WASH | Nepal

Formative Research

Barriers and Facilitators to Hygienic Use and Maintenance of Latrines and Handwashing with Soap in Sarlahi, Mahottari, Siraha and Saptari Districts of the Terai, Nepal

DECEMBER 2015

SNV SMART DEVELOPMENT WORKS

Australian Aid

Ministry of Foreign Affairs of the Netherlands

DFID Department for International Development

Acknowledgements

The authors would like to thank the following people, without whom this study would not have been possible.

SNV staff: Mr. Ratan Budhathoki, Umashankar Yadav, Ram Prakash Singh, Krishna GC, Kabir Das Rajbhandari, Anup Regmi, Ranjita Tiwari, Nadira Khawaja and Gabrielle Halcrow.

Government counterparts: Mahottari District - Mishree Lal Yadav, Planning Officer of DDC; Devendra Jha, Divisional Engineer of WSSDO; all DWASHCC members; Sarlahi District- Bikas Kafle, Divisional Engineer of WSSDO; Shiva Shankar Rauniyar, staff of WSSDO; Nripendra Singh, member of DWASHCC; all DWASHCC members; Saptari District - Kamal Prasad Dhamala, Local Development Officer of DDC; Lokendra Prasad Yadav, Divisional Engineer of WSSDO; Raj Narayan Thakur, Public Health Officer; all DWASHCC members; Siraha District - Gopal Kumar Adhikari, Local Development Officer of DDC; Ramesh Nidhi, WASH Focal Person of DDC; Dashai Mandal, Divisional Engineer of WSSDO; Shree Krishna Shah, WASH Focal Person of WSSDO; all DWASHCC members.

Local NGOs and their staff: Mahottari District – Ratauli Yuba Club; Sarlahi District- Samaj Sewa Yuba Sangh; Saptari District - Panchawati Rural Development Centre; Siraha District - Nepal Red Cross Society.

Authors

Nga Kim Nguyen, Behaviour Change Communication Specialist, Consultant

Harishova Gurung, Behaviour Change Communication Advisor, SNV Nepal

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Acronyms & Abbreviations

CLTS	Community Led Total Sanitation
BCC	Behaviour Change Communication
FGD	Focus Group Discussion
HWWS	Handwashing with Soap
IDI	In-depth Interview
KII	Key Informant Interview
LO	Latrine Owner
NGO	Non-Governmental Organisation
OD	Open Defecation
SSH4A	Sustainable Sanitation and Hygiene for All
VDC	Village Development Committee
WASH	Water, Sanitation and Hygiene

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EXECUTIVE SUMMARY

Introduction

In recent years, Nepal has made laudable progress in increasing sanitation coverage nationally, from 43% in 2010 to 81% in 2015. The Government has set a goal of reaching universal sanitation coverage by 2017, and significant work will be required if the country is to meet this objective. Furthermore, large disparities exist between geographic zones. While communities in the hilly and mountain areas of Nepal have made significant progress, the Terai eco-zone, a lowland plains region bordering India, still has the lowest sanitation coverage rates in the country. Data in 2014 from the 75 districts within Nepal showed the Terai districts of Saptari, Siraha, Sarlahi and Mahottari in the 75th, 74th, 71st and 70th positions, respectively, with regards to sanitation coverage . If Nepal is to achieve its goal of 100% access to improved latrines by 2017, significant efforts need to be channelled towards this region.

After completion of a successful sanitation and hygiene programme in the Mid-Western Development Region, SNV Nepal has received funding to expand to another eight districts, five of which are part of the Terai region: Siraha, Saptari, Sarlahi, Mahottari and Banke. To date, there have been several studies conducted in the Terai region on sanitation. They have focused mainly on drivers and barriers to demand for latrines. However, none of the studies have looked in-depth at what happens once households have acquired a latrine. There is a need for research that examines behaviours following acquisition of a latrine, including consistent use, routine cleaning, operation and maintenance, and handwashing with soap (HWWS) at critical times.

