

Assessment of WASH Challenges in Selected Slums and Schools of Lucknow City & District of the State of Uttar Pradesh

Anjali Tripathy¹, Dr. Tridibesh Tripathy², Shankar Das³, D. P. Singh⁴, D. R. Sahu⁵,
Rakesh Dwivedi⁶, Mohini Gautam⁷

¹B. Sc in Home Science (Pillani, Rajasthan), M. Sc in Human Development (Rajasthan University), PG Diploma in Public Health Nutrition (PHFI), Master of Public Health (Community Medicine), Department of Social Work, Lucknow University, Lucknow, Uttar Pradesh, India
Corresponding Author Email: [anjalitripathy\[at\]gmail.com](mailto:anjalitripathy[at]gmail.com)

²BHMS (Utkal University, Bhubaneswar), MD (BFUHS, Faridkot), MHA (TISS, Mumbai), Ph. D. in Health Systems Studies (TISS, Mumbai), Homoeopathic & Public Health Expert, Visiting Professor, Master of Public Health (Community Medicine) program, Department of Social Work, Lucknow University, Lucknow, UP, India.

³Professor, Dean, School of Health Systems Studies, Tata Institute of Social Sciences, Mumbai & Former Director, IIHMR, Delhi, India

⁴Professor, Dean, Centre for Research Methodology, Tata Institute of Social Sciences, Mumbai, India

⁵Professor, HOD, Department of Sociology, Lucknow University, Lucknow, India

⁶Professor, Co - ordinator, Master of Public Health (Community Medicine) program, Department of Social Work, Lucknow University, Lucknow, India

⁷Assistant Professor, Faculty, Master of Public Health (Community Medicine) program, Department of Social Work, Lucknow University, Lucknow, India

Abstract: WASH in schools & slums has been a recurring concern in the current Swachh Bharat Mission (SBM), the flagship program of Government of India regarding WASH issues being implemented under the Ministry of Drinking Water and Sanitation (MODWS). Under this umbrella, the Swachh Vidyalaya Abhiyan (SVA) was launched by GOI in 2014. The current study was done in 2023, nine years after the launch of SVA with the objective of a situational analysis and study of WASH in the selected slums & schools of Lucknow city & district. . The study areas constituted of 8 slums & 8 schools in the Lucknow city & Development Blocks of Lucknow district. The current study is a qualitative study. It cited out what is to be done in future regarding WASH by the school authorities like the education department of Lucknow district and NGOs based upon the discussions held at two levels viz, the community in the vicinity of the schools and stake holders like the teachers of the schools and the Front Line Workers (FLW) of public health system like ASHA, ANM and AWW of the Women and Child Development (WCD) ministry. The study included FGDs among students & slums and interviews among stake holders. The findings reflect gender disparity, inequality in the context of social issues among children in the public schools. Children being absent from schools because of WASH related issues like proper and universal use of toilets and Menstrual Hygiene Management (MHM) are also brought forth. The ever important issue of portable water facility at the school is also brought to focus in the current article. [8]

Keywords: WASH, SBM, Schools, Slums, ODF, ASHA, ANM, AWW, SWO, FGD, IG

1. Introduction

The Lucknow Nagar Nigam (LNN - Lucknow Municipal Corporation) & Non Governmental Organisations (NGO) based in Lucknow has been working in the field of WASH in the urban slums of Lucknow since decades. The current article is being written with the objective of a situational analysis and study of WASH in project area of L. ucknow city & district. The project areas of LNN & NGOs constitute of urban slums of Lucknow and Government schools of Lucknow district.

The current article cites out what is to be done in future regarding WASH by LNN & NGOs based upon the discussions held at three levels viz, the community, schools and stake holders.

The article is on the lines of the WASH strategy document of UNICEF. The two objectives of the WASH strategy document of UNICEF for 2016 - 2030 are to achieve universal and equitable access to safe and affordable drinking water for all and the second one is to achieve access to adequate and equitable sanitation and hygiene for all and end open defaecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Keeping these two objectives in view, the current article cites out what is to be done in future regarding WASH by the public authorities and NGOs based upon the discussions held at three levels viz, the community, schools and stake holders.

The article encompasses the 10 monitoring indicators of the proceedings of WASH in school conference held by GOI for South Asia in 2012. These are defined equitable standards,

provision of funds, safe drinking water, functioning sanitation facilities for all including disabled children, participatory planning, adequate functioning hand washing stations, MHM facilities, hand washing practices, functional solid and liquid waste management, teaching learning of WASH.

Similarly, the article aligns itself with the Sustainable Development Goals (SDG) of United Nations where the 6th Goal is WASH related. The study included FGDs done with groups of boys and girls and also exclusively for girls in schools respectively to ascertain their special needs. It also included information on source of drinking water for the children in the school.

The structure of the article has sections like abstract, introduction; WASH as a relevant issue, research methodology, research tools, results and discussions, observation in schools, recommended activities for schools, summary of discussions with FLWs, conclusions and references followed by annexure. [10, 15, 22]

WASH as a relevant issue

Vigyan Foundation, a NGO of Lucknow had an intervention during 2009 - 2020 named clean slum healthy slum dealt in improving access to safe drinking water & sanitation facilities & reduction of diarrhoea by 80 percent. The program aimed at making slums Open Defecation free & had a strong component of school sanitation & hygiene.

UNICEF's study in 2017 in India has cited that each ₹ 1 invested on WASH saves ₹ 4.30. This finding strengthens the argument for WASH being an effective strategy. The field work of the study was done in 8 schools of Lucknow district. The schools were in Chinhat block and Urban area of Lucknow city. There were 6 primary and 2 upper primary schools. The 2 upper primary schools were all girl schools. The study included more girls than boys. The numbers of girls were two more than the number of boys.

In UP, 83.75% of schools have separate toilets for boys and girls but only 61.25% were functional and only 50% had running water provision and only 33.75% had facilities for Divyang children or children with special needs. Further an assessment of WASH in schools in nine states (includes 5 districts of UP) by Water Aid in 2016 show that 64.5% schools had hand pumps as the major source of drinking water and in 15% the water was not safe for drinking. 39% schools had locked toilets and 15.2% children never used the school toilets and defecated in the open. 31% did not have handwashing facility outside the toilet. Only 20% schools had MHM facility, in 31.9% schools children threw the garbage outside the school campus. 44% schools had teacher training and 70% schools had students training on WASH. 40% of schools did not receive funds timely for WASH related activities.

Similarly, a study in schools of Lucknow on WASH in 2013 by FANSA states that the WASH conditions are poor as there were insufficient number of toilets, poor condition of toilets and poor MHM practices. The garbage was just thrown besides the school premises.

Another study by Development Alternatives in 2014 in 108 schools in 3 districts of UP advocated for students to be WASH ambassadors at large for the community.

The Water and Sanitation for Urban Poor (WSUP) business plan launched in March 2016 for the period 2016 - 2020 mentions 5 strategic areas out of which the second strategy mentions of "developing capacity in the public and private sectors". The work of the NGOs and civic authorities falls in the category of private sector and it is imperative that the capacity of NGOs will be strengthened through focused work in WASH. A study by UNICEF in Georgia in 2013 found that the urban schools had better WASH conditions than the rural schools.

