

FAECAL SLUDGE MANAGEMENT SERVICES FOR BAKSHI KAA TAALAB TOWN, LUCKNOW IN UP, INDIA

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Abstract- Bakshi Kaa Taalab (BKT) is a small town situated in district Lucknow of Uttar Pradesh in India with a population of 49,166 (Census 2011). WaterAid India and Vigyan Foundation with the help of Municipality of BKT has carried out rapid scoping study of FSM services for BKT in year 2018. 93% of the septic tanks installed by households are overflowing into open drains while 67% households have never resorted to emptying their septic tanks. Faecal Sludge therefore is dispersed mostly in open environment in BKT town calling for immediate action by all stakeholders. This paper narrates key findings of study. The study titled "FSM services for BKT" is based on Household level survey of total 57 households (3 Households from 19 wards) and key informant interviews with desludging services providers both from municipality and private informal sector. 89% household surveyed were having one toilet whereas 9 % of household were having 2 toilets and another 2% had 3 or more number of toilets within households. BKT also has plans under SBM for 2 Public Toilets and 19 Community Toilets. BKT had 8728 families as per census 2011. All these toilets are connected to a so called structure of Septic Tank. 93% of Households have Pucca (well build house) structure whereas another 5% households have semi pucca (Semi Well Built House) and 2% households have Kutcha (temporary shelter) structure.

BKT posed a typical challenge of a small town situated very close to big city in terms of absence of sewerage services and poor management of faecal sludge. The quick assessment of FSM in BKT presents a pathetic picture of largely unregulated FSM services and recommends for a quick action on regulating and organizing FSM services across the value chain of safe containment, safe emptying, safe transportation, safe treatment and reuse of Faecal Sludge by NPP BKT with technical support from external agencies and state authorities. BKT can become, in effect, Open Defecation Free (ODF) only when the Faecal Sludge is managed safely and effectively.

Based on rapid assessment, the research team suggests a model of FSM services that is economically self-sustainable to run the transportation and treatment costs of BKT Nagar Panchayat. The model proposed consists of construction of a 25 KLD Faecal Sludge Treatment plant by BKT Nagar Panchayat and running 3 emptiers of 5 KLD each for collection and transportation of 25 KLD septage daily to treatment Plant. The desludging charges are proposed to start with same amount that is being charged currently by private service provider. The scheduled desludging period of at least once in every 3 years, regulation of emptiers, fixation of route map, regulation of emptying charges, monitoring with GPS installed emptiers trucks, 24X 7 Help line for citizens are some of the recommendations from the study.

Construction and operation of FSTP of at least 25 KLD capacity to begin with, in Mubarakpur area (where the land is observed to be available for this purpose by municipality), shall be the first step towards organizing the FSM services by BKT NPP. Since the design capacity is not expected to be used initially completely, it is proposed to collect sludge from septic tanks from adjoining rural villages as well on a nominal tipping fees and desludging charges as regulated by BKT NPP. The FSM Model proposed is for small towns and adjoin 8-10 GPs with predominance of septic tanks and can be Rurban model for achieving economies of scale in FSM services.

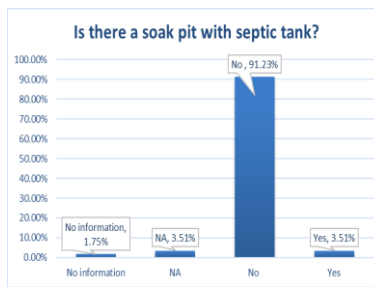
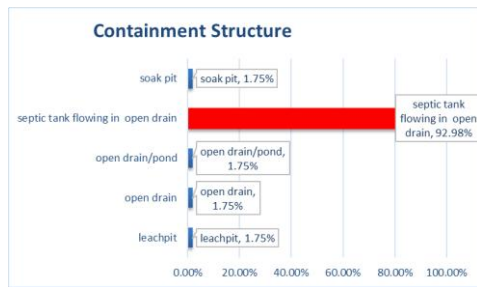
Keywords – Small Town, Gram Panchayats, Rurban Governance models, ODF +, Faecal Sludge Management, economics of Pro Poor FSM services, Lucknow, FSM regulation, SDG 6.2, Access to Safe Sanitation Services.

