Planning and implementation of FSSM

by using Excreta Flow Diagram (SFD) as a tool for mapping sanitation situation in Uttarakhand State, India

To better understand the sanitation systems and current state of FSSM in Uttarakhand NIUA has developed Excreta Flow Diagrams (popularly known as SFD) for 13 cities including Ganga towns. NIUA identified the service gaps along the value chain through SFDs and developed action plans for all the cities. Among all the cities, 4 – 5 cities are selected for deep-dive citywide inclusive sanitation.

Pictures taken during site visits

Septic tank as containment unit

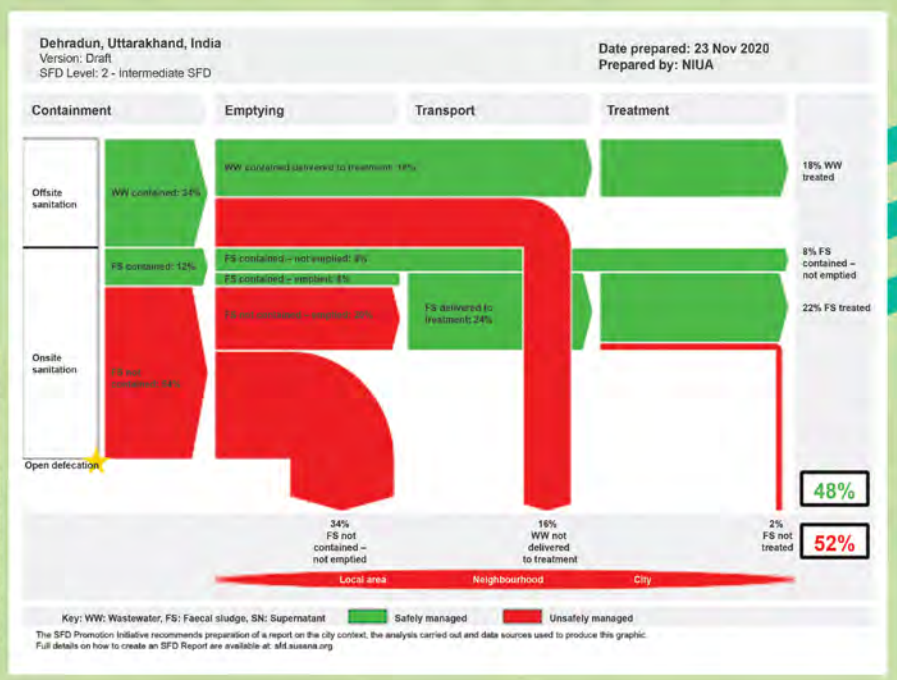
Drain carrying supernatant & graywater

Emptying

Vacuum tanker for transportation

Treatment of sewage

Disposal into rivers



Location: Uttarakhand state is located at the foothills of the Himalayan mountain ranges. It lies in the northern part of India between latitudes 28°43′ N and 31°27′ N & longitudes 77°34′ E and 81°02′ E

Border: The state shares international borders with China in the north & Nepal in the east and inter-state boundaries with Himachal Pradesh in the west & northwest and Uttar Pradesh in the south.

Elevation: covering an area of 53,483 km^2. The elevation ranges from 210 to 7817 m.

No. of ULBs: There are a total of 91 urban local bodies (ULBs) in the Uttarakhand State out of which 8 are Municipal corporations, 41 are Municipalities & 43 are Municipal councils.

SFD has been widely used as an advocacy tool worldwide till date. For the urban sanitation programme of the state, SFD is used as a planning and monitoring tool for faecal sludge and septage management interventions for selected cities in the state of Uttarakhand. These towns were selected based on the various factors like type of containment system, desludging frequency, topography, accessibility, availability of existing treatment infrastructure, size of the municipality, scope for sufficient funds in the city. A mix of small, medium and large cities was selected to get an overall representation of urban sanitation programming of the state.