Globally it is also seen that poor WASH leads to water borne and vector borne diseases. Among these, the major killers of U5 children in India are diarrhoea and pneumonia. Analysis of the causes of U5 death in India shows that diarrhoea contributes to 10% of all deaths and pneumonia contributes to 15% of all deaths in India. The prevalence rate of diarrhoea is 15% in UP and for pneumonia it is 5% where as it is 10% and 3% for India. Similarly, in Lucknow district, the prevalence rate of diarrhoea is 12% and for pneumonia it is 15%. Another large scale health survey shows that the prevalence rate of diarrhoea in Lucknow is 8% and for pneumonia it is 2%.

As per the Integrated action plan for Prevention and control of Pneumonia and Diarrhoea (IAPPD) of UNICEF, the prevalence of diarrhoea and pneumonia can be prevented by WASH through promotion of behaviours like hand washing. These behaviours come under the 'prevention' method of the PPT model of IAPPD as they prevent pneumonia and diarrhoea, major killers of U5 children. [5, 11, 13, 14, 15, 16, 19, 20, 21, 23, 24, 29, 36]

2. Research Methodology

The study design adopted is 'Survey' design. Under the survey design, 'individuals' & 'groups' were selected for the discussions. The groups had maximum 8 - 25 respondents there by making them 'Focus Groups'. The method adopted was Focus Group Discussions (FGD) & the research tools used were IGs & FGD protocols. The lead author was the Moderator for the FGDs & Interviewer for these discussions.

Purposeful sampling technique was used for the study to select the slum areas & the stake holders. The tools used for the study are FGD tools and Interview Guides (IG). FGD tools were used for respondents at schools and community level. IGs were used for stakeholders.

Among schools and communities, FGD protocols were used and for stake holders Interview Guides were used. Both the tools had open ended questions. The initial pattern of questions in the tools ranged from the basics of Swachh Bharat Mission (SBM) and their awareness about SBM. Next part was about the activities they do regarding SBM followed by their experiences on SBM related activities. This part was followed by the opportunities and challenges that they face. The last part was about the future plans or activities that they want for themselves.

In order to have adequate representation from the community, school and stake holders, 8 FGDs were done in community, 8 FGDs were in schools and 8 stake holders were interviewed. There were 142 students in all in the schools, 157 males & females in the community & 8 stakeholders. So the 'N' of the study was 307.

In order to have heterogeneous representation, from among the community, 4 groups of females and 4 groups of males were the vehicles for the 8 FGDs. Similarly, from among the 8 FGDs in schools, two FGDs involved students of 2nd, 3rd & 4th classes, three FGDs involved students of 4th and 5th

classes, one FGD involved students of 3rd, 4th & 5th classes, two FGDs involved students of 6th, 7th & 8th classes. The groups consisted groups for discussions where both boys and girls participated.

The eight stakeholders were those who have direct stakes in the programs implemented by LNN & NGOs. These were teachers, one ASHA, one ANM, one AWW, one Safai Karmacharis, two Supervisors, one Social Welfare Officer (SWO) of Swachh Bharat Mission (SBM) at Nagar Nigam and a Ward Councillor. The table below gives the details of the profile of the respondents.

Table 1: Number & Sex of the respondents, Research Methods & Research Tools

Research Method - FGDs or Interviews	Research Tools	Technical Name of the Researcher	Number & Sex of respondents	Total number of respondents (N=307)
8 FGDs at schools	FGD Protocol	Moderator	72 girls & 70 boys	142 (n at school)
8 FGDs at community	FGD Protocol	Moderator	62 males & 95 females	157 (n at community)
8 interviews with stakeholders	Interview Guides	Interviewer	3 females & 5 males	8 (n at stakeholders)

The figure given below describes the steps adopted by the study.

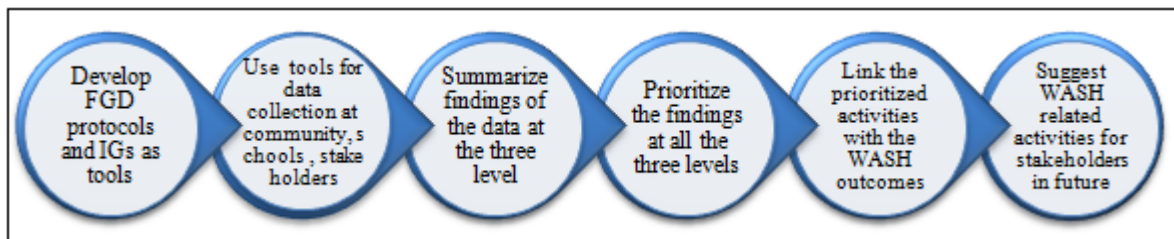


Figure 1: Flow chart of the study

Statistical treatment

The data was analyzed using qualitative research techniques software to summarize and prioritize the issues as per the number of respondents replying per issue. The qualitative data was grouped into common thematic areas that emerged in the study which formed the basis of the ensuing results and discussion.

Research tools

The tools used for the study were Focus Group Discussions (FGD) Protocols for students, community and Interviews Guides (IG) for stake holders. Observation technique was also used to observe WASH related activity done by the school during the field work. Both the tools had open ended questions. The initial pattern of questions in the tools ranged from the basics of SBM and their awareness about SBM. Next part was about the activities they do regarding SBM followed by their experiences on SBM related activities. This part was followed by the opportunities and challenges

that they face. The last part was about the future plans or activities that they want for themselves.

The children were interviewed using FGD protocol which included sections on their rapport with SBM related activities and capacity building initiatives and discussions in the schools. The flow of the interview schedule for the FLWs had their brief background, their capacity building initiatives, their awareness level and the types of job aides they received on WASH and how they used and perceived these materials.

3. Review of Literature & Research Gap - Rationale of the study

Current situation related to WASH in India, UP & Lucknow district as per 6 WASH related indicators are given below in the table. [13]

Table 2: WASH related indicators in NFHS in India, UP & Lucknow district

Indicator as in NFHS 5	Place	NFHS 4 Area	Total in NFHS 4 in percentage	Achievement in percentages (Urban) NFHS 5	Achievement in percentages (Rural) NFHS 5	Achievement in percentages (Total) NFHS 5
Population living in household with an improved drinking water source	India	Population & household profile	94.4	98.7	94.6	95.9
Population living in household with an improved drinking water source	Uttar Pradesh	Same heading	98.4	99.4	99.1	99.2
Population living in household with an improved drinking water source	Lucknow district	Same Heading	99.2	NA	NA	99.8
Population living in household that use an improved sanitation facility	India	Population & household profile	48.5	81.5	64.9	70.2
Population living in household that use	Uttar	Same heading	36.4	80.9	64.8	68.8

an improved sanitation facility	Pradesh					
Population living in household that use an improved sanitation facility	Lucknow district	Same heading	66.2	NA	NA	80.4
Households using clean fuel for cooking	India	Population & household profile	43.8	89.7	43.2	58.6
Households using clean fuel for cooking	Uttar Pradesh	Same heading	32.7	88.3	36.2	49.5
Households using clean fuel for cooking	Lucknow district	Same heading	76.1	NA	NA	78.3
Prevalence of diarrhoea in the 2 weeks preceding the survey	India	Treatment of childhood diseases (children under 5 years)	9.2	6.2	7.7	7.3
Prevalence of diarrhoea in the 2 weeks preceding the survey	Uttar Pradesh	Same Heading	15.0	5.2	5.7	5.6
Prevalence of diarrhoea in the 2 weeks preceding the survey	Lucknow District	Same Heading	9.7	NA	NA	4.9
Prevalence of symptoms of ARI in the 2 weeks preceding the survey	India	Same Heading	2.7	2.3	3.0	2.8
Prevalence of symptoms of ARI in the 2 weeks preceding the survey	Uttar Pradesh	Same Heading	4.7	2.7	3.8	3.5
Prevalence of symptoms of ARI in the 2 weeks preceding the survey	Lucknow District	Same Heading	2.0	NA	NA	1.4
Women age 15 - 24 years who use hygienic methods of protection during their menstrual period	India	Women empowerment (women age 15 - 49 years)	57.6	89.4	72.3	77.3
Women age 15 - 24 years who use hygienic methods of protection during their menstrual period	Uttar Pradesh	Same Heading	47.1	86.7	68.4	72.6
Women age 15 - 24 years who use hygienic methods of protection during their menstrual period	Lucknow District	Marriage & Fertility	69.4	NA	NA	84.8