NEED OF FAECAL SLUDGE MANAGEMENT IN BKT

Bakshi Ka Talab (BKT) is situated at northern side of Lucknow city. BKT is an organised settlement developed by Lucknow Development Authority (LDA). There are total 8728 households with total population of 49,166 in BKT Nagar Panchayat according to census, 2011. WaterAid has conducted rapid assessment survey in 2018 to analyse current sanitation situation in BKT Nagar Panchayat.

BKT form the part of rural areas where septic tanks waste is not treated by the existing treatment facilities in the urban region of Lucknow. As there are no sewer lines which connect the toilets within BKT to the existing Sewage Treatment Plants (STPs) in the nearby area of Lucknow, faecal sludge generated by the septic tanks are collected and disposed either in water bodies or open land. Therefore, BKT is an important area for Faecal Sludge Management interventions, including new systems as well as expansion, strengthening and upgrading of existing STPs. With growing population sizes and increase in toilet coverage the issue of management of faecal sludge is becoming more challenging.

RAPID ASSESSMENT SURVEY IN BKT
CURRENT CONTAINMENT SYSTEM AND IT'S DISPOSAL IN BKT



As per the rapid assessment survey, around 92.98% septic tank connections are allowed to flow in open drain. Where, faecal matter contains elements that may produce bad odour, risk public health and create serious environmental hazards. Faecal matter is highly concentrated, discharging it into water bodies of BKT will causing depletion of

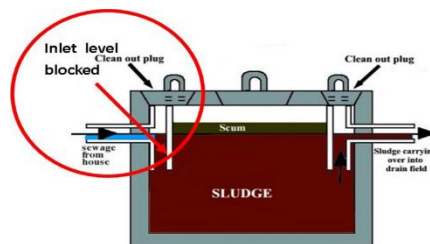
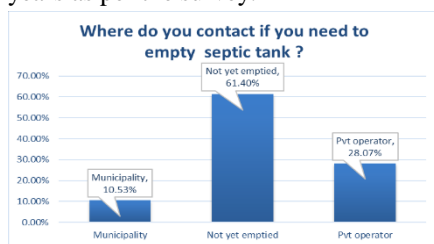
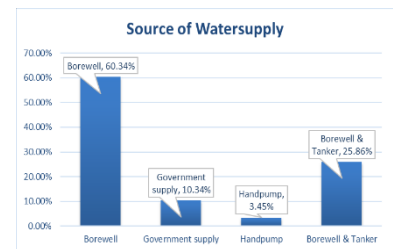
dissolved oxygen and increase nutrients levels in the water leading to eutrophication and increase in the number of pathogens. thus creating risk of health hazards.

DEPENDENCY ON GROUND WATER SOURCE

leachate from onsite sanitation system is one of the major source of ground water contamination. Which can result in great health issues. In BKT, 60.34% of total population are dependent on ground water source as shown in chart. To deal with this issue regulation of FSM is crucially required.

CURRENT PRACTICES IN BKT

As we all know, since many decade people are reluctant to empty their septic tank because of high charging fees. Need for desludging is indicated only when sludge is filled upto the level of blocking outlet for discharge of effluent spreading bad odour and there is back flushing in toilet. Approximately 61.40% hhs have not emptied their septic tank since so many years as per the survey.



Thus, septic tank of BKT has very high extended period of desludging because the outlets are opened in grey water drains and because of excessive use of water very less sludge is allowed to accumulate in the septic tank accounting for long desludging period. Another reason

for this condition could be an old septic tank, which was built of brick or perhaps a pit with very large capacity. As these systems age, they tend to leak both liquids and solids through the old joints resulting in often contaminated areas.