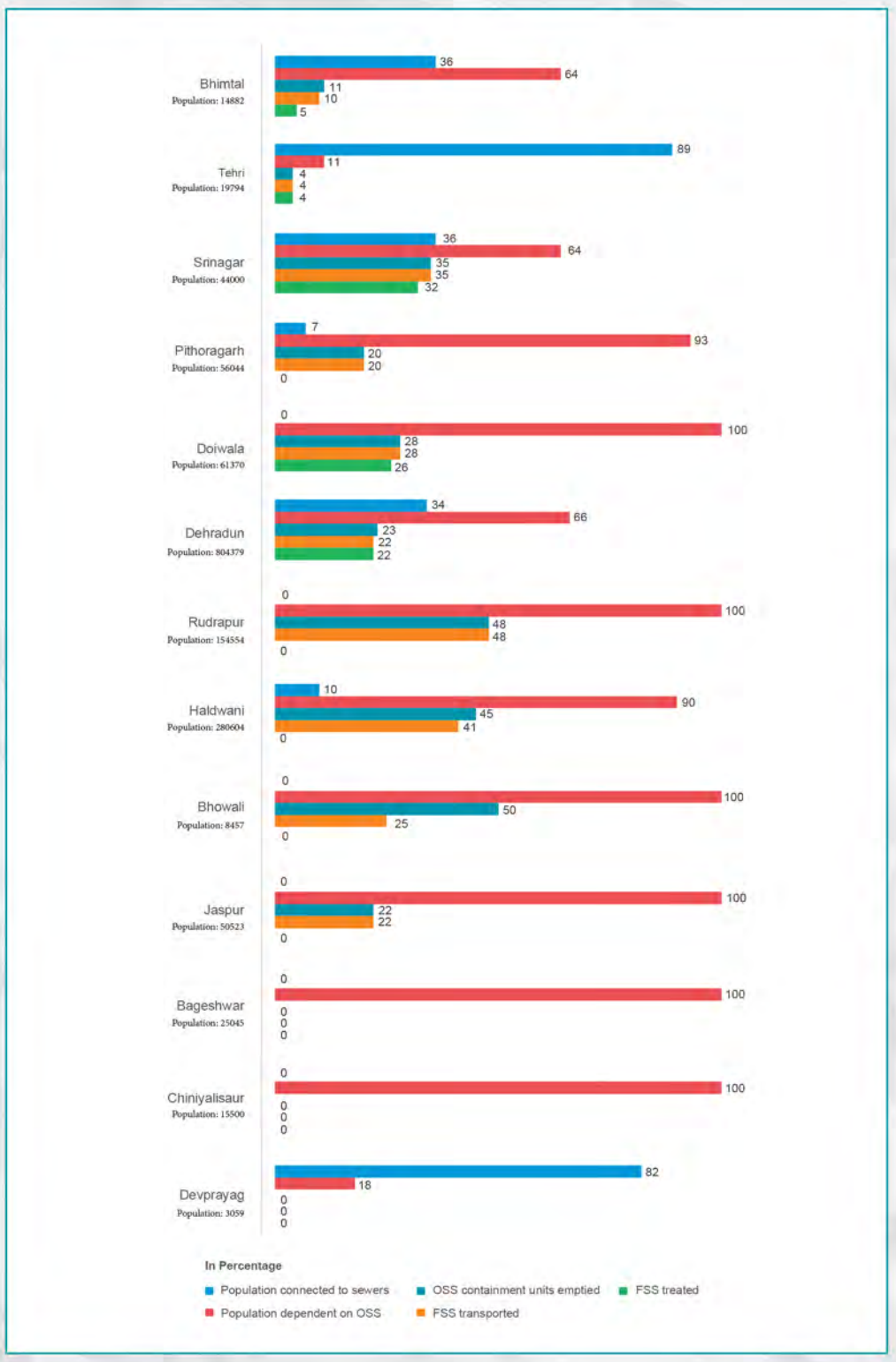
Methodology for data collection

For developing SFDs included collection & collation of secondary data, structured observations & direct measurements, key informant interviews (KIIs) & focus group discussions (FGDs) with:

- Municipality
- NGO
- Residential Welfare Association
- Mason
- Sanitary Inspector
- Vacuum Tankar Operator
- Treatment Plant Operator
- Farmer

The key factors covered in this study are:

- Status of containment, conveyance, treatment systems and disposal in each city.
- Analyse the strength of the office staff within municipal as well as parastatal departments.
- Annual budget and expenditure.



Conclusion and implications

The findings and outcomes of the study are being used to identify the potential of implementing an appropriate approach for faecal sludge and septage management in these 13 cities of Uttarakhand state. The FSSM approach includes treatment options like co-treatment of septage with sewage, establishing faecal sludge treatment plant and deep row entrenchment (DRE), particularly in smaller towns with very low septage generation.

The action plans prepared are strengthening and effective implementation of by-laws, training and other capacity-building initiatives for practitioners, and adopting low cost, natural-based decentralized approaches for citywide inclusive sanitation.

Action plan

Research	Capacity Building	Technical Support	Policy and Advisory Support
Technical Reports	**Trainings & Communications**	**Co-treatment and Faecal Sludge Treatment Plants**	**State Scale-up Strategy for FSSM**
• FSSM situation assessment • Study on Co-treatment feasibility in STPs • Faecal Sludge and Septage Co-treatment design guidebook	• Workshops on Non-sewered Sanitation Systems • State consultation meet on FSTP • Periodic trainings on FSSM	• DPR of FSTPs • Co-treatment design recommendations for STPs • Pilot projects	• Formation of Septage Management Cells • Advisory for operationalizing Septage Protocol • State-level advisory for co-treatment of FSS in STPs

State engagement in Uttarakhand

SFDs are proving to be good evaluation, advocacy and planning tool. The city stakeholders get a better idea of critical points of failure in the provision of urban sanitation services in a given city or town. Thus, decision-makers will be in a better position to decide and prioritise the interventions.

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