The above table shows that the indicator for improved drinking water source has shown improvement from 15 - 16 to 20 - 21 at all the three levels. Similarly, for improved sanitation facility, there is drastic improvement at all three levels. [26] Same is the case with clean fuel & the impact of Ujjawala Yojana reflects in the improvement. [35]

For U5, the prevalence of diarrhoea & pneumonia has reduced & improvements are also seen in the MHM practices. This augurs well for the 'Suvidha' pads that are sold at a cost of one rupee per pad at the Jan Ausadhi Kendras. [33, 34]

In the fact sheet of NFHS 5, the improved drinking water source means piped water into dwelling/yard/plot, piped to neighbour, public tap/stand pipe, tube well or bore hole, protected by dug well, protected spring, rain water, tanker truck, cart with small tank, bottled water & community Reverse Osmosis (RO) plant. [26]

Similarly, improved sanitation facility means flush to piped sewer system, flush to septic tank, flush to pit latrine, flush to do not know where, Ventilated Improved Pit (VIP) /biogas latrine, pit latrine with slab, twin pit/composting toilet which is not shared with any other household. The fact sheet mentions that the indicator does not denote access to toilet facility.

Clean fuel for cooking means electricity, Liquid Petroleum Gas/ Natural Gas & Biogas.

Box 1- Key facts about menstrual hygiene management in India (Source- BMJ & NFHS 5)

- 48% of adolescent girls are aware of menstruation before their first menses/menarche
- 55% of adolescent girls consider menstruation as normal
- 24% of adolescent girls report missing school during menstruation
- 78% of young women, in the age group of 15-24 years, used a hygienic method of menstrual protection
- Used menstrual materials often thrown in the open, in water bodies, or burned in the open

Regarding Menstrual Hygiene Management (MHM), the fact sheet mentions locally prepared napkins, sanitary napkins, tampons & menstrual cups are considered to be hygienic methods of protection. [26]

About MHM in brief - prelude & current status - Box 1 Prelude on MHM

Population of 14 - 50 years (reproductive age woman globally is approximately half of the population both at global and national level. MHM stands for three different words and each of them connotes an entire program in itself. Menstruation has to be addressed and understood at all levels. Hygiene is a cross cutting issue and it applies in the menstrual process as well. Management is all about dealing with the products used during menstrual cycle. Like all other physiological process menstruation is a normal physiological process. Puberty Starts at the age of 9 - 12. Millions of girls across India struggle to manage their monthly periods. They face challenges related to insufficient and erroneous

information about menstruation and menstrual hygiene. The lack of access to safe products, use of unsafe materials and unhygienic practices, limited access to water, sanitation, hygiene and disposal facilities further add to the woes. The broader socio - cultural and policy environment that shapes what and how much information girls and women receive, and their uninterrupted access to safe/good quality menstrual absorbents and WASH facilities is the overarching issue. When girls and women are unable to manage their periods, they are vulnerable to adverse health and nutritional outcomes such as reproductive tract infections (RTI), anxiety and stress, restricted food and water intake leading to anaemia. This also impacts education outcomes, such as school absenteeism and discontinuation. Given the deeply entrenched socio - cultural aspects of menstruation, menstrual health and hygiene (MHH) is linked with empowerment - related issues such as mobility, self - efficacy and decision - making. [25, 27, 28]

Menstrual health and hygiene in India

Globally, as per the Sustainable Development Goals (SDG), MHM happens to be an indirect relation to goal # 4 and its target 6.2. The SDGs were framed in 2015 but the MHM concept was adopted by the UN human rights council in

2014. Thereafter, India in 2015 initiated the MHM guidelines through the Ministry of Drinking Water and Sanitation. The Commission on the Status of Women (CSW) adopted MHM in its resolution in 2019. The procurement of sanitary pads by the public health system of the states was initiated in 2016. Since 2015, the global MHM day is being organized every year at the state and national level. The current situation in the country is reflected in the NFHS of the GOI. [8, 10, 12, 13, 26, 27, 28]

The National Family Health Survey - 5 (NFHS - 5) provides the latest data on the use of hygienic menstrual materials in India. The latest data in comparison to NFHS - 4 tells that there is great improvement in usage of hygienic menstrual product. Overall in India there is increment of 20%. Southern States like Telangana has done great by reaching to 92.1% in NFHS - 5. States like Rajasthan West Bengal, Odisha, AP, Karnataka, Maharashtra have reached to more than 80%. Among the list shown in graph Bihar and MP are at 58.8% and 60.5 % respectively which is quite low comparatively among States but their own performance in comparison to NFHS 4 is great as they have improved well in usage of hygienic menstrual products. [26]

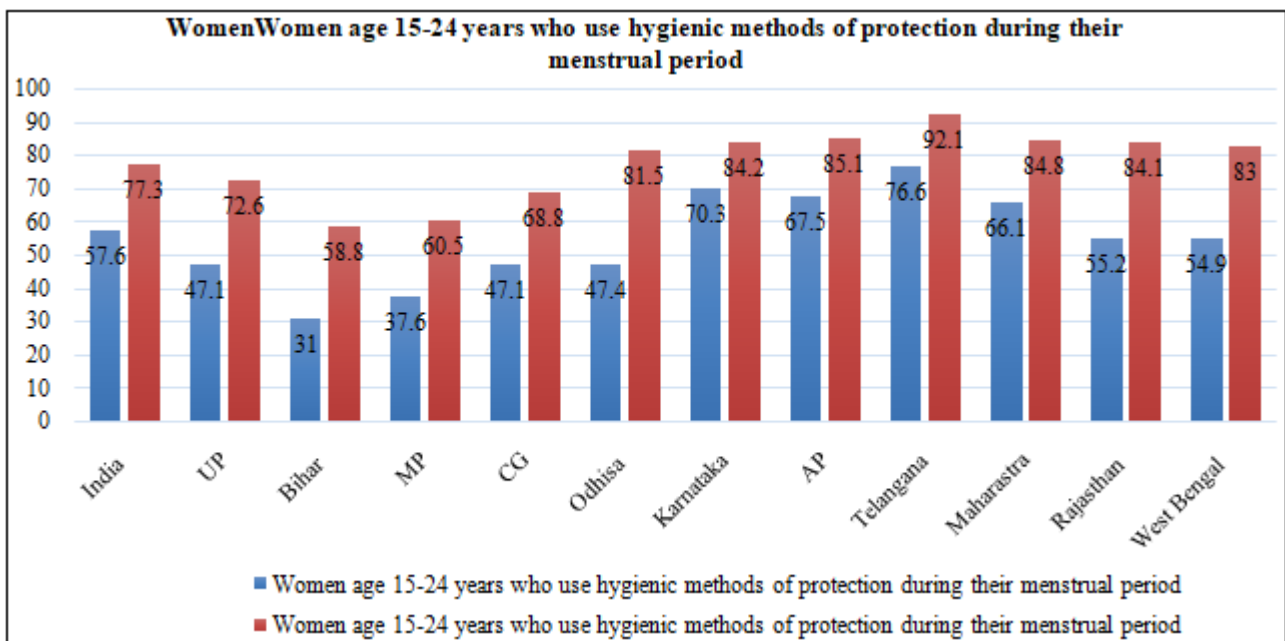


Figure 2: Hygienic methods of protection during menstrual cycle in India & selected states [26]

