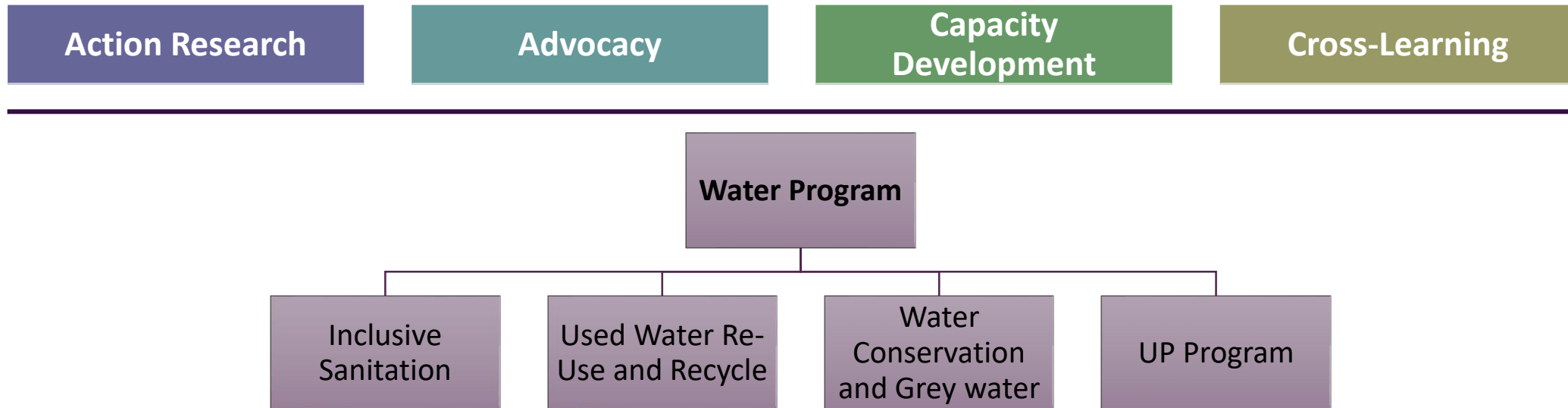


WATER PROGRAM - CSE



About CSE & Water Program

- Centre for Science & Environment (CSE) was set up in 1980's, in Delhi – as a registered non profit society.
- An institution to bridge the **gap between information and knowledge**; between knowledge and public awareness; **to influence public policies and practices** for sustainable development – ***'to promote sustainable development with equity, participation and democracy'***.
- Awarded the *Stockholm Water Prize* – 2005, *Indira Gandhi Prize for Peace, Disarmament and Development* – 2018, *Edinburgh Medal* – 2020
- **Centre of Excellence** in the Sustainable Water management area – Ministry of Urban Development
- **National Key Resource Centre** of Ministry of Jal Shakti
- **Anil Agarwal Environment Training Institute (AAETI)** – State-of-art training institute and living lab





Centre for Science and Environment

Research & advocacy

Programmes

- Air Pollution & Mobility
- Climate Change
- Industry: Pollution & Energy
- Environment Education
- Sustainable Food Systems
- Sustainable Habitats & Cooling
- Municipal Solid Waste
- **Water, Wastewater, Sanitation**

Education, Training

Anil Agarwal Environment Training Institute

- Build capacities on environment (India & across global South)
- Green campus

Pollution monitoring

- **Environment Monitoring Lab** Pollution, toxins in food, waste, water, FSM
- Independent information in public domain

Communication

Media resource centre

- Strengthen reportage of mainstream and regional journalists on environment

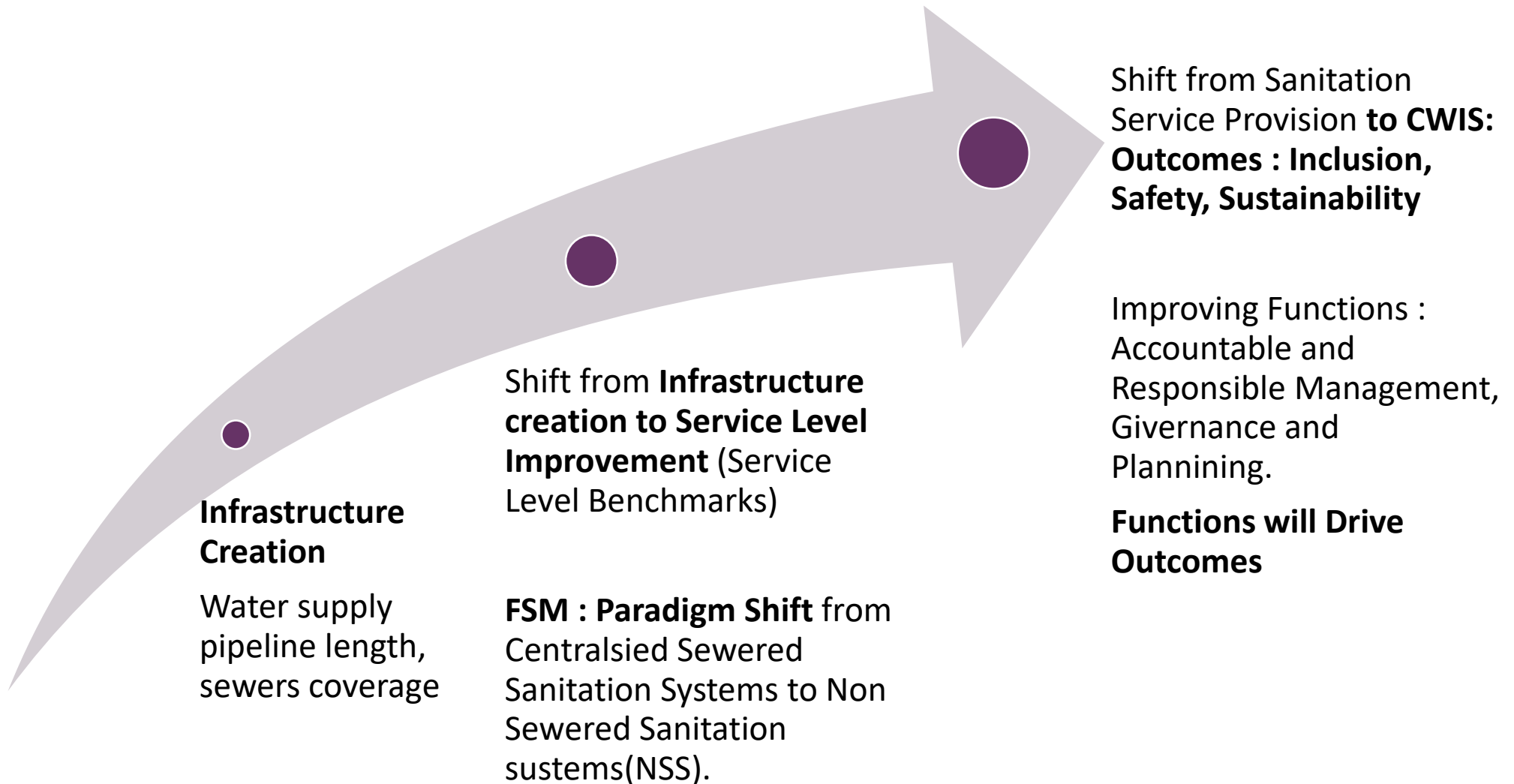
Down To Earth (since 1992)

