

AN ECONOMIC ANALYSIS OF SEPTIC TANK EMPTYING SERVICES BY HONEY SUCKERS IN LUCKNOW, INDIA.

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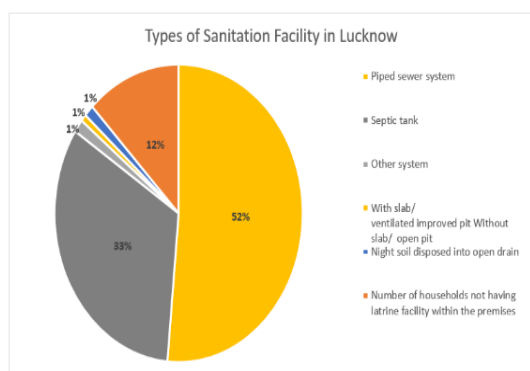
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ABSTRACT- Lucknow Municipal Corporation has 110 wards. There are 5, 38,149 urban households with the population 28, 17,105 people. There are 281128 households (52.2%) connected to the piped sewer system, 1,73,773 households (32.3%) having septic tank toilet, 4,380 households having toilet night soil discharge in open drain and 78,868 households having pit toilet or no toilet as per the records of census 2011. These 32.3% septic tanks needs regular and well-regulated faecal sludge management services that includes its safe collection, transportation, treatment and reuse. Vigyan Foundation, a local civil society organization with financial support from WaterAid India started a research project focused on economic analysis of septic tank services by honey suckers and regulatory provisions that affect it in city of Lucknow. The research worked to collection for information from various sources on state of urban sanitation, key informant interviews and data analysis. The purpose of the research study was to understand the economics of Honey suckers and the impact of likely regulatory developments on their serviceability, treatment of sludge and reuse of treated waste water and sludge. The research study intends to inform the public policy on linkages between affordability, economics and regulation of septic tank emptying services and options for pro poor FSM services in Lucknow. The key findings of the research suggest co treatment of faecal sludge with sewage at intermediate pumping stations, enforcing service standards by private operators, reducing the security deposits of honeysuckers, regulating the desludging service charges with affordability analysis of urban poor and cost of service provisioning and use of modern technology to track the services of each emptier and each user in time series.

Keywords – HoneySuckers, Faecal Sludge Management, economics of Pro Poor FSM services, Lucknow, FSM regulation, SDG 6.2, Access to Safe Sanitation Services.

INTRODUCTION

Under SwachBharat Mission (SBM or Clean India Campaign), the pace of transformation of urban sanitation services is unprecedented, mainly because of rapid construction of individual household toilets, community toilets and public toilets. Moreover, in this process of achieving the goal of 100% coverage of sanitation facilities, cities have led the charge on reducing open defecation and eventually be declared as one of the Open Defecation Free (ODF) cities. However, once the city gets declared as ODF-city, there is an immediate pressing challenge to tackle the Post -ODF situation of sludge management. This is essentially the case with Lucknow which recently got declared as an ODF city¹.



Lucknow Municipal Corporation has 110 wards. According to Jal KalVibhag (Water Supply Department), 52% of urban household falling under the municipal corporation boundary have been connected to the sewerage network and rest of the households depend on onsite solutions². There are 5.38 lakh urban households having 28.17 lakh population, out of which, 2.81 lakh households are connected to piped sewer system, 1.73 lakh households have septic tank toilet, 4380 households have toilet night soil discharge in open drain and 78868 households have either pit toilet or no toilet³.

THE ROLE OF HONEYSUCKERS

¹ <http://sbmodf.in/?metric=ALL&state=uttar%20pradesh>

² Jal KalVibhag, Lucknow

³ Census 2011

Looking at the current situation of sanitation facilities, almost 48% HHs are relying on onsite solutions like septic tank, pit latrines, unhygienic latrine etc. which are subject to 'Faecal Sludge Management (FSM)' for sustainability in the long run. One of the reasons for this need of FSM lies in the following explanation of the design on the septic tank as shown in the figure. It allows to separate waste water and solid particles, then to dispose of waste water from outlet pipe and collecting the solid matter-excreta at the bottom of the tank which is sludge. Hence after a specific period- depending on the design of tank, it needs to get emptied by manually or mechanically by vehicles called 'Honey Sucker, a service provided by small scale private operator – honey sucker truck operators. Most of the on-site sanitation systems (OSS) are emptied manually in the absence of suitable facilities. Ideally, a septic tank system should be cleaned every one and half to three years as per the Central Public Health and Environmental Engineering Organisation (CPHEEO) guidelines⁴.

