

The **32 ULBs now chosen for FSTPs** cover almost all districts of Assam from upper, central, western, and lower Assam.

Location and status of proposed FSTPs in 32 ULBs covering 23 out of 35 districts



Dual Challenge for FSTP Movement in Assam



FSSM in Assam was a challenging subject as it was new to the state. UNICEF introduced the subject of FSSM to the state government in July 2021 with the possibility that there would be fund allocation under Swachh Bharath 2.0. However, in October 2021 when guidelines were announced it was not the case. Hence, it was a struggle to not only make awareness of FSSM which was a new and less understood terrain besides there was no fund possibility. However, the fund challenge was overcome by the State Government with the support of the Department of Housing and Urban Affairs (DoHUA). Hence it helped the state to move from unsafe faecal disposal to some percentage of safe faecal sludge management by two (02) ULBs which was achieved with the state government action. 32 other ULBs have now floated a tender of various capacities for setting up their own FSTPs which when functional will help the state achieve an FSTP capacity of **332KLD** from zero by 2023-2024. In this article, we narrate how we got to this initial achievement.

The implementation of the pilot model will change the state's urban sanitation service chain and result in the safe collection, conveyance, and treatment of faecal sludge from urban households with a time frame. As the government of Assam and other states strive to achieve safely managed sanitation by 2030, the strategy can be a viable pathway for rapidly scaling-up FSM services in Assam.

This case study highlights how state leadership provided by the Commissioner and Secretary Ms Kavitha Padmanabhan IAS, and the Department of Municipal Administration and SBM-U was the much-needed thrust to a subject that was the need of the hour for mitigating pollution and abiding with NGT compliance.

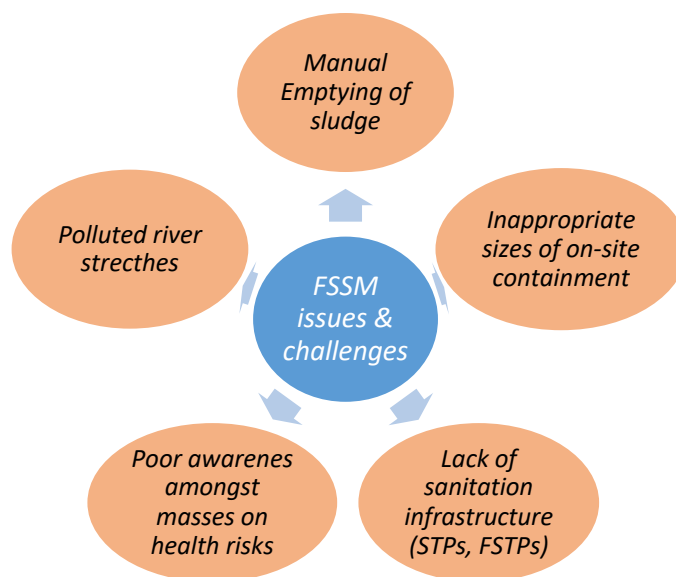
Introducing the FSSM project in Assam with the support of UNICEF & BMGF

UNICEF in partnership with Bill and Melinda Gates Foundation (BMGF) initiated the project in March 2021 with the following approach.

UNICEF's FSSM Planning and Objectives for Assam	<i>Developing a state-level Technical Support Unit (TSU) to disseminate knowledge and handhold support for creating models for replication</i>
	<i>Institutional strengthening</i>
	<i>Planning, Treatment, and Management of faecal sludge</i>
	<i>Roll out of SBCC (Social and Behaviour Change Communication) and IEC (Information Education and Communication)</i>
	<i>State scale-up through coordination, improved monitoring systems and evidence-based engagement with stakeholders</i>
	<i>Identifying and strengthening of innovative models</i>
	<i>Support scaling-up FSM across the state</i>