Research Objectives

The overall objective of the formative research is to understand the barriers and motivations to hygienic use, operation and maintenance of latrines and HWWS in the Terai eco-zone. For the first behaviour, the research aimed to understand: 1) what are the current latrine usage patterns; 2) how do households clean their latrines and what are the barriers and facilitators to keeping latrines clean; and 3) what are current pit emptying practices and how does this affect latrine usage? For HWWS, the study sought to understand: 1) how do women prepare food and does this routine include washing hands; 2) how do women clean up after their children have urinated/defecated and how are the faeces disposed of; and finally 3) what do women do with regards to washing hands before they eat and before they feed their children?

Given the diversity of the Terai districts, the study also sought to understand whether there were differences between ethnic and religious groups with regards to the above questions. As a result, a variety of ethnic groups were included in the study sample. The SaniFOAM and FOAM frameworks were used to guide the formulations of the study questions and in the analysis of the data.

Methodology

This was a prospective, qualitative study that utilised two methods of data collection: one-on-one interviews with Key Informants (Key-Informant Interviews or KIIs), interviews with latrine owners (LOs) and caretakers of children under five (In-Depth Interviews or IDIs) and group discussions (Focus Group Discussions or FGDs). In total, 82 interviews were conducted with 108 participants including 11 KIIs, 30 IDIs with LOs, 40 IDIs with care-takers of children under five and five FGDs (four on HWWS and one on latrine cleaning with Dalit Dom men).

[1] Joint Monitoring Programme, Nepal. 2014.

[2] Central Bureau of Statistics and UNICEF, 2012

[3] Lek Bikram Shah, Harishova Gurung, Report on Preliminary Assessment of Sanitation and Hygiene Situation in Siraha, Saptari, Sarlahiand Mahottari districts. SNV Nepal, 2014.

[4] Devine, Jacqueline. Introducing SaniFOAM: A Framework to Analyse Sanitation Behaviours to Design Effective Sanitation Programmes, Water and Sanitation Programme, World Bank 2009.

BEHAVIOR I: HYGIENIC USE, OPERATION AND MAINTENANCE OF LATRINES

The findings, conclusions and recommendations are presented below for hygienic use, operation and maintenance of latrines.

Findings and conclusions

Consistent and hygienic use: The majority of LOs use their latrines when they are at home, however, when they are working in the fields farther away, they will revert back to open defecation (OD). In households with latrines, almost all household members who would like to use their latrine are able to access it. There are several members that do not consistently use their latrines, including 1) the elderly who opt to OD because of preference or 2) male family members for fear that too many users of the latrine may fill it up quickly. There does not appear to be any restrictions on females using household latrines.

Latrine cleaning: LOs report very hygienic usage and cleaning practices, with only a few mentioning challenges to keeping their latrines clean. Latrines are cleaned daily with water; cleaning agents and a brushes are used for weekly cleanings. Women, including daughters-in-law, are the most likely to clean latrines. The key facilitators to keeping latrines clean include easy access and availability to cleaning materials and water (for these Terai areas) and a desire to be respected in the community. Those who regularly clean their latrines do so to provide family members with a positive experience when using latrines. The key barriers include insufficient knowledge of how to use, clean and keep latrines clean and unequal sharing of responsibilities whereby the females or daughters-in law are currently the only ones cleaning latrines.

Latrine maintenance: Few LOs faced problems in operating or maintaining their latrines, including both recent and long-time owners. A few LOs had already used a pit emptying service, some had emptied their own pits themselves, and new LOs were aware of the need to empty their pits. Some LOs mentioned formal companies and informal pit emptying services in their communities. Observations revealed that contrary to reported hygienic use and cleaning behaviour by LOs, a significant number of latrines had one or more signs of unhygienic use or cleaning. Latrines appeared to be in good working condition.

Barriers and motivations are similar among ethnic and religious groups: With regards to hygienic use, cleaning, operation and maintenance of latrines, there appear to be no discernible differences between the ethnic and religious groups. Respondents consistently provided the same answers throughout the study.