The figure below mentions the relations between ‘no education, only primary education and lowest wealth quantile and use of cloth pads. That means as users become literate, attain higher education and improve upon their wealth status, use of sanitary pads increases. Similarly

among the Scheduled Tribes, the cloth users are more than the pad users.

There is hardly any difference between rural and urban users but the overall user status points to an increasing trend in pad users in comparison to the cloth users.

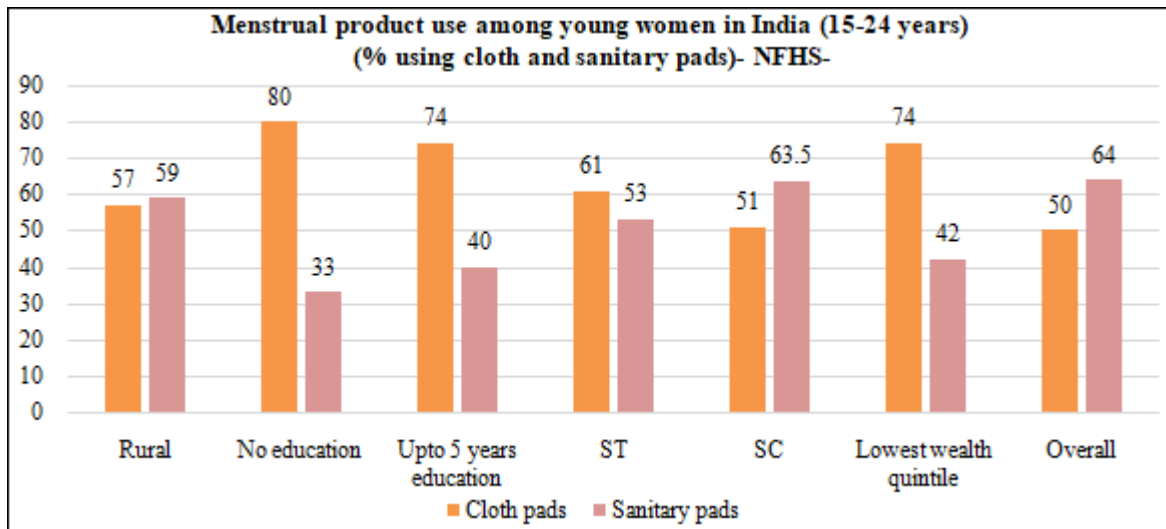


Figure 3: Variables & Hygienic Methods of protection during menstrual cycle [26]

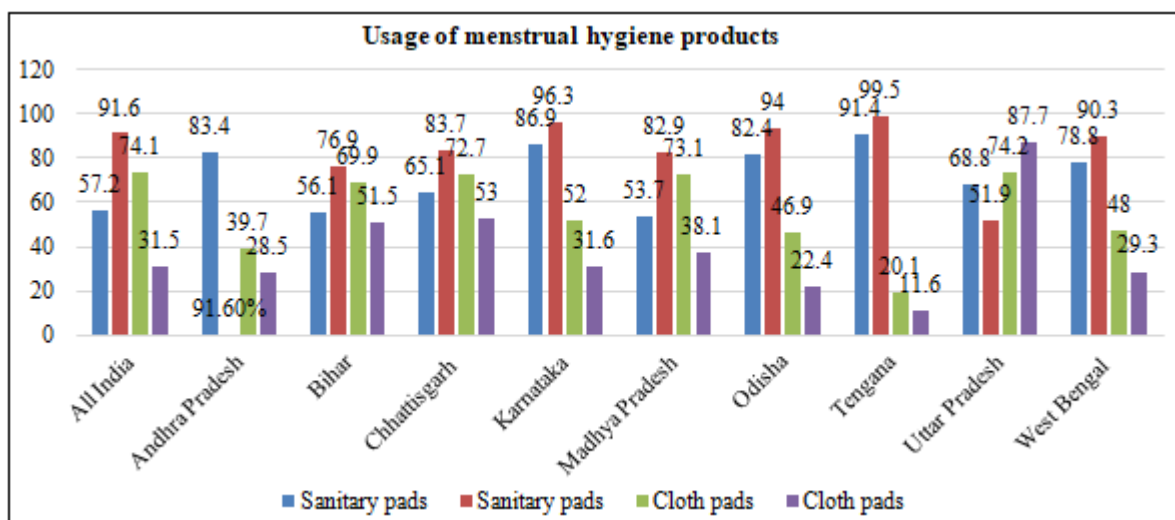


Figure 4: Use of menstrual hygiene products in India & selected states [26]

The field work for the study of the current article was done in slums & of Lucknow city & district. As per the report of the committee on slum statistics/census, ministry of housing and urban poverty alleviation, GOI, 2011, a slum is defined “as a compact settlement of at least 20 HH with the collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facility in unhygienic conditions”. As evident from the definition, working in slums on WASH related activities is a priority. [9]

The Water and Sanitation for Urban Poor (WSUP) business plan launched in March 2016 for the period 2016 - 2030 mentions 5 strategic areas out of which the second strategy mentions of “developing capacity in the public and private sectors”. The work of LNN & NGOs fall in the category of public & private sector and it is imperative that the capacity of stakeholders will be strengthened through focused work in WASH. [11]

Globally it is seen that poor WASH leads to water borne and vector borne diseases. Among these, the major killers of U5 children in India are diarrhoea and pneumonia. As per WHO report of 2015 for causes of U5 death, diarrhoea contributes

to 11% of all deaths and pneumonia contributes to 16% of all deaths in India. As per NFHS 4, 2015 - 16, the prevalence rate of diarrhoea is 15% in UP and for pneumonia it is 5% where as it is 10% and 3% for India. As per AHS, 2012 - 13, the prevalence rate of diarrhoea is 12% and for pneumonia it is 15%. Similarly, as per NFHS 4, the prevalence rate of diarrhoea in Lucknow is 8% and for pneumonia it is 2%. [12, 14, 26]

The following figure number 5 shows the useful impact of WASH strategy on reducing the mortality of U5 children. The two major killers of U5 children are pneumonia & diarrhoea. Among all the deaths of U5 children in a year, 10% of deaths occur due to diarrhoea & 15% of deaths occur due to pneumonia. Simple behaviours like hand washing & hygiene can prevent 25% of deaths among the U5 children. [29]