Assam: Before the Initiative

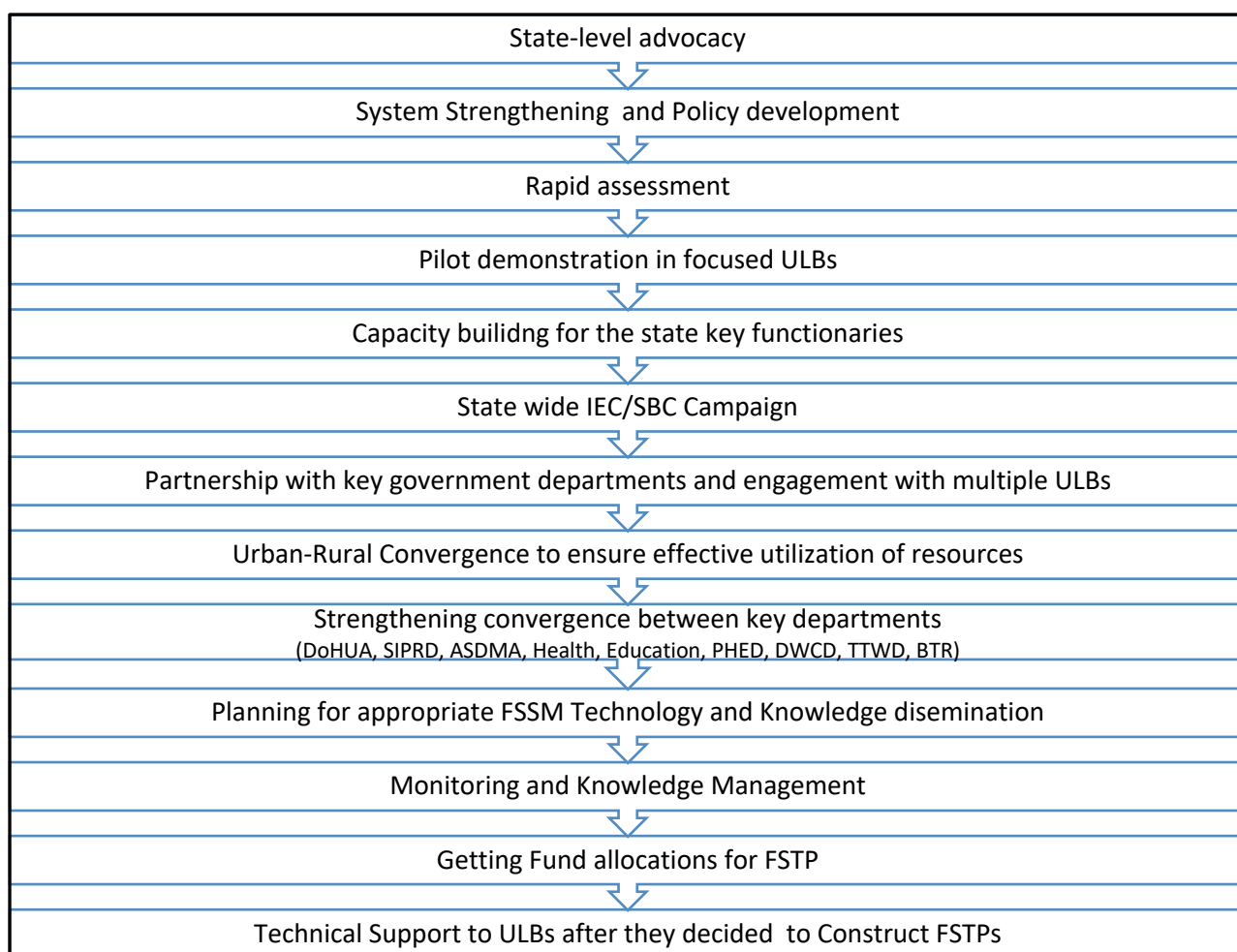
In Assam, there is a gap of approximately 435 MLD (million liters per day) in sewage generation and treatment, as per the filing with the National Green Tribunal (NGT). Implementation of on-site sanitation services remains a problematic area in all the cities in the FSSM value chain. The challenges faced are shown in the figure below.



- Data related to the availability of sanitation services, and collection of Faecal sewage and sewage treatment remains unknown to most urban bodies.
- Municipal corporations and municipal boards in the majority of the cities have the practice of employing people to manually clean septic tanks, a practice deemed illegal by the Supreme Court. Thankfully things are gradually changing with the state now taking steps.
- Inappropriate tank sizes are another problem that occurs due to a lack of defined norms with regard to tank sizes.
- Other problems such as lack of infrastructure of FSTP or STP in any of the municipal bodies for treatment, poor awareness among people on how untreated faecal sewage poses health risks and more than 40 identified polluted river stretches by Central Pollution Control Board (CPCB) has been a major lacuna in the state.
- Overall, the state did not have any FSSM policy, strategy, bye-laws, nor any standards maintained for the safe disposal of faecal sludge including scheduled desludging.