Recommendations

Emphasize hygienic use and cleaning of latrines: Behavior change communication (BCC) efforts should focus mainly on promoting hygienic use and cleaning of latrines. However, messages about operation and maintenance should still be disseminated through sanitation marketing activities to ensure that messages are provided to new owners.

Focus on creating new norms and providing clear definitions of "hygienic latrine": Observations show that 70% of latrines are being kept clean and 60% of latrines have cleaning supplies. A campaign that highlights these existing positive norms could create peer pressure for non-complying households to keep their latrines clean, and ensure that cleaning supplies are within easy reach could be considered. In addition, clear definitions of what constitutes a "hygienic latrine" should also be communicated.

Hygienic use requires everyone's participation: Keeping the latrine clean requires that all household members use it properly or else the cleaner will be faced with a constant burden of cleaning every time the latrine is used. It is, therefore, crucial to engage every person within the family to ensure they adopt and sustain hygienic usage practices, and to define each person's role.

Communication objectives: Based on the above findings, the following are the communication objectives that ought to be used to guide future BCC campaigns.

Table 1: Communication objectives for hygienic use, cleaning and maintenance of latrines

Audience	Communication objectives
After the campaign, family members will:	1. Feel that everyone should use the latrine (attitude)
After the campaign, cleaners of household latrines will:	1. Know what is meant by a clean, hygienic latrine (knowledge) 2. Know how to periodically deep clean their latrines to ensure they are hygienic (knowledge) 3. Want to clean their latrines well to ensure that their families have a pleasant and clean experience in using the latrine (social/emotional drivers) 4. Want to keep their family latrine clean so that they are like other respectable families in the village (social norms, social driver) 5. Make a "clean latrine family plan" to ensure that latrines stay clean (intention/roles and decisions)
After the campaign, all users of household latrines will: Note: users means everyone who is able to use a latrine (excludes babies)	1. Know what is meant by a clean, hygienic latrine (knowledge) 2. Know how to keep their latrine clean after every use (knowledge) 3. Feel that it is everyone's duty to keep the latrine clean (attitudes, roles and decisions) 4. Want to keep their family latrine clean so that they are like other respectable families in the village (social norms, social driver) 5. Follow the "clean latrine family plan" to ensure that the latrine stays clean (intention/roles and decisions)

Research: Future studies that address latrine maintenance should consider applying a different sampling frame that is closer to a random sample, rather than purposeful sampling, to reduce selection bias and increase the chances of finding households who have faced problems in maintaining their latrines. Future studies should also include questions related to overall satisfaction of latrines as this may also provide insights into why latrines are well maintained or not well maintained. Given that this study found no differences between the various ethnic and religious groups, future studies of WASH behaviours in the Terai region may not need to include such a large sample size.

BEHAVIOR II: HANDWASHING WITH SOAP AT CRITICAL TIMES

The findings, conclusions and recommendations are presented below for HWWS at critical times.

Findings and conclusions

Daily routines for caretakers are basically the same, irrespective of ethnicity, religion or caste. Caretakers report very similar daily routines that revolve around domestic responsibilities. The only activity mentioned that required leaving the home was for working in their fields, indicating limited mobility for women in these districts.

Handwashing before food preparation: Two meals are prepared each day and time spent preparing meals ranged from 1-2.5 hours. Multiple points of contact with water exist during meal preparation but HWWS was mentioned by very few caretakers. HWWS most likely occurs after the meal has been cooked when hands are soiled by grease or spices.

Handwashing before eating and before feeding children: Some caretakers wash their hands before feeding children but admit that it's most often only with water. Since women spend most of their days inside the home, this contributes to the perception that their hands are clean. The perception is that "dirty" hands result from doing tasks outside the home.

Management of child's faeces and handwashing: In these Terai districts, babies wear underpants or nothing at all before they can walk and the use of potties was not mentioned by caretakers. When a child needs to defecate, the caretaker will hold the child between her legs and allow the child to defecate onto the ground, after which the faeces is thrown away. LOs will help their children to use latrines or dispose of their children's faeces in the latrine, but non-latrine owners will dispose of their children's faeces into the field, roads or in rivers near the home, irrespective of the child's age. Caretakers were most likely to report needing to use soap after cleaning a child's bottom due to disgust from touching faeces. Improper disposal practices appear to be dependent on latrine ownership rather than beliefs of the purity of children's faeces.