- English, Hindi & Digital editions

Websites, E-newsletters, media

- Campaign tools for outreach
- India Environment Portal

Sanitation Journey – Some global leaps



Water Program – what we do, what we offer

- **“Ear to the Ground”** – Practice to Policy to Programs.
 - Filling gaps from Policy to Practice
- **Policy requires a long term conceptual view.** Prioritising medium and short term actions.
 - WHAT should be done, what should not be done.
 - Non sewered sanitation systems, re use of treated waste water and bio solids, affordable and inclusive sanitation services, norms and regulations
- **Programs require an understanding of HOW it is to be done**
 - **Assessment of what exists**
 - **Planning followed by Designing** – Non-sewered sanitation systems, Septage-Sewage Co Treatment at STPs, Rain Water Harvesting, Lakes and Water Bodies rejuvenation/pollution abatement



Water Program Scope

Water Source sustainability of rural water supply and emerging waste water, faecal sludge, grey water and plastics management.

Global south water sensitive Framework to water and waste/storm water management in cities

Climate change - impacts are essentially intensification of water cycle. Cities are faced with the twin problems of water scarcity and flooding. Rural water crisis is impacting drying up of small rivers and water bodies.

Re use of treated waste water and bio solids. Primacy of water-nutrient cycle separation.

Sustainable and inclusive sanitation services through policy advocacy, and state and town level engagement, peri-urban and rural-urban convergence.

Strengthening systems understanding (decentralized, sewerred and non sewerred sanitation systems) and integrated waste water and septage management solutions.

Water bodies rejuvenation - address core issues of drying up of rivers and pollution, avoiding a one sided beautification and place making approach.



Program Outcomes

- **National & State Sanitation Missions(SBM, AMRUT, NMCG, JJM) : improved effectiveness, critical insights**
 - Assessments, Frameworks
 - Capacity building
- **Advocacy as a credible independent voice**
 - Research and evidence based Policy advocacy
 - Inclusive, affordable, just solutions. Speak for both livelihoods and environment.
- **Effective Septage Management/Treatment Systems in UP contribute to improved Health and Environment**
 - Sustainability of FSSM infrastructure created across 56 towns of UP
 - Treatment Systems effectiveness, Enabling Policy and Norms
- **International Outreach – global south countries**
 - Contribute to Policy and Practice outcomes.
 - Collaborative engagement, Voice, Agenda setting.



Inclusive Sanitation

Areas of work

1. Assess current practices and challenges on the ground. Interpretation and implementation of relevant Policy and Programs.
2. Development Assessment Tools and Methodologies and Capacities. Shit Flow Diagram (SFDs), Integrated Waste Water and Septage Management, DWWTs.
3. Planning and Design of Non Sewered Sanitation Systems(FSM) – FSTPs and Co Treatment.
4. Technical Assistance to assess/improve efficacy and efficiency of non-sewered sanitation systems
5. Identification of appropriate sanitation solutions in informal settlements
6. Training Modules and Tool Kits. Build capacity and create practitioners/change agents
7. Technical Guidance, Advisories and Manuals, Norms and Policy- Used Water management/treatment

Capacity Building, Research/Advocacy

- Preparation of SFDs
- Faecal Sludge Management – Orientation, Planning, Designing
- Operation and Maintenance of Faecal Sludge Treatment Plants
- Co Treatment of Septage with Sewage – Planning and Designing
- Decentralised Wastewater Management(DWWTs)
- Integrated Wastewater and Septage Management (IWSM) - city wide sanitation systems
- Sanitation Safety Planning (SSP)



Sustainable water supply and safe sanitation practices in rural areas

Areas of work

1. Assess current practices and challenges on the ground. Interpretation and implementation of relevant Policy and Programs.
2. Developing training modules and guidelines, operation and maintenance manual
3. Developing compendium for best practices from global south to inform planning and upscaling of the projects
4. Technical support through advisories and manuals for enhancing resilience of groundwater through recharge and managing wastewater/ toilet technologies at institutional and village levels
5. Support to develop policies and strategies to make groundwater based water sources sustainable and improve the state of sanitation

Capacity Building, Research/Advocacy

- Groundwater management
- Rainwater harvesting using advanced geo spatial tools
- Managing used water at the institution level
- Treatment of faecal sludge through different toilet technologies



Waste water and Bio Solids - Re Use and Re cycle

Areas of work

1. Assess current practices and challenges on the ground. Interpretation and implementation of relevant Policy and Programs.
2. Advocate for a Circular Economy in water and nutrient cycles. Addressing the critical gap of sanitation service value chain, with a justice and equity focus.
3. Enabling Policy and Practice - Standards, Norms and Practices of treated bio solids and treated used water, for re use priority of global south.
4. Promoting Institutional and Programmatic enablers and best practices - for re use of treated waste water and its re use
5. Promoting Sanitation Safety Planning for re use of treated water and bio solids

Capacity Building, Research/Advocacy

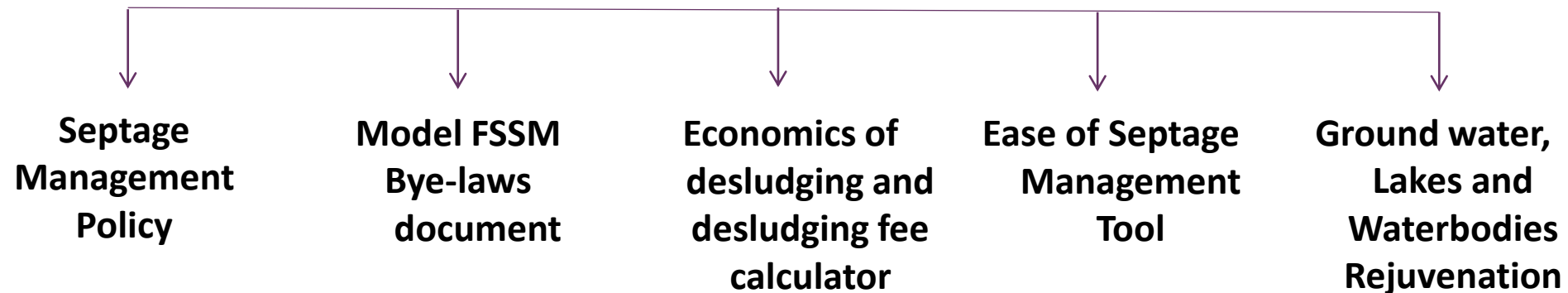
- Scaled up re use of treated waste water and bio solids
- Policy, Norms and Guidelines
- Application guidelines
- Pollution abatement in lakes and water bodies, wetlands and land application
- Standards and Norms – treatment of bio solids and waste water



Technical Support at State Level

Areas of Work

1. Assess current practices and challenges on the ground. Interpretation and implementation of relevant Policy and Programs.
2. Designing and operationalization of model FSTPs and Co Treatment Systems.
3. Engagement with Department of Urban Development, Uttar Pradesh for Integrated Waste Water and Septage Management, Urban Lake Rejuvenation. And with Rural Development for Ground water and Lakes and water bodies rejuvenation.