Scaling Up Strategies

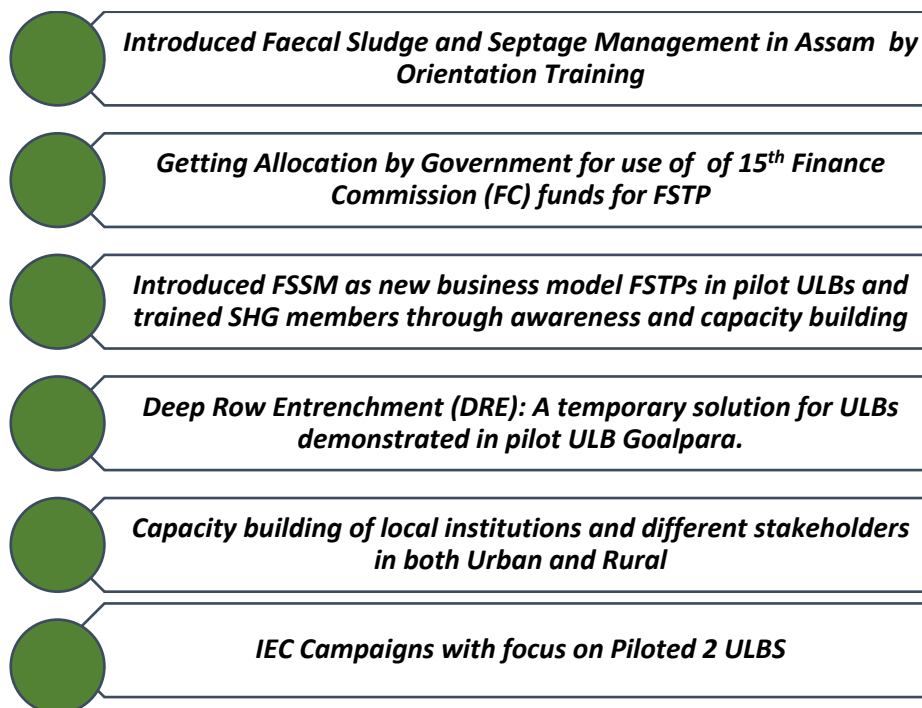
UNICEF in collaboration with DoHUA, the Government of Assam developed a multi-fold approach for scaling up the FSSM strategy for the state involving all key stakeholders as given below.



Milestones in the FSSM Journey

The milestone achieved in the state’s FSSM journey demonstrates the state-level leadership and UNICEF’s contribution to the strategy to mitigate pollution and damage to the environment through the disposal of untreated faecal sludge.

The FSSM Journey: Milestones



The Funding Challenge –Getting Allocation of funds for FSTP from different sources

With the FSSM topic introduced to the state government by UNICEF, a requirement to tap the funds from suitable allocations was to be identified. The SBM and AMRUT were thought to be possible sources. However, when the new SBM 2.0 Guidelines came it was found that there were no funds allocated for FSTP. Only STP or Co-treatment plants were given allocations but no single allocation to FSTP. The reality was STPs need larger resources and was time-consuming it was not possible to set up the STP in a year’s time. Moreover, the state had limited capacity and knowledge of STPs and FSTPs. Meanwhile the action needed was to comply with the demands of NGT. There was limited manpower and capacity within the government for taking up STP planning processes too.



UNICEF and TSU-FSSM Meeting with Secretary and Commissioner, DoHUA on FSTPs

TSU discussion with the government officials on FSTP posed the following questions:

- What are the potential fund sources for both capex and opex for the full FSSM service chain including conveyance and treatment?
- What innovative financing models to be considered for the FSSM sector to leverage resources and improve service performance?
- What are the technology options suited to Assam and the ULBs with low financial capacity?

The possible financing options and business models for setting up Faecal Sludge Treatment Plants (FSTPs) were discussed during various meetings and training with government officials. It was highlighted that the capital financing requirement for FSTPs is only a small portion of the budget allocated in different programs such as 15th Finance, AMRUT, etc. whereas STP required high capital cost for construction.

UNICEF requested the state government to support the FSTP in model towns at least through the 15th Finance Commission funds which had provision for use for sanitation and water.