Barriers and facilitators to HWWS: The key barriers to HWWS include: lack of knowledge about the need for soap for truly clean hands and the important times when hands should be washed with soap; social norms that facilitate rinsing hands with only water; lack of social support from mothers-in-law who criticise caretakers for using "too much" soap; and, very importantly, beliefs that soap is only needed if hands look dirty, feel greasy or smell. Facilitators for HWWS include: easy access and availability of water and cleansing agents; a desire to feel clean, light and at ease after HWWS, having a "clean soul" achieved after using soap, and looking clean and nice; and wanting to keep children healthy. Caretakers say they would feel "dirty" "embarrassed" and "ashamed" if they did not do these things and they would also be criticized by their family members if they did not maintain basic hygiene.

Barriers and motivations are similar among ethnic and religious groups: As with the other behaviour of interest in this study, there also appears to be no discernible difference for HWWS among the various groups interviewed in the study.

Recommendations

Address knowledge/belief that clean looking hands and non-smelly hands do not need soap: Caretakers in this study were comfortable reporting that they only rinsed their hands with water and do not feel a need to use soap unless there is a physical cue that their hands are soiled. BCC efforts must address this knowledge gap, however, since telling caretakers will not be sufficient. Activities must prove to caretakers that hands are in fact contaminated even when they look clean.

Use disgust, contamination and the idea of a "clean soul" to motivate: The most frequently mentioned reason for HWWS among caretakers was a feeling of disgust from having touched faeces. Ideas about contamination and purity are strong in Hinduism and Buddhism, and caretakers want to have a "clean soul" which can be achieved through, among other things, washing hands with soap. These drivers should be emphasized in communication efforts.

Emphasize other important times for HWWS: Caretakers are most likely to wash their hands after defecating and after washing a child's bottom if he/she has defecated. All three "before" junctures need more emphasis and could be linked to the desire to ensure that food and one's hands are clean before feeding the family.

Provide cues for HWWS: Caretakers mentioned forgetting to use soap if soap was not readily available. This is particularly true for households that share a common water source or in households that do not have latrines. Behaviour change programmes should look at building cues, which could include stickers to place on latrines suggesting that families buy a particular colour of bar soap that they can associate with washing hands, or making a designated place for soap near a water source.

Communication objectives: Based on the above findings, the following are the communication objectives that ought to be used to guide future BCC campaigns.

Table 2: Communication objectives per audience for handwashing

Audience	Communication objectives
After the campaign, caretakers of children under five will:	1. Know that clean looking and non-smelly hands are still contaminated (knowledge) 2. Feel that washing with water is not enough; soap is needed for truly clean hands (belief) 3. Know that washing hands before preparing food, before eating and before feeding children are as important as washing hands after defecating and after cleaning a child's bottom (knowledge) 4. Want to wash their hands to feel clean, light and at ease (outcome expectations), and 5. Feel that handwashing with soap is an essential hygiene behaviour (attitude)
After the campaign, all family members will:	1. Know that clean looking and non-smelly hands are still contaminated (knowledge) 2. Feel that washing with water is not enough, soap is needed for truly clean hands (belief) 3. Feel that HWWS is an essential hygiene behaviour (attitude)

Research: As detailed in the above section on latrine use, future studies on WASH behaviours for the Terai could include smaller sample sizes given that respondents in this study provided consistent and similar answers to the HWWS questions.

COMMUNICATION CHANNELS

The last objective of the study was to explore communication channels in these Terai districts, including credibility of various channels and their reach to audiences.

The most credible channels included: communication by Village Development Committee (VDC) officials in the form of written notices, and dialogue with religious leaders and ward social workers. Interpersonal communication through these individuals were considered to be more credible than mass media.