4. Scaling up: Sustainability & Inclusivity and inclusivity of Non Sewered Sanitation Systems(NSS)
 - Performance Monitoring of functionality and efficacy of Treatment Plants
 - Capacity development for Institutional Strengthening and Policy



Global South Water Sensitive Cities Framing

Cities commit to a “Just and Equitable Access, Use and Re use” of water supply, and also to sewerage/septage and storm water management.

*Implying that the framework **recognises inequity** in urban settlements as the basis of planning and designing interventions for water sensitive cities.*



Guiding Principles

- **Larger and long term vision(firmly rooted in the equity, rights and justice goals).** Not just in projects. Inter city and urban-rural contextualisation of interventions.
- **Climate change exacerbates already existing water scarcity and flooding risks of cities.** Mitigation measures should not further inequity.
- **“Design” consciously for Equity and Justice.** Abandon a normative, techno managerial approach to “design” interventions for water sensitive cities.
- **Reducing conflicts.** Recognise existing and future conflicts around water and waste. Address them to the extent possible in programs and policy.
- **Improving functionality and efficiency grey and green infrastructure.**

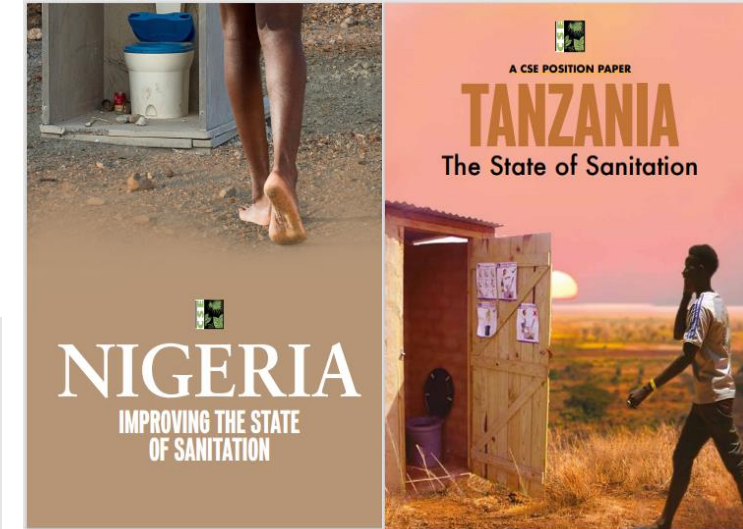


Index

- **Functional Infrastructure and services.** Fix all existing non functional water, sanitation and storm water infrastructure and services. To improve efficacy and treatment outcomes.
- **Functional and Inclusive Infrastructure for unserved areas.** Additional grey infrastructure and services will be needed for unserved informal urban settlements, that now dominate the urban landscape of cities of global south.
- **Substantial Re Use of treated waste water and bio solid.** Reduced waste water footprint and Re use of treated bio solids(for agriculture) and treated waste water. This may include all measures for re use and recharge of ground water and prevention of pollution of ground water, lakes and rivers. Inside or outside the city limits.
- **Mitigating in-situ urban flooding.** Enhanced storm water drainage dimensions/norms, to address in-situ urban flooding in cities(where built up area has reduced ground water recharge potential) that is witnessed in normal rainfall periods as well as in high intensity climate change induced episodes. Conserving rain water wherever possible, as contamination free as possible.

CSE's Partnerships in Global South

- MOU on Rural water and sanitation with Ministry of Water and Environment, Uganda, Ministry of Health, Tanzania and Federal Ministry of Environment, Nigeria
- MoU with Ministry of Water and Energy - Ethiopia
- MoU with Water Research Commission South Africa
- Collaboration in South Asia : working with ENPHO Nepal, WaterAid Bangladesh, IITN BUET, AIT Thailand
- Collaboration with Universities and Training Institutes



United States of America

BILL & MELINDA GATES foundation

GWSP GLOBAL WATER SECURITY & SANITATION PARTNERSHIP

University of Buffalo Columbia University Global Water and Sanitation Partnership

United Kingdom

UNIVERSITY OF LEEDS

Loughborough University

Lancaster University WEDC Developing knowledge and capacity in water and sanitation