The process of prevention should start from the neonatal stage as it can be seen from the figure that neonatal deaths contribute to 58% of all deaths and the rest 42% happens in a period of 59 months. From this, we can infer that the WASH strategy is a cross cutting issue that cuts across the maternal, neonatal & child health. [18, 29]

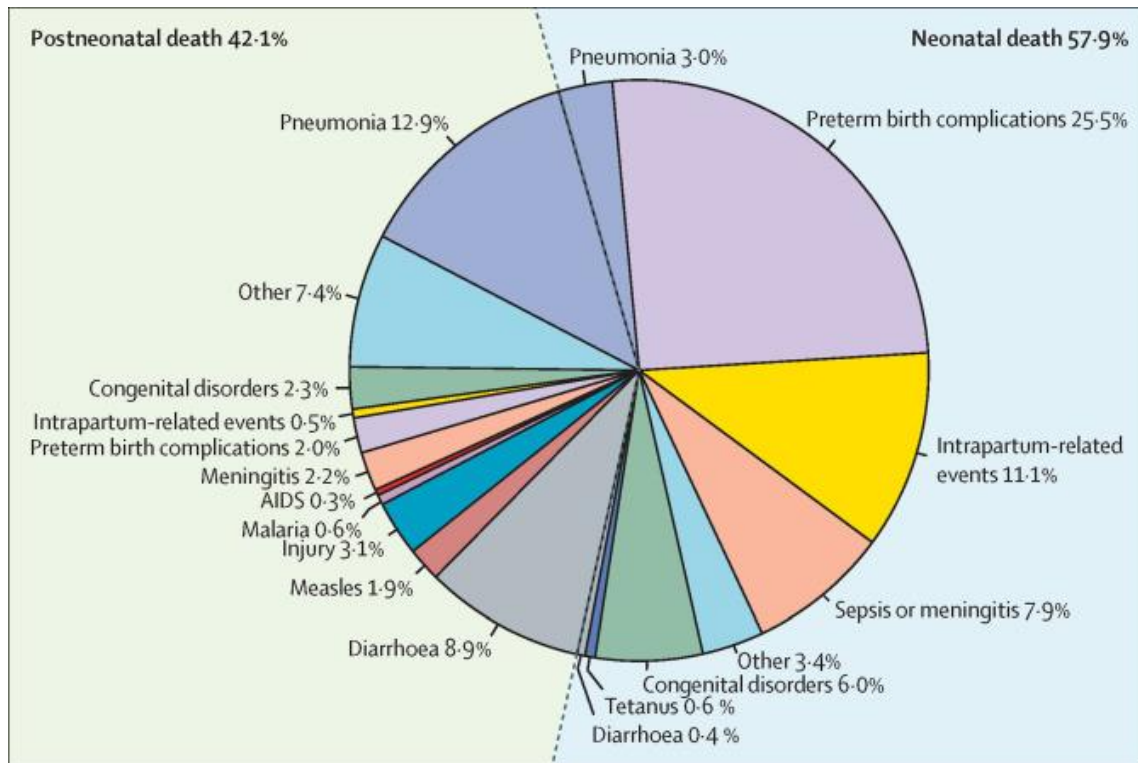


Figure 5: Causes of U5 deaths (Source - Liu L et, al.2019)

As per the Integrated action plan for Prevention and control of Pneumonia and Diarrhoea (IAPPD), the prevalence of diarrhoea and pneumonia can be prevented by WASH through promotion of behaviours like hand washing. [16]

On the top of it, child mortality is very critical as it constitutes 1/3rd weightage in determining Multi Dimensional Poverty. Currently, in India NITI Ayog also use the child mortality indicator for determining poverty status. The following section has the details. [31]

Global Multidimensional Poverty Index (MPI)

The Global MPI is released at the High Level Political Forum (HLPF) on Sustainable Development of the United Nations in July every year. This method goes beyond the income as the sole indicator for poverty and tracks deprivation across three dimensions and 10 indicators. These are given below in order along with the weightage for each of the indicators.

The first dimension is Education followed by Health and the final dimension is Standard of Living. Each dimension has 1/3rd weightage.

- Education: ‘Years of Schooling’ and ‘Child Enrollment’ are the two indicators where each indicator has 1/6 weightage thus totalling to 2/6 or 1/3.
- Health: ‘Child Mortality’ and ‘Nutrition’ are the two indicators where each indicator has 1/6 weightage thus totalling 2/6 or 1/3.
- Standard of Living: ‘Electricity’, ‘Flooring’, ‘Drinking Water’, ‘Sanitation’, ‘Cooking Fuel’ and ‘Assets’. Each indicator has 1/18 weightage thus totalling 2/6 or 1/3.

A person is multi - dimensionally poor if he/she is deprived in 1/3rd or more (means 33% or more) of the weighted ten indicators. Those who are deprived in 1/2 or more of the weighted indicators are considered living in extreme multidimensional poverty.

The MPI ranges from 0 to 1 where higher values imply higher poverty. It is the product of the incidence of poverty (proportion of poor people) and the intensity of poverty (average deprivation score of people). Currently, it is the most comprehensive measure of multidimensional poverty compared to the conventional methodology that measures poverty only in income or monetary terms. [30]

Sustainable Development Goal 6 on WASH

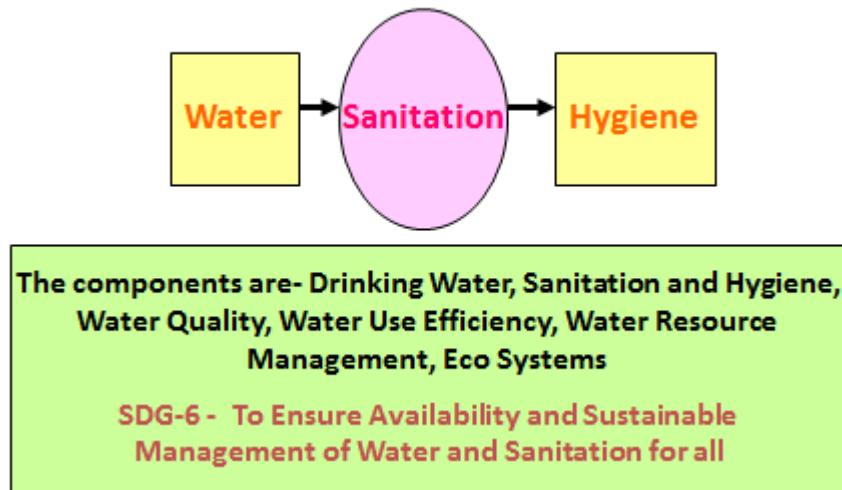


Figure 6: WASH related SDG

The WASH component is as per the goal # 6 of the Sustainable Development Goals of the United Nations as adopted in 2016. The figure below gives the details of the goal.

It is clearly evident here that it is a mammoth task to address all components in the slums & schools of Lucknow. The study aims to discover those areas which are doable and the efforts on the other hand will strive to achieve the larger goals as per the components of SDG 6. WASH process start with water moves on to sanitation followed by hygiene both at individual and community level. [10, 17]

The two objectives of the WASH strategy document of UNICEF for 2016 - 2030 are to

- 1) Achieve universal and equitable access to safe and affordable drinking water for all
- 2) Achieve access to adequate and equitable sanitation and hygiene for all and end open defaecation, paying special attention to the needs of women and girls and those in vulnerable situations. [15]

Similarly, the article includes FGDs done exclusively for women and girls in community and schools respectively to ascertain their special needs. It also includes information on source of drinking water and time taken to fetch portable water by each house hold. In this context, the study is aligned to the above - mentioned objectives.