Channels with greatest audience reach include: television, FM radio, "miking" (someone riding on a bicycle or motorbike with a microphone makes public announcements or advertisements), street dramas and mobile phones.

1. BACKGROUND

1.1 Introduction

In recent years, Nepal has made laudable progress in increasing sanitation coverage nationally, from 43% in 2010 to 81% in 2015. The Government has set a goal of reaching universal sanitation coverage by 2017, and significant work will be required if the country is to meet this objective. Furthermore, large disparities exist between geographic zones. While the hilly and mountain areas of Nepal have made significant progress, the Terai eco-zone, a lowland plains region bordering India, still has the lowest sanitation coverage rates in the country. Data in 2014 from the 75 districts within Nepal showed the Terai districts of Saptari, Siraha, Sarlahi and Mahottari at 75th, 74th, 71st and 70th positions respectively with regards to sanitation coverage . If Nepal is to achieve its goal of 100% access to improved latrines by 2017, significant efforts need to be channelled towards this region.

After completion of a successful sanitation and hygiene programme in the Mid-Western Development Region, SNV Nepal has received funding to expand to another eight districts, five of which are part of the Terai region: Siraha, Saptari, Sarlahi, Mahottari and Banke. To date, there have been several studies conducted in the Terai region on sanitation. They have focused mainly on drivers and barriers to demand for latrines. However, none of the studies have looked in-depth at what happens once households have acquired a latrine. There is a need for research that examines behaviours following acquisition of a latrine, including consistent use, routine cleaning, operation and maintenance, and handwashing with soap (HWWS) at critical times.

1.2 SNV Asia

SNV Netherlands Development Organisation is a non-profit international development organisation with headquarters in the Netherlands and programmes in 38 countries in Asia, Africa and Latin America. SNV is dedicated to a society where all people enjoy the freedom to pursue their own sustainable development. SNV contributes to this by strengthening the capacity of local organisations within three main sectors: water, sanitation and hygiene (WASH), agriculture and renewable energy. SNV builds strong networks across Asia by maintaining both national and project offices in Bangladesh, Nepal, Vietnam, Lao PDR, Nepal, Bhutan and Indonesia.

1.3 The Sustainable Sanitation and Hygiene for All (SSH4A) Programme

In order to ensure equitable and sustainable access to sanitation, a comprehensive approach is needed. SNV's experience working on WASH programmes in more than 22 countries has shown that strategies such as demand creation and strengthening sanitation supply chains need to be embedded in longer-term processes that develop sustainable service delivery models at scale.

Designed to address this need, SSH4A is essentially a capacity building approach, supporting local governments to lead and accelerate progress towards district-wide sanitation coverage with a focus on institutional sustainability and learning.

SSH4A aims to improve the health and quality of life for rural people through enhanced access to improved and hygiene practices. The comprehensive SSH4A Programme includes five complementing components:

- Participatory Sanitation Demand Creation
- Sanitation Supply Chains Development & Finance
- Hygiene Behaviour Change Communication
- WASH Governance
- Learning, Documentation and Dissemination

FIGURE 1: Sustainable Sanitation and Hygiene for All

The approach introduced by SSH4A goes beyond demand creation using triggering tools and integrates private sector development for sanitation, hygiene BCC and WASH governance and aims at scaling up access to sanitation and hygiene in the rural areas of Nepal. The integrated SSH4A model focuses on the understanding that sustainable sanitation and hygiene are first and foremost about creating the demand for improved sanitation and hygiene behaviours. However, affordable hardware solutions also need to be in place so that people are able to act upon their newly defined priorities.