The DoHUA had agreed to use the 15th FC Tied Funds for setting-up of model FSTPs. Goalpara Municipal Board (MB) was shortlisted for the same as it was the chosen as pilot ULB and had already initiated process for setting-up of an FSTP. Hence, Goalpara planned accordingly, as they were also searching which funds can be used for the purpose. Soon the issues of the NGT compliance were constantly being discussed at the Secretariat and hence a request came for setting up of 21 FSTPs for which immediately the proposals were prepared in the month of April 2022. However, the exercise was dropped after Central Public Health & Environmental Engineering Organisation (CPHEEO) confirmed that the SBM funds cannot be utilised for standalone FSTP.

In view of NGT compliance, the state government reconsidered the process and plans for doing the FSTPs. A request was made to the UNICEF supported TSU to plan for 10 FSTPs, which became 21 and finally the number was increased to 32 ULBs in the month of December 2022. Thus, funds were allotted from the 15th FC tied grants to be utilised for the FSTP and all ULBs are in the planning process for the same. Proposal and estimates were prepared and technologies finalised by the 32 ULBs after site selection and other processes. In a year time, all ULBs are expected to complete majority of the FSTP construction and usage. Based on the meetings and advocacy with the state government, many ULBs are currently allocated funds for FSTP from 15th Finance Commission.

The FSSM Funding options

Expansion of AMRUT funding for FSSM:	}	• AMRUT cities are planning to utilize AMRUT funds for FSSM
15th FC Funds:		• Titabor town of Jorhat district allocated INR 45.00 lakhs and constructed a 10.0 KLD FSTP using 15 th Finance Commission fund. Goalpara Town also started construction of a 7.0 KLD FSTP using 15 th FC funds.

Link for Initiative of Government leaders published online

<https://nfsmalliance.org/from-open-defecation-free-to-safe-human-waste-management-the-journey-santa-karki-chetri-led-in-goalpara-assam/>

Introduction of FSSM as new business model for the SHG members and Urban local bodies

The state government with support of TSU is integrating its efforts with Self Help Groups (SHG) established under National Urban Livelihood Mission (NULM). The objective is to empower women groups to move the FSSM agenda forward at the household and community level and to create a sense of community ownership.

Often the realization in the field was that FSSM word and concept were absolutely new to both the state and at the grassroots level. It was planned that only by involving the SHGs the message will reach every household. Only then each family will reflect on their septic tanks and their management. The collaborative approach to citizen engagement is the key to facilitating a successful behavioural change to motivate households to adopt good FSSM practices.

To understand the mindset and response from self-help groups regarding the FSSM, UNICEF in collaboration with Women Development Centre (WDC) conducted baseline surveys and IEC strategies. District level orientations were held for the SHG and Area Level Federation (ALF) members in convergence with Deendayal Antyodaya Yojana - National Urban Livelihoods Mission (DAY NULM). A group of selected SHG members were oriented and trained on the FSSM, its value chain, benefits of the new FSTP and probable emerging business models that they can involve themselves. Through these trained SHG members, WDC carried out orientation training for other SHG members in different wards of the ULB. Till date 3,300+ numbers SHG and ALF members were trained in Goalpara and Nagaon.



Meeting with DC-Goalpara and other stakeholders



SHG Leaders learning about FSSM

Some of the major outcomes of the ward-level orientations are as follows:

- *It was delightful to know that Bharati Das and Kalpana Das constructed septic tanks in their home after attending the FSSM training!*
- *A group of four (04) women led by Mina Bala Das came forward to form a group and orient people on FSSM in their locality by conducting door to door visit. The enthusiastic group has till date oriented more than 60 households in the locality.*
- *The process of this activity is continuing in their meetings.*
- *SHG members are interested to adopt the emerging business model of FSTP*



Bharati Das and Kalpana Das constructed septic tanks in their home after attending the FSSM training



A group of four (04) women led by Mina Bala Das, orient people on FSSM in their locality by conducting door to door visit.

Initiatives of SHG member published online

<https://nfssmalliance.org/flush-out-the-misconceptions-minas-journey-in-demystifying-fssm-for-her-community/>

Deep Row Entrenchment (DRE): A temporary solution for ULBs

In the pilot projects where the FSTP was planned it was proposed to start a DRE as a temporary solution for safe disposal and management of faecal sludge. Fortowns with available land and a need for temporary disposal offaecal sludge, DRE is proven to be a viable solution. Currently Goalpara town has a functioning DRE site with several other towns in the process of adopting the intervention as an interim measure before moving to FSTP. Prior to the implementation of DRE in Assam, no interim solutions were used for safe disposal of faecal waste. Indiscriminate disposal of faecal waste was done in agricultural fields, open places and water bodies or near plastic waste dumping sites which led to alarming contamination of the environment and health issues among the people. The FSSM expert of TSU gave the technical assistance for carrying out DRE.