The Netherlands

UNESCO United Nations Educational, Scientific and Cultural Organization

IHE DELFT Institute for Water Education in partnership with UNESCO

Germany

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Switzerland

World Health Organization

eawag aquatic research

Ghana



Ministry of Water Resources and Sanitation

Rwanda

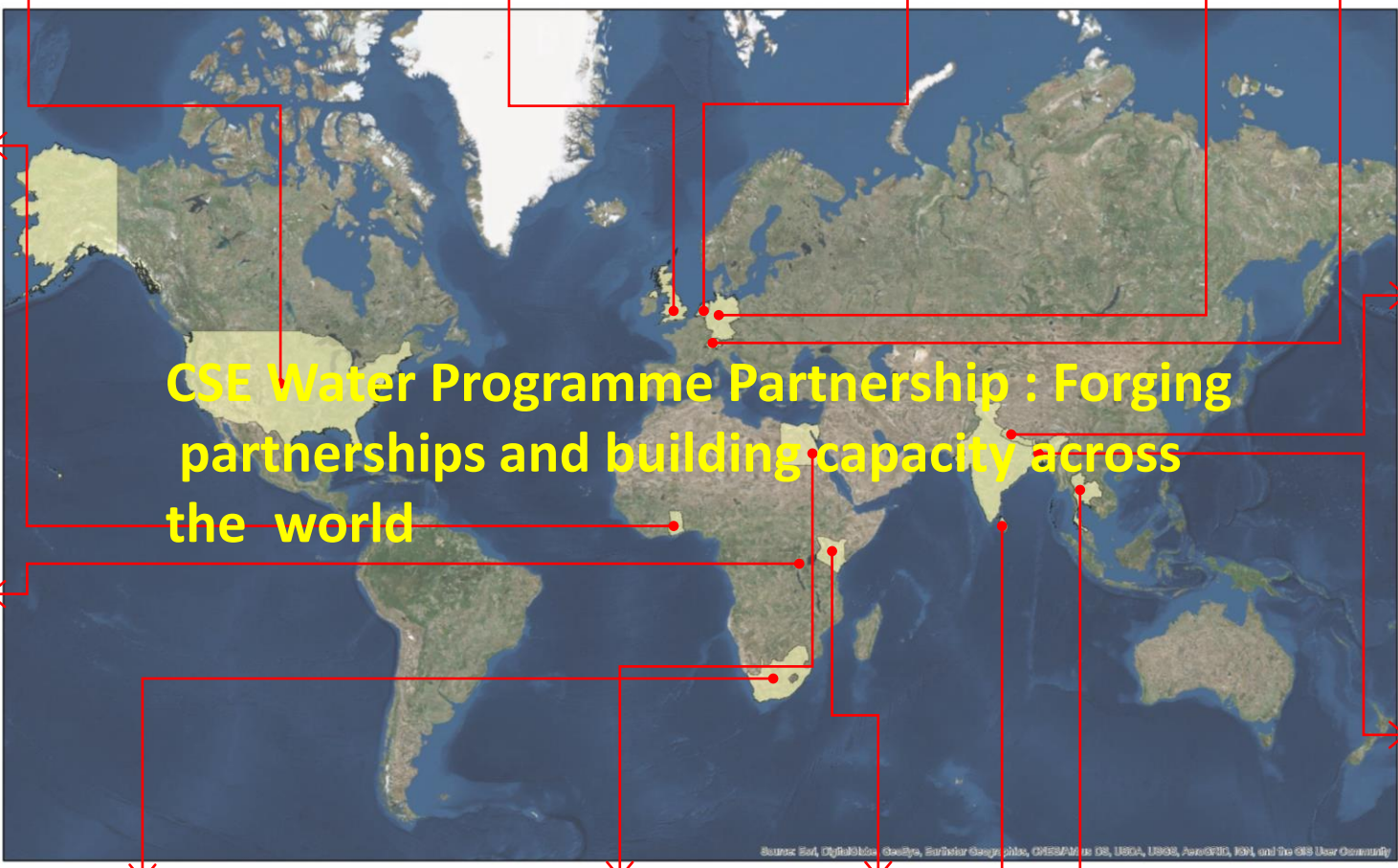


Ministry of Infrastructure




Rwanda Water and Forestry Authority

WaterAid




Nepal



Ministry of Physical Planning and Works


guthi



Centre for Integrated Urban Development

Bangladesh

WaterAid



BRAC UNIVERSITY

Inspiring Excellence

Republic of South Africa

WATER RESEARCH COMMISSION



UNIVERSITY OF KWAZULU-NATAL

INYUVESI YAKWAZULU-NATALI


Egypt




NWRC

National Water Research Centre

Kenya



Kenya Water Institute



Jomo Kenyatta University of Agriculture and Technology

Sri Lanka



Ministry of City Planning and Water Supply



Lanka Rainwater Harvesting Forum

Thailand



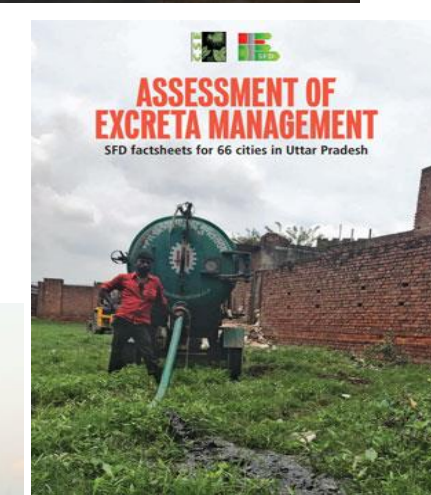
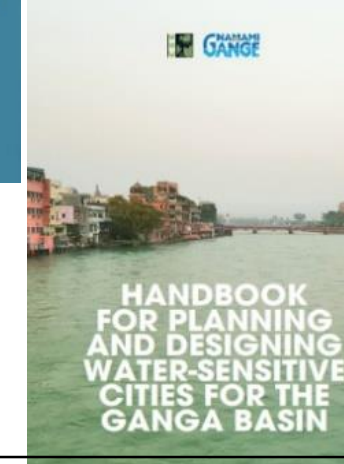
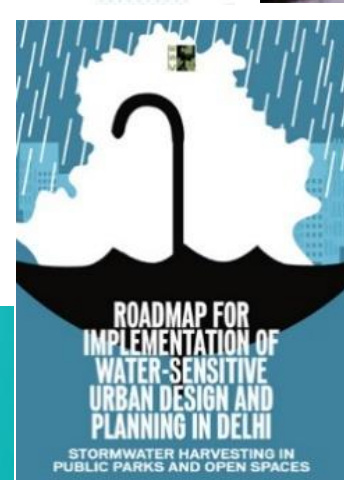
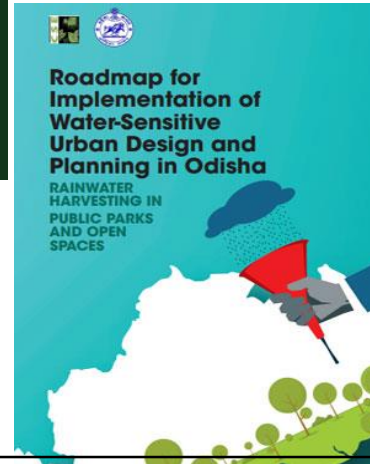
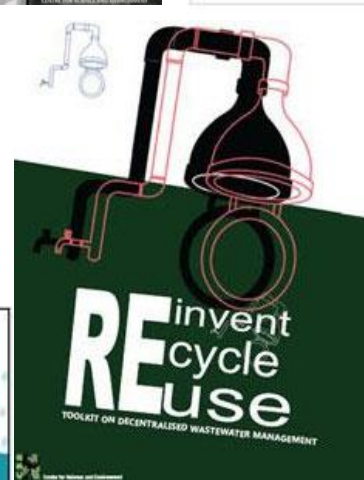
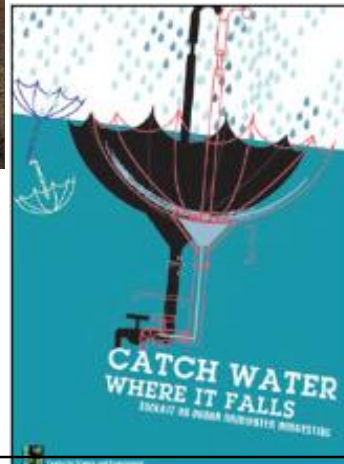
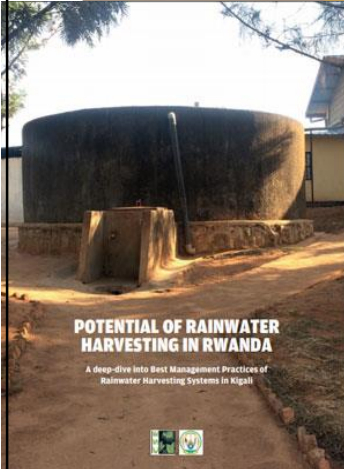
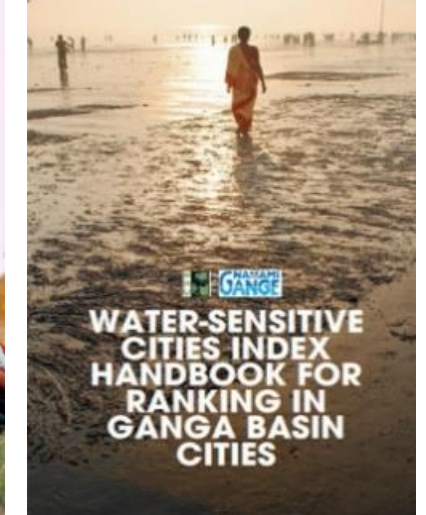
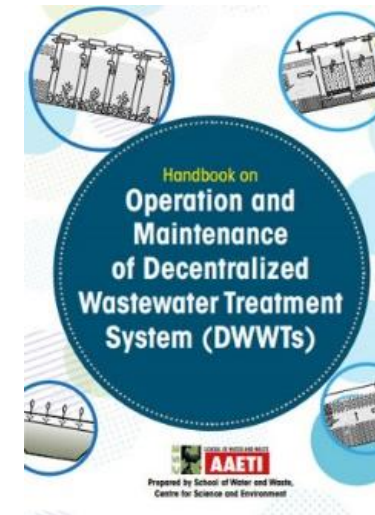
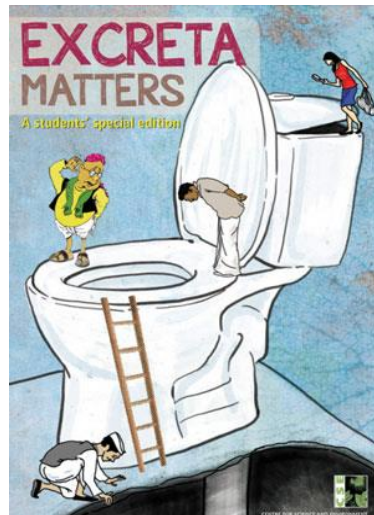
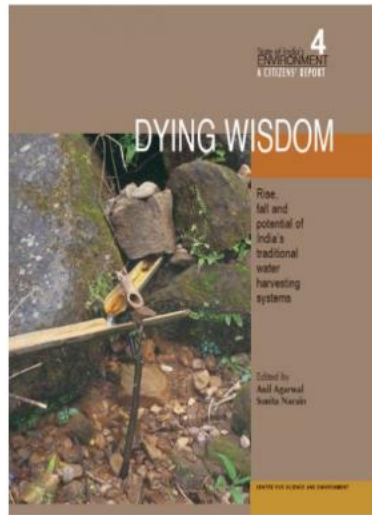
ASIAN INSTITUTE OF TECHNOLOGY