1.4 The SSH4A Programme in Nepal

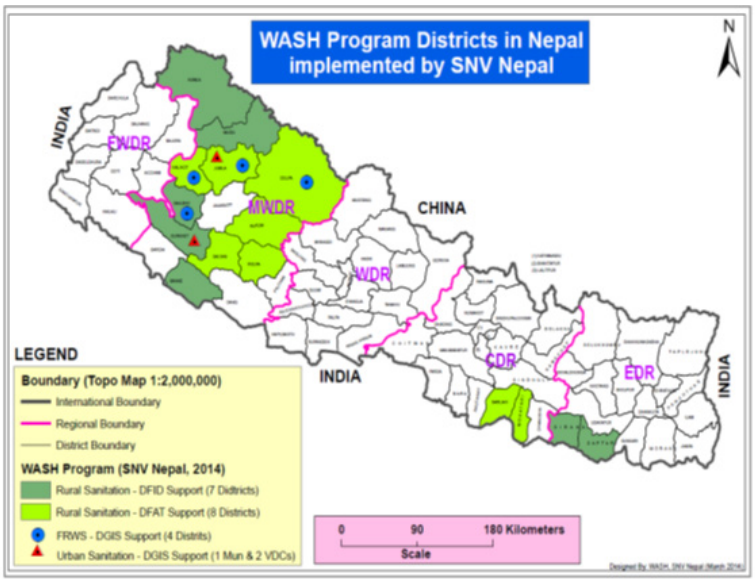
DFAT and DGIS funding supported areas: SNV is implementing the SSH4A programme in 130 selected Village Development Committees (VDCs) in eight districts in Nepal with support from two donors, Civil Society WASH Fund of the Department of Foreign Affairs and Trade (DFAT), Australia and the Ministry of Foreign Affairs (DGIS), the Netherlands. The eight programme districts - Jumla, Kalikot, Dolpa, Salyan, Rolpa, Rukum, Mahottari and Sarlahi - span all three main ecological zones of the country (mountain, hill, and Terai). Of the eight districts, Sarlahi and Mahottari are within the Terai eco-zone.

The programme aims to improve sanitation and hygiene for 270,000 people (including 3,100 people living with disabilities) in the above mentioned eight districts. The programme addresses sanitation and hygiene behaviours in both households and schools.

DFID, UK funding supported areas: Through funding from Department for International Development (DFID), UK, the programme is also working in 106 VDCs of seven districts- Banke, Surkhet, Dailekh, Mugu, Humla, Siraha and Saptari. Within this programme areas, the goal is to assist another 240,000 households achieve sanitation coverage, including 75,000 people who will wash their hands with soap.

Since the Terai is a new eco-zone for SNV Nepal and because sanitation and hygiene status is relatively poor, formative research is needed to understand the barriers and motivation to engage in two key behaviours: hygienic use, maintenance and operation of latrines; and HWWS with a focus among adult caretakers of children under five. The results from this study will inform the development of evidence-based BCC campaigns and will contribute to the WASH sector's knowledge of these two behaviours for the target study districts in the Terai.

Figure 2: WASH programme areas



1.5 Report structure

The report is divided into the following sections:

Section 1: Background, including an introduction to the SNV Nepal programme

Section 2: Context of the Terai region, sanitation coverage for the four study districts and existing research findings

Section 3: Analytical frameworks, including details of the opportunity, ability and motivation (OAM) framework used to analyse the findings

Section 4: Study objectives and detailed research questions

Section 5: Methodology, including data collection tools, sampling frame, etc.

Section 6: Findings, conclusions and recommendations for hygienic use, maintenance and operation of latrines

Section 7: Findings, conclusions and recommendations for handwashing with soap

Section 8: Citations

2. CONTEXT OF THE TERAI REGION

2.1 Brief overview of sanitation in study districts

The Terai belt is the most industrialized region of Nepal and also the most agriculturally productive. As a result, the region has better primary infrastructure and greater wealth compared to the hills and mountains. Despite this, sanitation coverage in the Terai is very low. While other districts that SNV supports have sanitation coverage rates that range from 62% to 100%, data from two baseline studies conducted in 2014 in the Terai districts revealed that 90% or more households practiced OD in the target VDCs of the programme. Table 1 below presents district-specific data for latrine coverage and usage and reported HWWS data taken from the two baseline studies mentioned above.