BUSINESS MODEL OF HONEYSUCKERS IN LUCKNOW

Pit emptying business has flourished in Lucknow in last 10 years tremendously. Entrepreneurs presently running this business in Lucknow were earlier driver and helpers who actually found this business profitable and then started their own business. Cost of desludging per trip has reduced from INR 2500 per trip to approx. INR 1500 per trip due to the large number of operators into this business (Presently approx. 52 vehicles operating in Lucknow). Jal Kal Vibagh Lucknow Nagar Nigam (Waterworks Lucknow Municipal Corporation) has issued a notification for registration / licencing of these private pit emptier under which it is mandatory to get the vehicle registered and dumping of faecal sludge in open areas is prohibited. Presently out of 52 vehicles operating in Lucknow, only five are registered. Under this of Jal Nigam UP provision, there is a fine of INR 10,000 for open dumping registered vehicle owners were given a list of 18sewage pumping stations for dumping the faecal sludge.

Private operators operating in BKT reported his area of operation in BKT and nearest sewerage pumping station for disposal site of faecal sludge is 'Roopnagar Khadra Pumping Station' – identified as a disposal site by Nagar Nigam. Average distance from BKT to Roopnagar is approximately 14 to 20 KM and travel time is 1 hour.

Still 90% open disposal of faecal matter is reported in BKT

NEED FOR FAECAL SLUDGE TREATMENT PLANT IN BKT

As per above section, it has clearly indicated that proper management of accumulated faecal sludge poses a challenge with no formal mechanism in place. Therefore, there is strong need arising for faecal sludge treatment plant in BKT to address the current issues of onsite sanitation system.

PROPOSAL OF FSM REGULATIONS BY BAKSHI KAA TAALAB (BKT) NAGAR PANCHAYAT AND ADJOINING RURAL AREAS IN LUCKNOW DISTRICT

Considering this severe need of provision of FSM services based on rapid assessment survey, Vigyan Foundation and WaterAid India has taken initiative in designing, regulations and management of FSM services for Rurban areas by BKT Nagar Panchayat and Gram Panchayats adjoin BKT Nagar Panchayat.

DETAILS OF PROPOSED FSTP IN BKT

Considering a design period of 20 years, the estimated population at 2039 is 1,05,000 for BKT covering 15000 households. To cover the demands of this population, FSM treatment plant of 25 KLD capacity is proposed. The technology for ease of operations and low operation and maintenance costs has been proposed as solid liquid separation and DEWATs. Land Area Required for FSTP is 1,200 sq. m approximately. Proposed emptying frequency (Scheduled desludging) is considered once in every 3 years. Average working days in a year is assumed as 325

Revenue projections

The revenue projection models for the above FSM model suggests 100% Operation & Maintenance cost recovery and revenues for BKT Nagar Panchayat ranging from Rs. 3,60,000 in first year of operations to Rs. 4,79,160 in 10th year of operations assuming at 10% hike in both revenues and expenses every three years.

RECOMMENDATIONS

SDG 6.2 talks of sustainable sanitation services for all as a goal to be reached by the world by year 2030. With rapid urbanisation, the number of small towns and census towns has been increasing in India rapidly. The sustainability of Open Defecation Free (ODF) drives under Swachh Bharat Mission hinges on effective management of faecal sludge generated in on site sanitation solutions by their municipalities. The current study by WaterAid India and Vigyan Foundation highlights the importance of designing FSM model on 100% operation and maintenance costs recovery as well as revenue generation to strengthen their financial capacity to provide sustainable sanitation services to entire small towns. Further this model is able to integrate adjoining rural areas also for desludging and treatment of sludge, thereby making it an integrated and efficient design and RURBAN model overall financial sustainability of FSM models. For this model can be a role model for other small towns and census towns to evaluate and contribute towards achieving Sustainable Development Goal 6.2 in urban India.