To successfully implement DRE as a solution in the state, as a first step, the total faecal waste generated by all towns and cities were estimated and the cost of implementation and upkeep were calculated, guidelines were developed for site selection and model designs for DREs were shared with the ULB officials. Goalpara Municipal board was keen and took up the measures to immediately install and also monitoring mechanisms were put in place to ensure that all the collected faecal waste is disposed at designated DRE sites.



Before



After

Deep row entrenchment in Goalpara

Capacity building of local institutions and different stakeholders

Government of Assam with support from UNICEF identified the different stakeholders for FSSM and developed Capacity Building plan for the state. The plan was rolled out in collaboration with local Institutions like State Institute of Panchayats & Rural Development (SIPRD) as a Nodal Training Institute for FSSM in Assam for scaling up FSSM through rural-urban convergence mode. UNICEF Assam also established a partnership with Women Development

Organisation(WDC) and built up the NGO capacity for providing support on FSSM in Goalpara and Nagaon Town.



State level capacity building programme on FSSM

Training of Trainers (TOT), SIPRD

Initially, UNICEF in collaboration with WASH Institute organised capacity building programme for local institution (SIPRD), local NGO (WDC) and selected trainers. Through these local institutions, NGOs and trainers, the programme was extended to all the towns, reaching a large number of government officials from 104 ULBs and other departments directly or indirectly. Around 500 government officials, 3300+ Self-help group members, 78 masons, 30 sanitary workers and 46 elected members were trained.

IEC activities campaigns in pilot ULBs

The significance of communication campaigns in generating demand for sanitation services, cannot be undermined. IEC campaigns were conducted in Goalpara to increase the awareness on risks of poor FSSM and manual disposal of faecal sludge in pits, to increase demand for mechanized desludging, and to motivate households to desludge their septic tanks/pits every three years using mechanized

emptying services.



Malasur street Play in Nagaon

The IEC campaign was conducted for a period of one year, using a mix of communication channels, such as street plays, wall paintings, and display of hoarding and dissemination of leaflets. The impact of the campaign resulted in the request for cesspool cleaning from households, many households constructed septic tanks as per standards and also saw an increase in number of trips per day. Some of the key messages spread through these activities include:

- Toilet should be used by all the family members
- If we wash our hands regularly, we can protect ourselves from 70% of the diseases
- Build the Right kind of Septic tank. Check if Septic tank is the Right kind that is it has 2 Chambers + 1 Soak pit? If not, retrofit. Employ certified mason for construction or retrofitting
- Desludge/empty septic tanks regularly (at least once in three (03) years)
- Desludging of septic tank always should be done mechanically. Emptying septic tank with hands is an illegal act and should be prohibited.
- All the Faecal sludge should be treated in a Treatment plant to avoid diseases and to protect environment
- Wear PPE Kit during cesspool cleaning Process. Protective Gear is a right for the sanitation workers and cesspool workers

FSSM TSU and SBM Team have prepared IEC material consisting of leaflet, poster, hoarding, wall painting, community/public toilet (CT/PT) branding, making script, cesspool truck branding, street play script, messages for radio jingles etc. based on the key messages keeping in mind the local context of Assam. These materials have been prepared in both English and Assamese.