Table 3: District-specific baseline indicators for SSH4A target VDCs

Districts	Sanitation data	HWWS data
Siraha	• 92% of households practice OD. • 3% of households have environmentally safe latrines. [10] • Almost all latrines are being used, function as intended, and 98% of latrines were observed to be cleanable and washable.	**Knowledge of critical times** • 87% of members of households knew to report HWWS after defecation; and 82% knew to report HWWS before eating. • 55% knew to report HWWS before cooking. • Only 36% knew to report HWWS before feeding a child and 36% knew to report HWWS after changing a child's nappy. **Presence of HW facility** • 96% of households did not have a specific place or facility for washing hands located within 10 paces of the latrine.
Saptari	• 99.2% are practicing OD. • 0% of households in the baseline survey had sanitary latrines.	
Mahottari	• 96% are practicing OD. • 3.8% of households in the baseline survey had sanitary latrines.	**Presence of HW facility** • 98% of households did not have a specific place or facility for washing hands located within 10 paces of the latrine.
Sarlahi	• 98% are practicing OD. • 1.6% of households in the baseline survey had sanitary latrines.	

[10] A latrine that contains faeces in a way that it cannot contaminate surface or ground water.

2.2 Existing knowledge of the determinants for sanitation adoption in the Terai

To date, there have been both qualitative and quantitative research reports on sanitation in the Terai belt, including the following:

1. Preliminary Assessment of Sanitation and Hygiene Situation in Siraha, Saptari, Sarlahi, and Mahottari Districts, SNV, May, 2014;
2. Consumer Preference and Sanitation Supply Chain Study, SNV, November 2014;
3. Study to Identify Appropriate Approach and Strategies for Sustainable Sanitation Intervention in Terai, ESDMS/Department of Water Supply and Sewerage, 2014;
4. Two baseline reports for the Terai region completed in October 2014 and in July 2015;
5. Strengthening Behaviour Change Communication within the RWSSP-WN Phase II, December 2014.

Access/availability: In general, households in the Terai belt are able to access sufficient water and soap products for latrine cleaning and handwashing. They are also able to access masons should they require assistance in fixing or upgrading latrines. The challenge with water for the Terai region is that the water table in many areas is too high and there is a tendency for flooding in the monsoons, which inhibits proper functioning of latrines. (Consumer Preference)

Social norms: There is a norm in many communities that OD is socially acceptable. In some areas where communities have been triggered to recognise the importance of having a latrine through CLTS, women in particular report feeling left out or ashamed that they are one of the few households left without a latrine. (RWSSP)

Sanctions: In VDCs in Kapilvastu, Nawalparasi and Rupandehi districts, sanctions were placed on households that did not build a latrine in the form of revoked rights to passports, birth certificates, pensions, etc. by the VDCs. While this has led to faster uptake of latrines, many latrines were observed to lack any superstructure that would provide sufficient privacy for consistent use. The issue of formal or informal sanctions should be further explored as they may have an impact on latrine usage and operation. (RWSSP)

Knowledge: Most of the studies revealed that knowledge of the critical times for handwashing is relatively high, particularly after defecation and before eating. However, knowledge of the importance of handwashing before preparing food and after cleaning a baby's bottom was much less likely to be mentioned. Knowledge about the link between health and HWWS was mentioned by some households. (SNV studies)

The "RWSSP" and Consumer Preference studies present insights which are very useful in generating demand for latrines. However, none of the studies have looked in-depth at what happens once households have acquired a latrine. There is a need for research that examines behaviours following acquisition of a latrine, including consistent use, routine cleaning, operation and maintenance, and HWWS at critical times. The resulting insights can be used to develop evidence-based BCC interventions and would contribute to the existing knowledge base of WASH behaviours in rural Nepal.

3. ANALYTICAL FRAMEWORKS

3.1 SaniFOAM Framework for sanitation

SaniFOAM was developed to examine sanitation behaviours and has been used in different contexts and for various WASH behaviours (e.g., latrine uptake, faecal sludge management). The SaniFOAM framework examines behavioural determinants, factors that can help or prevent someone from adopting a behaviour and is divided into four columns. The section below provides a brief summary of each determinant. A more comprehensive explanation can be found on the http://www.wsp.org/sites/wsp.org/files/publications/SaniFOAM_Report409_3.pdf/.