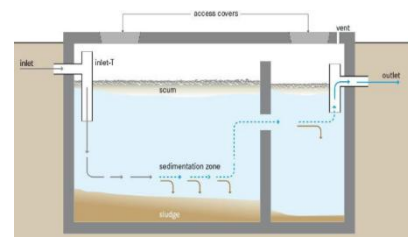


Figure 1: Cross section of septic tank

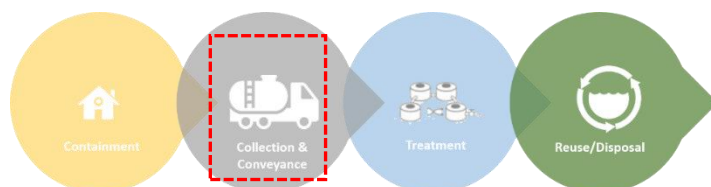


Figure 2: FSM value chain process

FSM VALUE CHAIN

There are mainly four stages of FSM value chain as explained in infographic. Where the Honey suckers play crucial role in Collection and Conveyance – second stage of the value chain.

RESEARCH OBJECTIVE

The main intent of the research is to carry out economic analysis of septic tank services by honey suckers and regulatory provisions that affect it. Firstly, there are few questions posed towards this arrangement as listed below:

1. How the private sector is operating in the market?
2. How much is the capital cost and registration cost like licensing cost, deposits?
3. How much is O&M cost, daily expense per trip like fuel consumption, oiling and cleaning the tank.
4. What is the affordability for truck operators as well as users of the service who are paying 1300-3000 INR per trip as per the current standards?

Answers to such questions provide us with the economic analysis of the service. Secondly, the research also intends to explore the working of this system end-to-end involving the users, the providers and the government. The Honey suckers tend to get involved in certain malpractices, like illegally dumping the sludge in nearby areas, to cut upon the costs incurred towards carrying out their business. As a corrective measure, government has to intervene by authorizing certain providers and by giving license to these truck operators. Such licensing is also intended to allow smoother functioning of the truck operators who get harassed by police or Municipal Corporation and also to deter them from dumping illegally and unsafely in open fields which poses a greater threat of pollution of land resources and natural water bodies further promoting diseases. This is also an alarming issue as the quantum of faecal sludge being generated and disposed unsafely will further increase after successful completion of SBM.

HONEY-SUCKER TRUCK OPERATORS IN LUCKNOW

THE TRIGGER

Since so many years, the cleaning of septic tank is being done by private operators through desludging suction machines or through manual scavenging. Later on in year of 2013, Prohibition of Employment as Manual scavengers and their Rehabilitation Act has been enacted by Indian Parliament to prohibit dehumanising practices in cleaning of insanitary toilets and rehabilitate manual scavenger to a life of dignity. Enactment of this act proved rise to demand of cleaning the insanitary toilets and their containment systems. There is huge platform for private truck operators. But, these operators were not trained or regulated. As a result of this, they used to collect faecal sludge from septic tanks and dispose untreated sludge into open lands, nallahs or rivers as per their convenience. That is how they are acting as major contributors to surface water pollution in many cities.

NATIONAL LEVEL INITIATIVES ON FEACAL SLUDGE MANAGEMENT

Furthering the commitment to addressing this issue, the National Policy on Faecal Sludge and Septage Management (FSSM) was issued by Ministry of Urban Development (MoUD) in February 2017. It was developed to address the gaps and provide the necessary directions to diverse stakeholders engaged in provision of FSSM services.

⁴CPHEEO guidelines

INITIATIVE- REGISTRATION OF TRUCK OPERATORS

Lucknow Nagar Nigam has also taken significant initiatives to address onsite sanitation related emerging issues and to regulate the desludging system. In 2018, Nagar Nigam has issued registration process for Honey suckers to ensure safe disposal of faecal sludge and septage in to the STP conforming mandatory conditions. The registration fee is 1000 INR with 10,000 INR deposit. Later on a letter was issued by Municipal Commissioner Lucknow where the penalty on disposal of faecal sludge at unidentified location by the tanker operators was increased to 10,000 INR. Moreover, cancellation of their registration was planned to be conducted in case they are found disposing in open more than twice. Provision of Safety Equipment by the operators to each of their worker was made compulsory.