1959

Asian Institute of Technology



Publications and Web- Compendiums



Sab ke liye swasth shahar
Swachhhta ki nayi lehar

SEPTAGE MANAGEMENT FOR CITY-WIDE INCLUSIVE SANITATION IN UTTAR PRADESH

National Workshop: Pathway Towards Inclusive and Responsible Sanitation Services (FSSM) in Uttar Pradesh

Venue: Directorate of Urban Local Bodies, Lucknow
September 29, 2022

GUIDELINES FOR PLANNING, DESIGNING AND IMPLEMENTATION OF DEEP ROW ENTRENCHMENT (DRE) IN TOWNS WITH < 20,000 POPULATION IN UTTAR PRADESH

An Intermediate Solution for Managing Faecal Sludge and Septage

EASE OF SEPTAGE MANAGEMENT

A tool for sustainable and inclusive urban sanitation systems

SEPTAGE MANAGEMENT IN BIJNOR TOWN

Towards Inclusive Sanitation in Uttar Pradesh

SEPTAGE MANAGEMENT IN CHUNAR TOWN

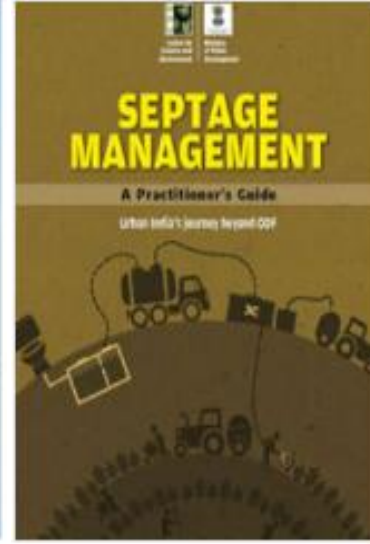
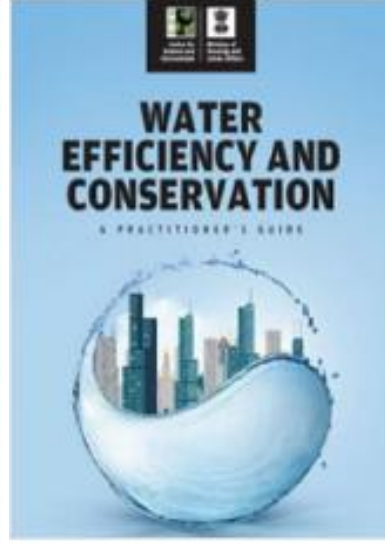
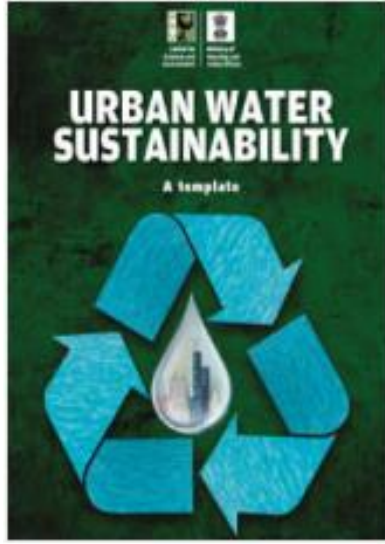
Towards Inclusive Urban Sanitation in Uttar Pradesh