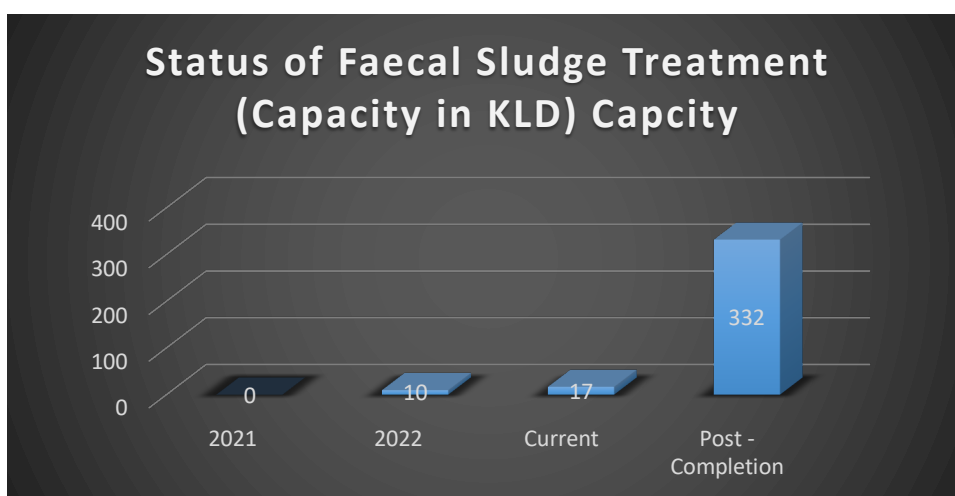
Assam: After the Initiative

- As of November 2022, many districts planned for conducting FSM pilot projects in ULBs. A state-level FSM policy was prepared and submitted to the government of Assam for cabinet approval. The state also established two of the lighthouse urban pilots on FSM in smaller towns (Nagaon and Goalpara).
- As of now March 15th the state government has constructed one FSTP using MBBR + SDB technology, another one using Tiger Bio-filter and 32 tenders have been floated for setting up of FSTPs in 32 ULBs using different technology options like DEWATs + SDB, Tiger Bio-filter and MBBR + SDB. Separately, the Assam Urban Water Supply and Sewerage Board is preparing proposals for STPs in five (06) AMRUT Towns and NGT focussed districts.
- DoHUA has constituted a core committee for deliberating on FSSM policy, strategy, monitoring and quality assurance of FSSM projects. The committee consists of representatives from Municipal Administration, Sewerage Board, Disaster Management, Pollution Control Board (PCB), Town & Country Planning and WASH Specialist (UNICEF).
- Following the success in pilot ULBs, the state is planning to scale-up FSM to all its 104 urban local bodies.

Assam's first FSTP at Titabor Town



Current and Future FSTP Treatment Capacity for the ULBs



The above graph shows that in 2021 July when TSU was set up the safe disposal was at zero level, in September 2022 it became 10 KLD and presently in 2023 it is 17 KLD with the FSTPs at Titabar, and DRE facility at Goalpara. On completion of the 32 FSTPs by 2024 we will have 332KLD in safe disposal.

Learnings

- The leadership and interest at the top-level of the state government is critical for decision-making on major works like FSSM scaling-up. Allotment of funds is a crucial step for creating facilities and changing the face of Assam with regard to the prevention of environmental pollution. The steps towards FSSM underline the good decision made by the state government until STPs and co-treatment facilities are realized.
- Developing of FSSM, scaling up plan by strengthening convergence between key departments (DoHUA, ASDMA, Health, Education, PHED, DWCD, TTWD, BTR, PCB) for effective utilization of funds and resources has created the road for the implementation.
- A phased approach of awareness for different stakeholders is crucial to understand the benefit of proper management of faecal sludge
- Learning and designing appropriate FSSM Technology (FSTP) as per Assam geographic and climatic conditions

চেষ্টিক টেংক পৰিষ্কাৰ কৰাৰ সময়ত পি পি ই কিট পিন্ধিব লাগে।

 আপোনাৰ চকু সুৰক্ষিত
ৰাখিবলৈ চশমা
ব্যৱহাৰ কৰিব।

 বিসাক্ত গেছৰ পৰা
সুৰক্ষাৰ বাবে মুখা
ব্যৱহাৰ কৰিব।

 হাতমোজা ব্যৱহাৰ
কৰাটো
বাধ্যতামূলক।

 কামৰ সময়ত, সুৰক্ষাৰ
বাবে হেলমেট ব্যৱহাৰ
কৰিব।

 শব্দ প্ৰদূষণৰ পৰা কাণ
সুৰক্ষিত ৰাখিবলৈ হেডফোন
ব্যৱহাৰ কৰিব।

 আপোনাৰ শৰীৰটো
সম্পূৰ্ণৰূপে পোছাকেৰে
ঢাকি ৰাখিব।

 সুৰক্ষা জোতা ব্যৱহাৰ
কৰাটো বাধ্যতামূলক।



যদি আমি শ্ৰমিকসকলক সুৰক্ষা দিওঁ তেন্তে
গোটেই প্ৰণালীটো সফল হ'ব।

আপোনাৰ ছেষ্টিক টেংকটো খালি কৰিবলৈ প্ৰত্যক্ষ
ভাবে শ্ৰমিক নিয়োগ নকৰিব কিয়নো "কায়িকৰূপে
ময়লা চাফাকৰণ আইন ২০০৩"তে এনে কৰাটো
বেআইনী।

আপুনি জানেনে, আপুনি ত্যাগ কৰা মল-মূত্ৰবোৰ ক'লৈ যায়?