Jal KalVibhag, Lucknow put advertisements in newspapers on 26 August 2017 and 8 September 2017 for the residents of Lucknow city to get their septic tanks cleaned through the registered private septic tank cleaning operators only to ensure the safe disposal of the collected fecal sludge from the septic tank. In response to this initiative total 6 operators have registered themselves with 11 tankers. Each tanker's capacity is 5000 litre. However, during the mapping of the tanker operators it was noticed that there are around 25 operators active in Lucknow city and running around 30 tankers and are yet to be registered.

IDENTIFICATION OF DISPOSAL SITE AND SEWAGE TREATMENT PLANT

Jal KalVibhag has identified 18 sewage pumping stations locations to dispose faecal waste with Gomti Pollution Control Board's assistance. Though in practice only 5 locations i.e. MPS Gwari, Kukrail, Wazeergunj, RuppurKhadra and LoniPurwa are being used by operators effectively as per the records. Despite of this regulations, it has been observed that none of the safety measures for example protective gears, were being used or practiced by the operators or even have any plans to incorporate that.

There are 2 major STPs in Lucknow, first is 'Bharwara' with 345 MLD treatment capacity and which is connecting 19 SPSs around the city. Second is 'Daulatganj' with 56 MLD treatment capacity which is connected with 3 SPS. Hence, total 401 MLD waste is being treated and maintained. Additionally, a STP of capacity 37.5 MLD has been constructed and maintained by AwasEvam Vikas Parishad.

In absence of any designated place for the septic tank cleaning service providers (herein after tanker operators), they usually collect the faecal sludge from the septic tanks and dispose it into the open as per convenience, that could be open spaces, fields, nallahs or the river. To address the above issue, two initiatives were undertaken by the Jal KalVibhag, Lucknow under the control of Municipal Commissioner;

The safety measures that are to be followed by the operators are, to ensure that employees and line management understand the risks through proper instructions, training and supervision, to provide suitable personal protective equipment, that may include waterproof/abrasion resistant gloves, footwear, safety belts, boots etc. are particularly effective against splashes, to provide adequate welfare facilities, including clean water, soap, nailbrushes, disposable paper towels and where heavy contamination is foreseeable, showers for remote locations portable welfare facilities should be provided, making effective arrangements for monitoring the health of staff.

SURVEY

A survey has been conducted of Honey suckers to analyse their business model. During this survey, total 31 truck operators have been interviewed who are currently active within Lucknow city. A questionnaire to conduct personal interviews has been prepared by WaterAid. The questions asked during the interviews are: 1) How many truck operators are providing service within Lucknow city area? 2) How many trucks do they own? 3) How many routes per day? 4) How much do they charge per route? 5) How many no of staff and their salary 6) Fuel cost per trip, O&M cost per month 7) What are the hurdles they face from beneficiaries/community? 8) What are the hurdles they face from Jal KalVibhag or police? If any

Based on this survey, their monthly as well as daily expense and income have been calculated. There are total 31 truck operators owning 41 trucks and having staff of 82 (drivers and emptiers) within the city. About 2 round trips are carried out per-truck-per-day totalling around 74 trips daily by 41 trucks. Generally, they charge 1300 INR per trip for locations in close proximity to the SPS site and upto 1500 INR for farther locations. The truck operators find it difficult to dispose sludge at identified SPS because of longer distances and are reluctant to go. Hence, distance is the major issue because all the SPS are located nearby river Gomti. For instance, if they clean a septic tank in Alambagh they will have to cover at least 17 - 20 KM to discharge the sludge into the pumping station which increases the transportation cost. Moreover, the truck operators are not willing to pay deposit of 10000 INR, as it increases their capital cost.

Daily average expense and income of one truck with one driver and one emptier within Lucknow city is shown in below table.

General		Income			Expenditure					Net Profit/Loss
No of Trucks	No of staff (Drivers and emptier)	No of Routes /day/ truck (avg)	Charging fee /route /truck (avg)	Total income	Fuel consumption per truck (RS/Lit*AVG distance*Route)	Cleaning the tank	O&M	Total Staff remuneration	Total Expenditure	Total income - Total expenses
1	2	2	1300	2600	512	7	83	500	1102	1498

CONCLUSION AND RECOMMENDATIONS

Lucknow Nagar Nigam with support from Lucknow Jal Sansthan has made some initial progress in recognizing FSM and private sector's role as an important one by bringing out truck operator's regulations. This has demonstrated the strong political will to meet the current demand of onsite sanitation services. Although the regulations/policies have tried to address this gap but the regulatory/monitoring framework is still weak and lacks clarity regarding the roles and responsibilities of different stakeholders involved.