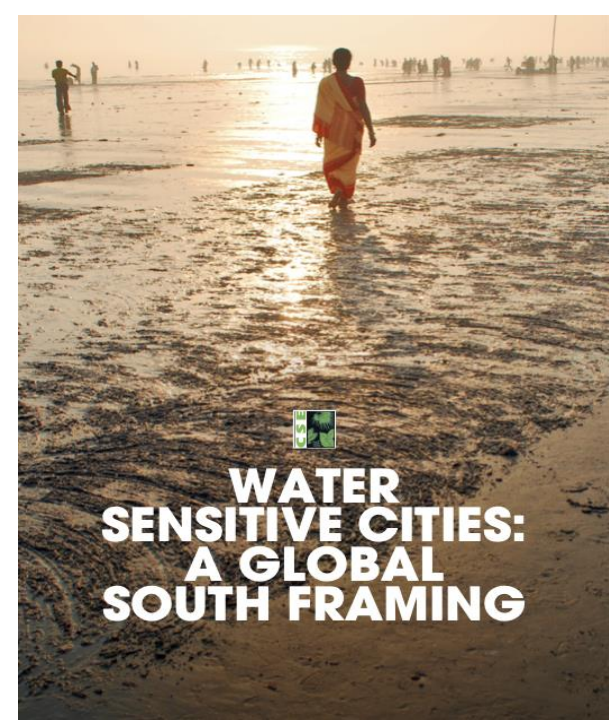
SEPTAGE MANAGEMENT IN JHANSI TOWN

Towards Inclusive Urban Sanitation in Uttar Pradesh

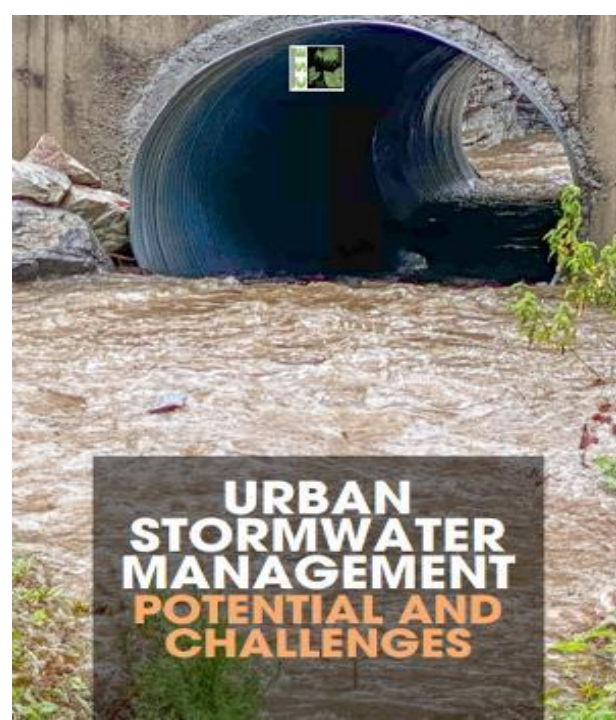
MODEL CONTRACT FOR OPERATION AND MAINTENANCE (O&M) OF FAECAL SLUDGE TREATMENT PLANT (FSTP)/ CO-TREATMENT PLANT AND DESLUDGING VEHICLES

URBAN DEVELOPMENT DEPARTMENT, UTTAR PRADESH

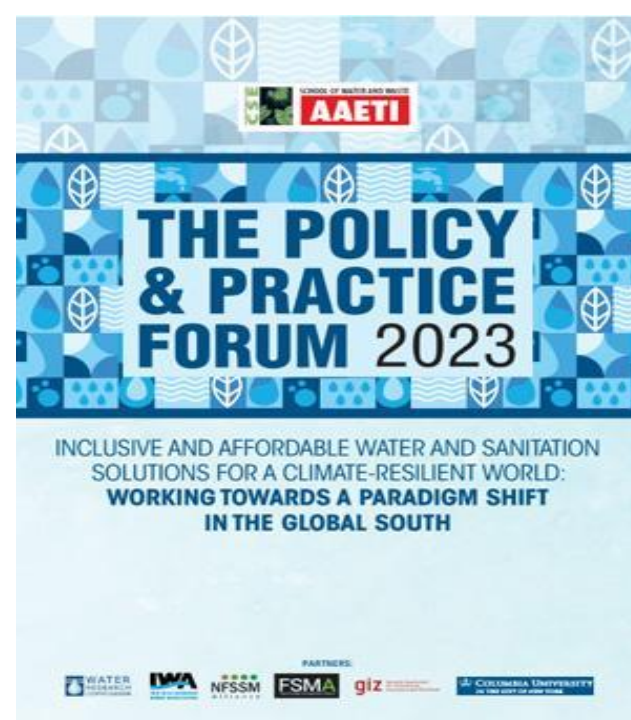




WATER SENSITIVE CITIES: A GLOBAL SOUTH FRAMING



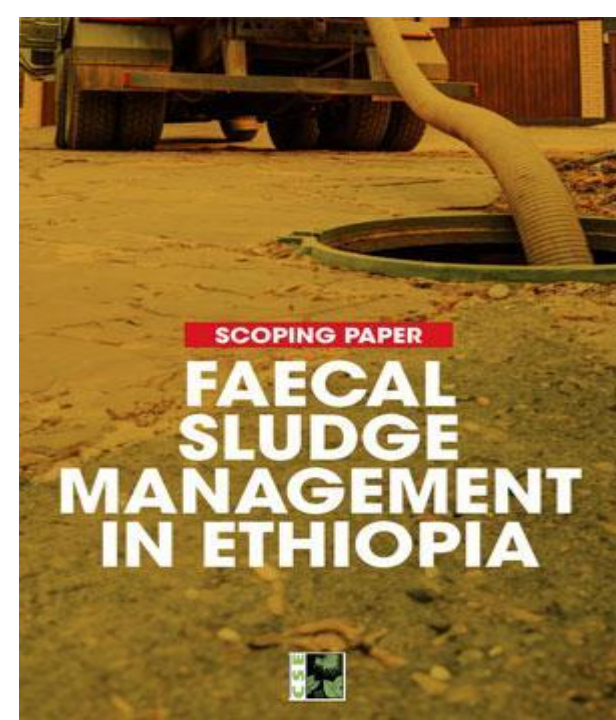
URBAN STORMWATER MANAGEMENT POTENTIAL AND CHALLENGES