আপোনাৰ পানী
"মলসুৰৰ"
পৰা ৰচাওক



শ্ৰমিক (ডিস্কাৰ্ডাৰ)
সুস্থিবলৈ নাপাহৰিব যে
মল-মূত্ৰ বোৰ ক'লৈ
লৈ যায়?




মল বা মলসুৰ যিকোনো ঠাইত পেলাই
দিয়াৰ ফলত পানী দূষিত হয়





BILL & MELINDA
GATES foundation






POCKET BOOK FOR FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM)














আপুনি জানেনে, আপুনি ত্যাগ কৰা মলবোৰ ক'লৈ যায়?

ফেকেল স্লজ মেনেজমেণ্ট



আবদ্ধকৰণ



মজুতকৰণ



পৰিবহন



শোধন



পুনৰ ব্যৱহাৰ (ইন্ধন,
জৈৱগেছ, শক্তি উৎপাদন)
/ নিষ্কাশন

নিৰাপদ অনাময় ব্যৱস্থা সুনিশ্চিত কৰিবৰ বাবে এই পদক্ষেপসমূহ গ্ৰহণ কৰিবলৈ নাপাহৰিব:

**শৌচালয় নিৰ্মাণ আৰু
ইয়াৰ ব্যৱহাৰ**

- মুক্তিভাৱে অথবা মূৰে অথবা খোঁৱিৰ
- সঠিক শৌচালয় ব্যৱহাৰ কৰিব
- সঠিক শৌচালয় ব্যৱহাৰ কৰক বা অৱশ্যে
বাহিৰৰ বাসভাৱিত শৌচালয়ত যাব
- সঠিক শৌচালয়টো স্থাপনকৰণ
- উন্নত মানৰ সলফুৰ অক্সিজেন, পেন্সেল-এইচিক ট্ৰেংক
- আপোনাৰ শৌচালয়টোৰ বন্ধৰ পৰীচাৰে
এইচিক ট্ৰেংক সলফুৰ অক্সিজেন পেন্সেল
মিচিৰ

**আপোনাৰ ছেষ্টিক টেংকবোৰ খালী
কৰিব/বিচাৰি পেলবোৰ অপসারণ কৰিব**

- আপোনাৰ ছেষ্টিক টেংকটো এটি ৩ বছৰ
আহাৰ পৰা বিচাৰি কৰিব লাগিব
- আপোনাৰ ছেষ্টিক টেংকটো খালী কৰিবলৈ
হোৱাৰ বাবে সঠিক নিয়োগ কৰিব লাগিব
- "সঠিকৰূপে
হোৱা" চাফাকৰণ কৰিব লাগিব
- "সঠিকৰূপে
হোৱা" কৰাৰ বাবে সঠিক নিয়োগ কৰিব
লাগিব

মলমূত্ৰ পোৰ পৰিবহন

- বাস্তৱিকভাৱে ছেষ্টিক টেংক চাফাক কৰা
সময়ত সঠিক চাফাক কৰা
- ছেষ্টিক টেংক পৰিবহন কৰাৰ সময়ত
সঠিক নিয়োগ কৰিব লাগিব
- ছেষ্টিক টেংক পৰিবহন কৰাৰ সময়ত
সঠিক নিয়োগ কৰিব লাগিব
- ছেষ্টিক টেংক পৰিবহন কৰাৰ সময়ত
সঠিক নিয়োগ কৰিব লাগিব

**মলমূত্ৰ পোৰ শোধন আৰু
পুনৰ ব্যৱহাৰ**

- এনে এনে পি পি ই কিট পি. এ. পোৰ
শোধন কৰিব লাগিব
- শোধন কৰাৰ সময়ত সঠিক নিয়োগ
কৰিব লাগিব
- শোধন কৰাৰ সময়ত সঠিক নিয়োগ
কৰিব লাগিব
- শোধন কৰাৰ সময়ত সঠিক নিয়োগ
কৰিব লাগিব

মলমূত্ৰ পোৰবোৰ খালী কৰি লৈ যোৱা লোকসকলক মলবোৰ ক'লৈ নিছে সুস্থিবলৈ নাপাহৰিব?