The FGDs includes all sections of the society where women, mothers, early childhood stage, adolescents and older children are included. The WASH strategy contributes to benefits in all these stages of life. The benefits as per the stages are -

- Pregnancy: reduced maternal disease and death, reduced under nutrition, protection from violence, increased dignity.
- Childbirth and New- born: Reduced neonatal, maternal disease and death, increased dignity.
- Infant to 2 years: Reduced child disease and death and reduced stunting.
- Young children (2 - 5 years): Reduced child disease and death, reduced under nutrition.

- School age children: Reduced child disease and death, reduced under nutrition, increased school attendance, protection from violence, increased dignity.

Adolescent girls and boys - reduced adolescent disease and death, reduced under nutrition, increased school attendance especially for girls, protection from violence, increased dignity.

To address benefits to all ages through WASH it is only appropriate that the study has included all the sections of the society through community, schools, VHND sessions, AWCs. The prioritized activities at all these levels will lead to expected WASH related outcomes as described above. [15]

As per census 2011, 31.16% of population i. e. 377.10 million lives in urban areas and 18% of these population live in urban slums. Similarly, 28% of the total population of Lucknow reside in slums. WASH issue was addressed in slums through the Rajiv Awas Yojana till 2005. From 2005 to 2014, WASH was addressed in slums through the JNNURM scheme. Since 2014, SBM and AMRUT schemes are the vehicles through which WASH is addressed in slums of India. The current study will match these schemes along with the identified priority areas to work on WASH related issues. [1, 3, 7, 8]

Slums are the visible manifestation of poverty in India. Along with Bihar, MP and Rajasthan, UP constitute 40% of the total urban poor in India. Poor WASH conditions and poverty force the families to have higher out of pocket expenditures in terms of health care. To improve WASH in slums of Lucknow, the city sanitation plan was developed in 2011. [7, 9]

The census 2011 revealed that in 4041 towns close to 8 million defecate in the open. The SBM aims to reduce OD by 2019 and the study tries to find out strategies or ways to contribute towards reducing the menace of OD. Currently, India is declared Open Defaecation Free (ODF). [1, 8]

The SBM guidelines mention components such as use of public toilets, solid waste management and IEC for public awareness. The current study works to find out ways in which the slum dwellers use public toilets, manage the solid waste of their homes and participate in IEC activities contributing to increased awareness on WASH. [8]

From the country level, when we come down to the city sanitation plan of Lucknow, we find that 10 to 11% of HH do not have toilets and from among the zones, zone 3, 4, and 5 have maximum users per toilet seat of community toilets. In these zones, only 20% HH have public toilets within walking distance of 100 - 200 meters. Poor number and quality contribute to open defecation. The city has 207 toilets having 2656 seats. 72% of these toilets are maintained by Sulabh International. In the city, 7 to 10% of HH resort to open defecation where zone 3 contributes to 8 - 10% and zone 5 contributes to 13 - 15% thus having maximum number of people doing open defecation. 35 - 39% of slum HH do open defecation in zone 4. The floating population that constitute 8 - 10% of population also contribute to an increase in open defecation. [7]

The City Sanitation Plan (CSP) of Lucknow, 2011 also mentions four aspects of achieving the vision of the CSP. Among the infrastructure aspect, the document mentions making Lucknow Open Defecation Free (ODF) by 2020. Currently, Lucknow has achieved ODF status. Among institutional aspect, it mentions role of institutions in creating sanitation assets. Among social aspect, it describes of increased awareness among citizens regarding health and hygiene issues. The current study is contextual in the sense that it found ways to address the above - mentioned issues under the respective aspects. [7]

A study done regarding hand washing practices of mothers in slum communities in May 2016 reflected that hand washing before preparing food was only 37.1% in slum communities among lower socio - economic status mothers. [6]

A study done on new born care practices in urban slums of Lucknow city in 2010 hints that the WASH practices of mothers and house - hold members were poor as cord care and early bathing were the barriers to healthy WASH practices. [18]

As per the citizen's report card on Water, Sanitation and Hygiene (WASH) in 25 slums of Lucknow, Uttar Pradesh in 2013, more than 60% HH defecate in open, most people dispose garbage on roads, the tap provided drinking water for only 2 hours a day and people suffering more during summers. It is on this light that the current study will bring out qualitative aspects on WASH in slums. [5]

A study by London School of hygiene and tropical medicine and Ankur Yuva Chetna Shivir (AYCS - a NGO working in Lucknow City) for the Gomti river pollution control project in June 1996 on diarrhoea and hygiene in Lucknow slums reflects that mothers do not relate hygiene to diarrhoeal diseases in children. Mothers were washing hands with ash and mud after defecation. Muslims considered ash as dirty but not Hindus where as it was just opposite for mud.

Mothers washed hands after handling elder children's stool but not with infant's stool. [4]

As per the slum free city plan of Lucknow in 2013 by the Ministry of Urban Development, GOI, the cost allocation for physical infrastructure break up was for water supply was 22%, 63% for sanitation and 2% for solid waste management. The allocation shows that WASH has been an integral part of the plan. [3]

As per the NUHM launched in 2013, urban PHCs are to be set up in slums and slum population are to be covered through Urban Health & Nutrition Days (UHNDs). The study also focuses on UHNDs as critical points for disseminating WASH messages and distribution of ORS & Zinc (OZ) tablets to children suffering from diarrhoea. [2]

Similarly, a study in schools of Lucknow on WASH in 2013 by FANSA states that the WASH conditions are poor as there were insufficient number of toilets, poor condition of toilets and poor Menstrual Hygiene Management (MHM) practices. The garbage was just thrown besides the school premises. [5]

Another study by Development Alternatives in 2014 in 108 schools in 3 districts of UP advocated for students to be WASH ambassadors at large for the community. [20]

4. Results & Findings

In this section, the summary of the detailed discussion points at the three levels are mentioned. After the detailed section, the summary of the discussions at each level are mentioned along with the suggested areas in future for Lucknow Nagar Nigam (LNN in Hindi & Lucknow Municipal Corporation (LMC) in English) & Non Governmental Organizations (NGOs).

Summary of the discussions at all three levels - Community, Schools, Stakeholders

Summary of the FGDs held in schools

- Most of the students knew about the SBM and could relate the mission to cleanliness in their school.
- Only 2 out of the eight schools had schedules for both boys and girls to clean the class rooms but gender disparity is clear in most schools as the girls clean the class rooms and not the boys.
- When students urinate, mostly the girls use the toilets of the school and not the boys. The boys urinate in the open. For defecation, students are sent back home and mostly they do not come back to school on those days.
- Few students in the schools bring their own tiffin or plates to eat the mid - day meal. The reason they gave was that all students especially the younger ones do not clean their plates properly. One to one probing with the student might help to bring out the issue of social inclusion here.
- All the students could relate to the hand washing demonstration and distribution of iron and deworm tablets but these events are not held periodically.