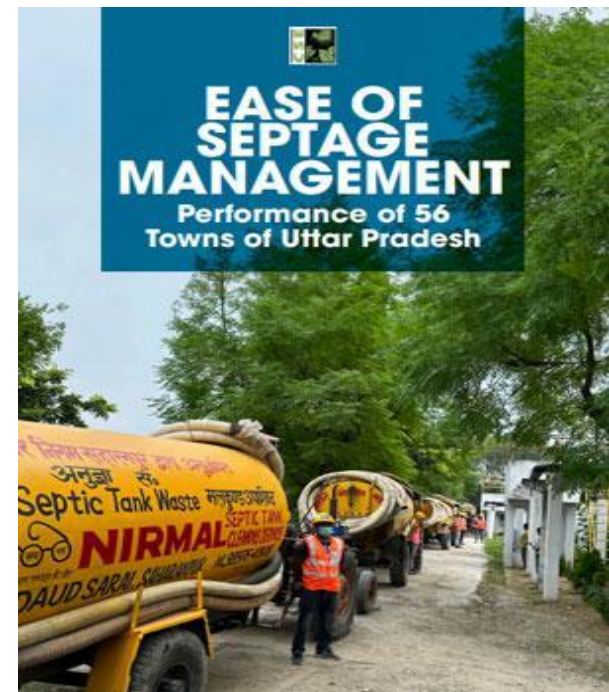
THE POLICY & PRACTICE FORUM 2023

INCLUSIVE AND AFFORDABLE WATER AND SANITATION SOLUTIONS FOR A CLIMATE-RESILIENT WORLD: WORKING TOWARDS A PARADIGM SHIFT IN THE GLOBAL SOUTH

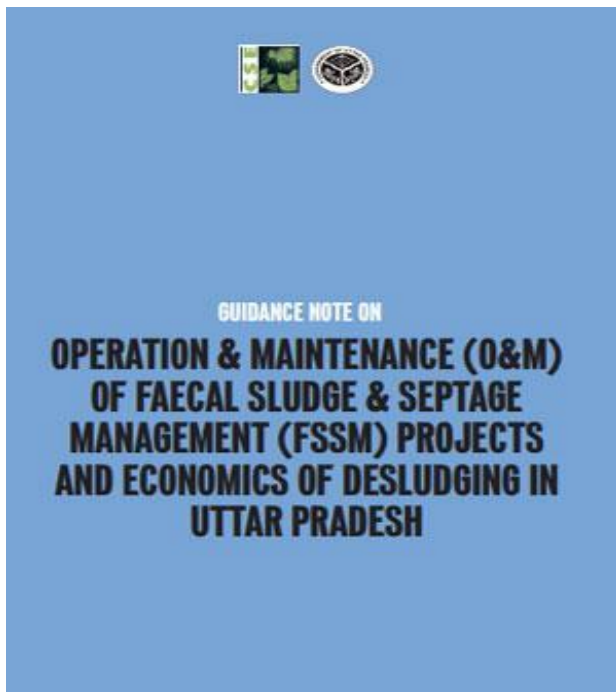
PARTNERS: WATER FOR PEOPLE, IWA, NASSM, FSMA, giz, COLUMBIA UNIVERSITY



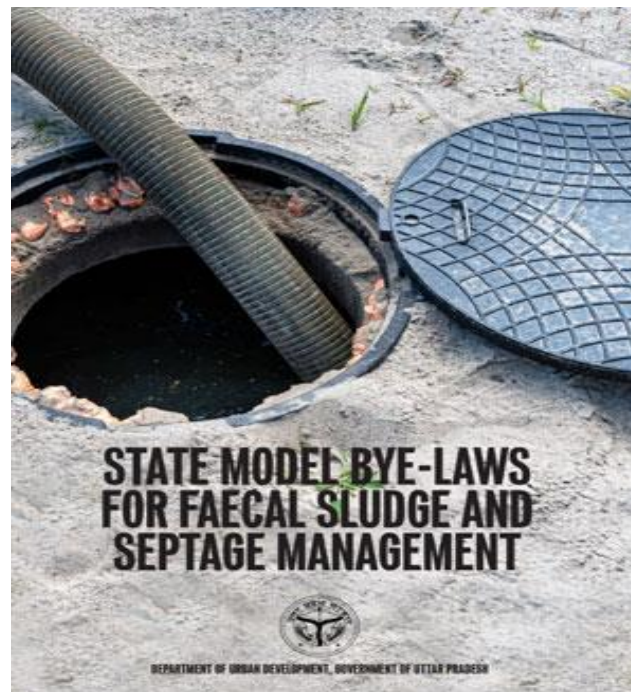
SCOPING PAPER FAECAL SLUDGE MANAGEMENT IN ETHIOPIA



EASE OF SEPTAGE MANAGEMENT Performance of 56 Towns of Uttar Pradesh

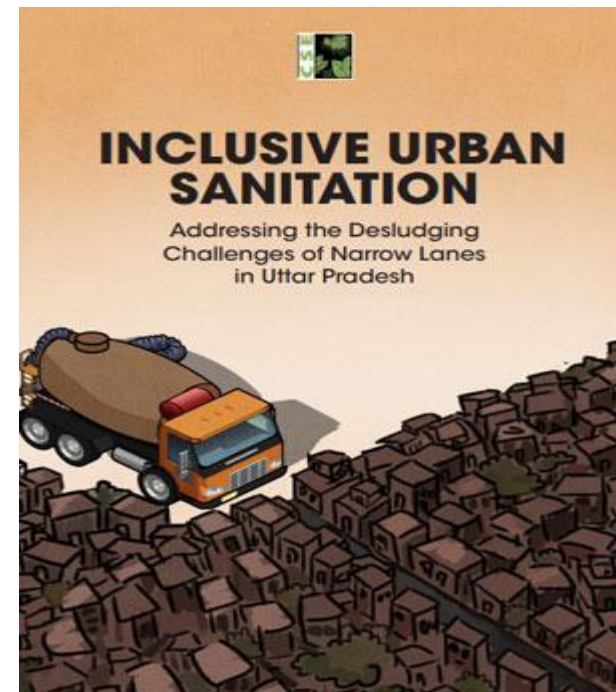


GUIDANCE NOTE ON OPERATION & MAINTENANCE (O&M) OF FAECAL SLUDGE & SEPTAGE MANAGEMENT (FSSM) PROJECTS AND ECONOMICS OF DESLUDGING IN UTTAR PRADESH