Looking at community perspective, as per the survey, it is pretty clear that truck operators are making good amount of profit. On the contrary, urban poor are getting suffered through this system, as they are bound to empty their tank once in three years. Moreover, it needs two trips to empty the tank and they end up paying 2600 to 3000 INR which might seem nominal in terms of the timeline of three years but is still a significant amount for the poor as one time cost in every 3 years. Considering payments of INR 3000 per 3 years, households are spending annually INR 1000 as desludging costs of their septic tanks. This amounts to a monthly expenditure of about INR 84 per month. Considering the fact that septic tanks are being used by mostly low income and poor living outside the sewerage networks areas, we can assume that cost of sanitation services for these people is about INR 84 month.

Firstly, we compare these desludging charges from perspective of equity and fairness in costs of sanitation services within different segments of users in Lucknow city. We compare it with cost of sanitation services for the people who are living in middle and higher income group in well off areas in city, having access to sewerage network. The sewerage tax for residents of Lucknow connected to the city sewerage network is 3% of the Annual Rental Value (ARV) of their house. Using 20,000 as a minimum population threshold, three wards with the lowest proportion of slum settlements were identified as affluent areas of the city, with the highest multiplier for ARV. The average annual sewerage charges for households of 2000 sq. ft. in these wards was found to be Rs. 604.80 – a monthly expenditure of Rs. 50. Therefore, the burden of sanitation services costs on poor and low income group in city as compared to better off people having access to higher end technology such as sewerage is 1.68 times higher. Therefore, the principles of fairness of tariff for same service is compromised.

Secondly, we compare these desludging charges from perspective of affordability by urban poor. In 2010, the United Nations declared that 'safe and clean drinking water and sanitation' are explicit human rights central to enjoyment of other human rights. This document declares that water and sanitation expenditure should not exceed 5% of the household's income. It should be noted that the 5% standard is for both water and sanitation services combined, implying that the standard for sanitation alone is closer to 2-3%. The rationale behind this standard is that expenditure in excess of 5% on basic needs such as water and sanitation restricts the ability of individuals to access other essential goods and services. In India, the right to sanitation is not a legally defensible right and therefore there is no national standard for determination of affordability. Additionally, the large income disparity between groups (within urban areas, between rural and urban areas, across different regions of the country, etc) makes it difficult to set a single standard. However, the benchmark of 2% will be used to understand the 'affordability' of current sanitation services. The minimum wages for a semi - skilled person in Lucknow is Rs. 8443 in year 2018-19. Desludging charges as Rs. 86 per month is approximately 1% of this cost against the benchmark of 2%. Therefore, as per affordability consideration, there is a scope of doubling the current desludging charges.

Looking at Honeysuckers perspective, in initial stage of the business, truck operators find it difficult to pay the current security deposit charges due to lower service charges of desludging. Large distance between households and pumping station causing high transportation cost which increases the costs of honey suckers. Moreover, the vehicles used for providing the service usually lack commercial registration, so they are afraid of being fined by RTO. The wear and tear

expense is around 2700 - 3200 INR per month for O&M (oiling, cleaning the tank and other maintenance) which is pretty high. The sewer pumping stations only permit the operators registered with Jal KalVibhag, Lucknow. This causes major problem for non-registered truck operators. Analysis suggests that current return on investments for private operator doing investments in new honey suckers is 5%-10% only (against desired 15%-20% as a new business) which make this as unviable business opportunity for entry of formal private sector .

The key recommendation of the research suggests enhancing the user charges fees for desludging to double of the current charges and bringing sewerage charges at par with desludging services costs. Co-treatment of faecal sludge with sewage at intermediate pumping stations, enforcing service standards by private operators through modern monitoring system like GPS tracker to track the route and keep other records, enacting regular periodic desludging at least once in 3 years, reducing the security deposits for honey suckers already operating on very low margins, regulating the service charges with affordability analysis of urban poor and cost of service provisioning are some other recommendations based on this research paper.