- None of the students clean the toilets. In the absence of regular safaikarmachari, all schools have hired private cleaner who cleans the toilets once a fortnight or month.
- Hands washing with soaps are not regular feature as soaps are not kept at the source of water. Students bring washing powder from homes also.
- None of the schools have the habit of keeping dustbins and the students do not have the habit of using dustbins also.
- No school has provisions for keeping sanitary pads in the school in case of a menarche in any girl. Usually girls go home and come back to school only after their menstrual cycle has stopped. I could also find that the girls knew about MHM but not all were using cotton clothes during menstrual cycle. However, in all the schools the teachers keep some sanitary pads on their own for emergency use.
- None of the schools has the habit of keeping drinking water in a pot in the school.

Summary of the observation in schools - the current WASH facilities

- In most of the schools, toilets remained closed. In one school, 2 toilets were used as stores.
- Although the students replied that they maintain garden and keep surroundings clean, the garden and surroundings were not clean.
- The students replied that they eat mid - day meal together but in reality, they were eating in their own classes.
- Students were drinking water with hands in most of the schools.
- Although students said that they broom the class rooms daily, the class rooms looked dirty/unclean.

Recommendations - Areas that LNN & NGOs can focus in future for schools based on the discussions

BOX - 2 - future areas of schools

- 1) Make all hand pumps functional in schools with the support of SMCs as this is the base of addressing WASH related activities.
- 2) Keep soaps ready at hand pumps for students to wash hands and plates. If soaps are not available, develop the habit in students to bring some washing powder from home daily.
- 3) Girls use toilets in most schools to urinate and boys urinate in the open. The students are sent home to defecate. Encourage cleaning of toilets so that both boys and girls use the toilets.
- 4) Link with Nagar Nigam to make the SafaiKarmachari clean the toilets in schools. Currently most schools use the services of a hired cleaner. Try including students to clean toilets as well so that the habit percolates to HH level. Work with SMCs to have the services of hired cleaner at least twice a month.
- 5) Encourage teachers to keep ready some sanitary pads for girls and teachers to ask girls to use cotton cloth by the girls. Encourage them to attend school. Discuss about Menstrual Hygiene Management in schools.
- 6) Do hand washing demonstration once in every three months and link with RBSK of NHM of UP for distribution of deworm and iron tablets. ORS and Zinc tablets in case of diarrhoea in children. Focus on critical points of hand washing with students frequently. Show the 60 second movie on diarrhoea.
- 7) Encourage students to eat together and not in their respective classes to make students socially inclusive.
- 8) Encourage all schools to have schedules for students to clean class rooms, maintain garden and keep surroundings clean so that only few students do not clean but all learn to clean.
- 9) Encourage all schools to introduce dustbins only for dry garbage.

Community level summary

Summary of the results & findings at the community level

- Very few people knew about the SBM and the logo of SBM of GOI.
- None of the HH use dust bins for solid garbage. They collect the garbage and throw in the designated area of the slum. In recognized slums, there is a designated area but in unrecognized slums, people dump.
- In recognized slums, people want to pay for garbage if it is picked up from their homes. People were reluctant to pay as their past experiences in this context were not fruitful.
- Unrecognized slums do not have piped water put up by nagarnigam. They depend upon private player for drinking water who takes money to give them water.
- Usually, people keep the water in plastic buckets and no one purifies it further for portability but they keep it covered. Usually one family takes about 5 minutes to fetch water in recognized slums where as it is up to one hour in unrecognized slums.
- In recognized slums, people pay for the maintenance/repair of the pump.
- Unrecognized slums burn the garbage every 2 - 3 months as the garbage is not picked up by nangarnigam.
- In recognized slums, very few people have functional toilets. Very few people among the non - toilet HH use the public toilets like sulabhsocialaya. Majority defecate in the open. The males sit in one corner and the females in another corner of the place used for defecation. There was no beneficiary for toilet construction in the communities.
- Few people wash their hands with soap after urination and defecation. Children usually defecate in open and the stool is thrown in the garbage across the open space used to dump garbage. All the HH throw the excreta of children in the garbage near the slum across the open area.
- All HH use the pits dug by them to drain out the wastage water from home. They also collect the waste water and throw later every day.
- Usually people do not segregate the garbage and they mix the garbage and throw in the open area for garbage across the slums.
- Hand washing campaign was done once by AYCS in all the communities (recognized slums). Usually they had one handwashing demonstration in the last 6 months.
- Regarding MHM, the females use any cloth during their MC. Most of them are not aware about the use of cotton cloth and pads during MC days. Not all of them also throw the cloth and pads wrapped in a paper along with the garbage.
- Fogging was also not done in any of the slums. No other special campaign was done by nagarnigam in the communities. Occasionally, machines clean the drain only once a year in all the communities.

Summary of observations at community level - current infrastructure

- People were throwing excreta of young children in the garbage and not always washing hands with soap.

- The drinking water is not covered at HH level.
- After urinating, people were not washing hands with soaps.
- People have bathing spaces temporarily made but not toilets.
- The constructed toilets have silted in the slums.
- Women are not open to talk about MHM and whisper among themselves.

Recommendations - Suggested Activities to be done by LNN & NGOs in future for communities in slums

BOX - 3 - future areas for community

- 1) Focus on individual habits like hand washing after defecation and urination through demonstration of handwashing in the slums.
- 2) Encourage the people to use SulabhSochalaya instead of open defecation. Introduce family cards for HH after linking up with nagarnigam and Sulabh International.
- 3) Make discussions on MHM a regular feature where emphasizing on use of cotton cloth to be done if they do not wish to use sanitary pads.
- 4) The slums which have less chances of getting evicted are willing to pay if the garbage is picked up from home.
- 5) All the slums have the will or are paying for the repairing charges of the water pump.
- 6) Continue to learn from the HH which use toilets currently and encourage other HH to use toilets.
- 7) Encourage mothers to attend VHND sessions to use OZ, deworm and iron tablets for them and children. Share the 60 seconds movie on diarrhoea on use of OZ tablets.
- 8) Repeat the habit of keeping the drinking water covered at home.
- 9) Link with nagarnigam to do fogging and spread of mosquito oil in drains of legal slums while focusing on individual habits in illegal slums.
- 10) Link with nagarnigam to pick up garbage slums from illegal slums so that people do not burn the garbage.

Summary of the Discussions held with stake holders through interview

First stake holder - Social Welfare Officer, SBM, Nagarnigam

- The priority areas of SBM are to build individual toilets and then community toilets. Next priority is source segregation of garbage. Achieving targets of ODF is another priority.
- They do campaign every 3 months in certain slums with NGOs. They take the help of safaikarmacharis and their supervisors.
- Till date, they have covered 50 Resident Welfare Societies. The campaign was done in May 2017. They have covered schools in April and June to disseminate SBM related behaviors. They also covered CMS to disseminate HH behaviour through school children.
- The sanitation and food inspector visits the field to address SBM related activities. They can not cover all the areas as they are busy doing inspection of restaurants.
- In zone v of Alambagh, dustbin distribution was done as it was a sponsored event. 1000 buckets were distributed covering 500 HHs.
- The private player hired for garbage collection is Ecogreen. Currently, a new stakeholder is to be put in

place in 2023 as the contract with Ecogreen has been terminated. Prior to this, Jyoti Environment was hired.