STATE MODEL BYE-LAWS FOR FAECAL SLUDGE AND SEPTAGE MANAGEMENT

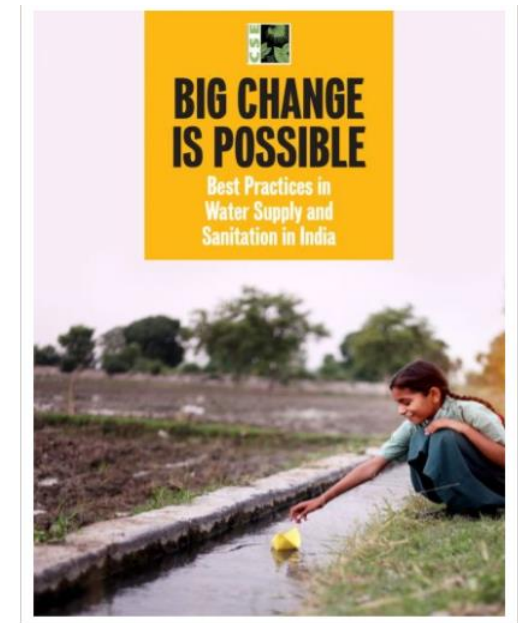
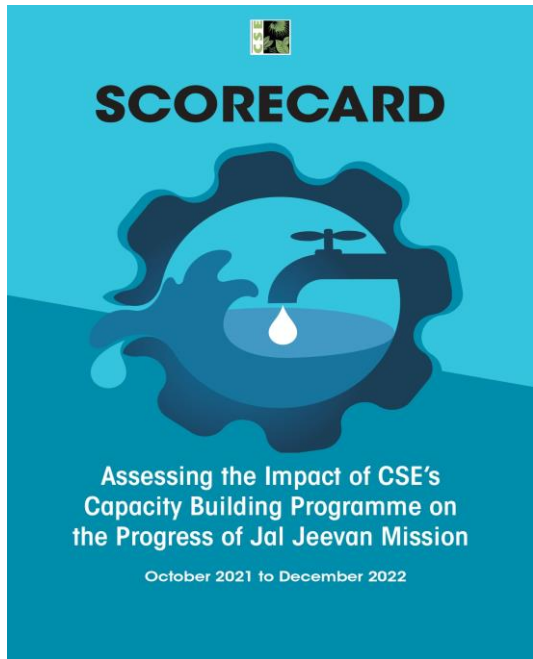
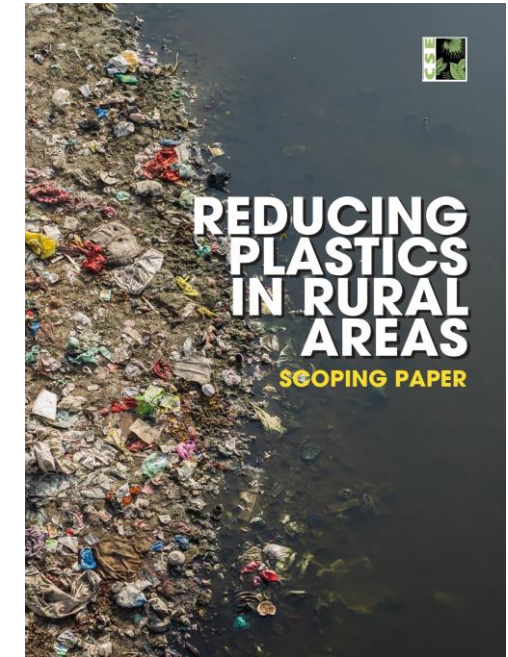
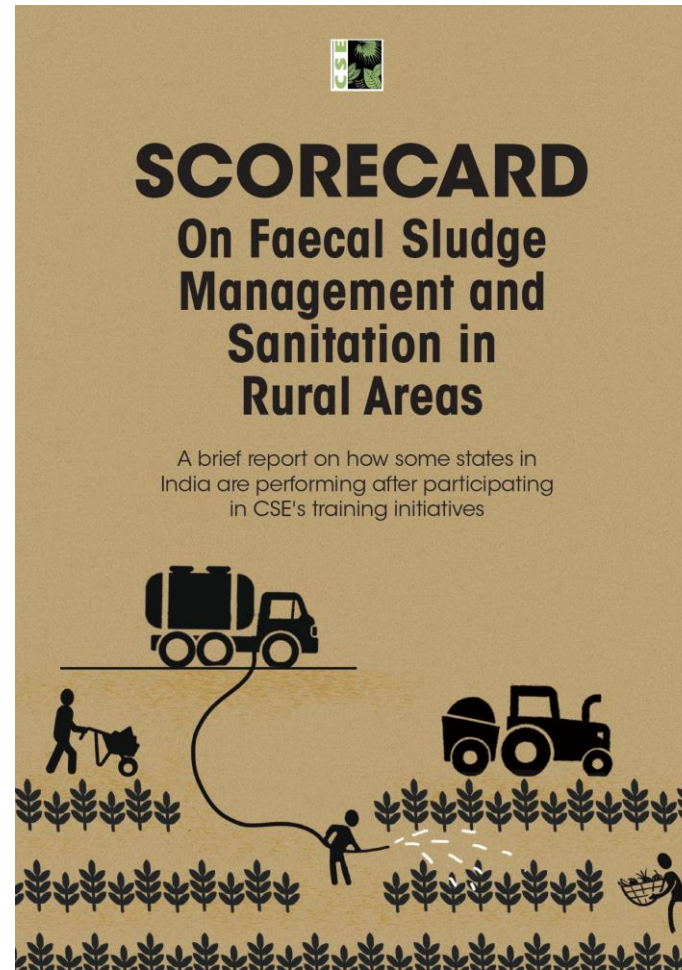
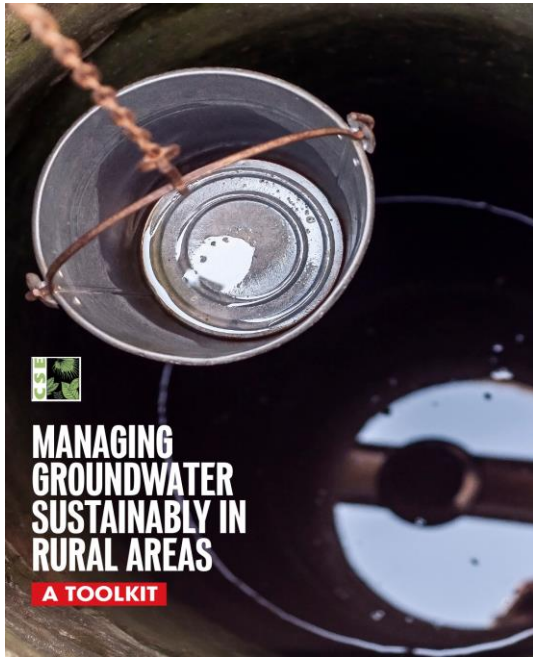
DEPARTMENT OF URBAN DEVELOPMENT, GOVERNMENT OF UTTAR PRADESH



INCLUSIVE URBAN SANITATION

Addressing the Desludging Challenges of Narrow Lanes in Uttar Pradesh





Global Program : S Africa, Tanzania, Ethiopia, Nigeria....







THANK YOU

Depinder Kapur
Director- Water Programme, CSE
March 2024