- Illegal slums are the major challenge. Achieving the targets for toilets and ODF is very very low and challenging. Acquiring land to build community toilets is another challenge. The toilets constructed by HUDA and NEDA are not functional. Only by Sulabh is functional.
- Currently their focus is completing the Swacchsurvekhyam survey 2018. They are involving all NGOs and stake holders to participate in the survey.
- Funds are also less. They get Rs8000/- per individual toilet which is less for building a toilet.
- Public relation related activity is another obstacle as it diverts all the work. Community contribution is another challenge in rolling out any activity. The cross cutting obstacle is interference of public representatives.
- The three areas for which private players are hired are bio medical for medical wastes. Eco - green for solid wastes, need based player for liquid wastes.

Second, Third & Fourth Stake Holder

Summary of the discussions held with ASHA, AWW and ANM - Front Line Workers

- The ANM at the urban VHND session uses the hub cutter for the used needles and deposits in the Bal MahilaChikistalayawith out realizing that she is addressing SBM related activities.
- The ANM was unaware of the SBM related activities in the community but the ASHA knew about SBM. The ASHA informed that the nagarnigam picks up the garbage from the area where the community throws the garbage.
- The SBM activity that they do in the session is to talk about hand washing with pregnant women, mothers. The ASHA and ANM distribute ORS and Zinc to the children under the age of 5 years for diarrhoeal diseases.
- The ASHA also discusses hand washing with the members of HH when she visits the HH.
- The AWW informed that the students of ECDC urinate in the open and for latrines they go home.
- The helper of AWW cleans the plates and the children wash their hands using soaps at the AWC.
- The children had de - worm tablets only once in this year.
- They had also received iron tablets only once this year. Not all students ate the tablets at the AWC.
- However, there was no dustbin available in the AWC.
- There is no indicator related to SBM in the reporting system of the ICDS for AWW.

Fifth stake holder - Ward councillor (PARSHAD)

- Except for picking up of garbage and cleaning of drains, the focus was on bijli, sadak and pani for the councillor.
- Every 3 months there is a meeting of councillors in nagarnigam to discuss on the progress but the obstacle that still remains are segregation of garbage and proper disposal.
- The role of NGOs he says are minimal but it can be augmented with synchronisation.

- Another obstacle is the cowsheds of buffalo that dumps the buffalo dung in the drains but once the buffalodung dries it becomes an obstacle for water flow.
- The deployment of staffs of nagarnigam in the ward for PR related activity related to VIP movement is another challenge. The whole staff is deployed at the main road instead of cleaning the lanes and by - lanes of the ward.
- The annual budget of each ward in Rs 75 - 80 lakhs in which they have to maintain everything that is under the domain of nagarnigam in the ward. The budget is not proposed but allotted to the ward by the nigam.
- He gave the example of the sewer treatment plant of Lucknow which cleans the waste water and recycles the water back to Gomti river.
- The other obstacle he mentioned is construction of toilets as about 1000 applications were there but only about 15 HH built toilets with support of SBM.

Sixth, Seventh & Eighth stake holder - SafaiKarmacharis and Supervisors

- There was one safaikarmachari and two supervisors in the discussion. The safaikarmachari told that there is no active community participation in any work of nagarnigam.
- They have to work for extra hours that is beyond 2 pm as they are given too much of unscheduled work also.
- They are overloaded but they have not been paid their salaries for the last 3 months. Shortage of staff in relation to the work is another constraint that they face regularly.
- They could say that some NGOs help them in their work in dealing with the communities occasionally but besides that they do not envisage the role of NGOs.
- The difference that the SBM has brought about is that now - a - days polythene is less used and people have started talking about the cleanliness drive.

Recommendations- Future activities that LNN & NGOs can do with the help of stakeholders

BOX - 4 - future areas for stakeholders

- 1) Work with PARSHAD to deploy safaikarmis for legal slums for cleaning drains, picking up of garbage, provision of tap for drinking water and tankers for drinking water in illegal slums.
- 2) Hand washing demonstration for children of AWC and distribution of deworm and iron tablets with support of ANM of NHM.
- 3) Hand washing demonstration in VHND sessions and explain proper use of OZ to mothers by ASHAs for diarrhoeal cases in children. Share the 60 seconds movie on diarrhoea in groups. MHM should be discussed in these sessions.
- 4) Involve the safaikarmis and supervisors in the community meetings of legal slums to elicit functional support from them. They can also be involved in office meetings to tune them with the activities and plans of LNN & NGOs.
- 5) Work with the SWO to issue family cards for using of community toilets by the people of the slums.
- 6) Participate in the campaigns and surveys related to SBM to remain highlighted as a NGO working in the field of SBM.
- 7) Find out functional modalities to work with eco green for separation of garbage at source.
- 8) Share work progress data with nagarnigam so that these are included in their achievement targets.
- 9) Explore with the stake holders like ASHA and ANM to visit the schools on the days the RBSK team visits the school.
- 10) Conduct a half day meeting of all the stake holders of the

project area to help them focus on ODF, segregation of garbage, critical points of hand washing, use of tablets like Zinc, iron and deworm along with ORS.

Recommendations - Four major activities that LNN & NGOs needs to in near future

- 1) Make family cards for house - holds to promote use of community toilets there by addressing open defaecation issues.
- 2) Reinforce hand washing demonstration at school level as students learn through repetition.
- 3) Involve all the stakeholders in the project area whether they are directly or indirectly related to WASH activities.
- 4) Strengthen mechanisms at the slums so that people get portable water irrespective of the fact that the provider is private or public.

Steps taken by LNN in 2023 for Vector Control

As a recommendation mentioned above by respondents during the discussions, improvement & regularisation of fogging was suggested. Taking cognisance of the fact, LNN has started cold fogging in the city in 2023. Earlier, thermal fogging was done for vector control as a WASH component using diesel, petrol fumes to vaporize liquid insecticide. The fume produced is toxic to the mosquitoes. The cost incurred was ₹ 4 - 5 lakhs or 0.4 to 0.5 millions per hour. Here, the insecticide used was Malathion[at]2.5 litres per hour. Currently, cold fogging is done where low volume fogging machines use cold spraying. The process uses air pressure to spray water that includes application of anti mosquito chemical in fine mist like particles. Water is used instead of diesel insecticide. The chemical used is Deltamethrin & this method costs 0.3 to 0.4 million per 24 hours or it costs 1/24th cost per hour compared with thermal fogging. Water sprinkled through these machines creates a layer on the walls of buildings that evaporates in a week. As it is less concentrated, it is not harmful for humans but to mosquitoes. In addition, the health, fogging & anti larvae sprinkling operations department has introduced anti larvae granules to sprinkle in stagnant water to kill mosquito larvae. This process remains active for three weeks. [32]

5. Conclusion

The study concludes that five major activities that NGOs and school authorities needs to do in near future. The first is to make the family of these children to promote use of toilets at homes and schools (for boys) there by addressing open defecation issues. The second is to reinforce hand washing demonstration at school level as students learn through demonstration and doing. The third is to involve all the stakeholders such as parents and the community in the vicinity of the school in the project area whether they are directly or indirectly related to WASH activities. The fourth is to strengthen mechanisms at the schools so that children get portable or drinking water at the school premises perennially. The all - important MHM and WASH education in schools is the 5th priority. [25, 26, 27, 28]

The WASH strategy's single biggest achievement is the Open Defecation Free status in India currently. The pay & use strategy should be continued so that the community

participates in the strategy actively. The forth coming strategies of Solid Waste Management (SWM) & Liquid Waste Management (LWM) are only effective with the participation of the community. [7]

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