Focus refers to the need to identify the desired behaviour and the target populations where this target behaviour is to be promoted.

Opportunity is a category of four factors that can affect an individual's chance to perform the target behaviour including structural and institutional factors (e.g., social norms, fines or sanctions, and access to products and services). Under this column is a set of four determinants:

- Access/availability: the ease of obtaining or accessing products (e.g., latrines, masons).
- Product attributes: aspects people like about a product (e.g., durability, smell).
- Social norms: rules or patterns that govern the way individuals/communities behave – "if everyone is doing it, why can't I?"
- Sanctions/enforcements: punishments/rules that encourage or discourage people to engage in a behaviour (fine for not wearing motorcycle helmets).

Ability is a category of factors related to an individual's skills and capacity to perform the target behaviour. Under this column is a set of five determinants as defined below:

- Knowledge: facts accumulated through learning about objects, actions, and events that are true.
- Skills/self-efficacy: knowledge needed to adopt a behaviour such as building a latrine (skills) and confidence in one's ability to carry out a behaviour (self-efficacy).
- Social support: physical and emotional or informational comfort given to individuals by family or community members, friends, co-workers, and others.
- Roles and decisions: function of person(s) within the household/community who makes decisions or can influence behaviour.
- Affordability: actual or perceived ability to pay for a product or service or the opportunity cost of doing a behaviour in terms of time and/or money.

Figure 3: SaniFOAM framework

[11] Devine, Jacqueline. (2009). Introducing SaniFOAM: A Framework to Analyze Sanitation Behaviours to Design Effective Sanitation Programmes. Water and Sanitation Global Scaling Up Project, Working Paper. Available on: http://www.wsp.org/sites/wsp.org/files/publications/GSP_sanifoam.pdf .

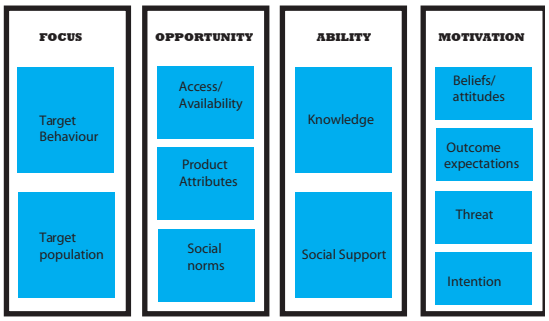
Motivation is a category of factors that affect an individual's desire to perform the target behaviour including their beliefs and values and social, physical, or emotional drivers. Under this column is a set of six determinants:

- Beliefs/attitudes: opinions of a product or behaviour by an individual which may or may not be true.
- Values: beliefs shared by group or community about what is good and desirable and what is not.
- Emotional/physical/social drivers: feelings of pride, disgust, or shame from doing or not doing a behaviour.
- Intention: what can be done to make the practice easier: intention represents an individual's plan to engage in a behaviour (i.e. saving for a latrine).
- Willingness to pay: how much households or individuals are interested in paying for a product or service, in cash or credit.
- Competing priorities: competing demands for resources that will affect behaviour including food, shelter, water, health fees school fees, weddings, cell phones, etc.

3.2 FOAM Framework for handwashing with soap

FOAM was developed to examine the behavioural determinants for handwashing behaviour. Like SaniFOAM, it is divided into Focus, Opportunity, Ability, and Motivation. Both frameworks share many of the same determinants, two of which are different: threat and outcome expectation. The section below provides a brief summary of each determinant[12].

Figure 4: FOAM Framework



Opportunity determinants:

- Access/availability: the ease of obtaining or accessing products (e.g., soap, water).
- Product attributes: aspects people like about a product (e.g., scent).
- Social norms: rules or patterns that govern the way individuals/communities behave – "if everyone is doing it, why can't I?"

Ability determinants:

- Knowledge: facts accumulated through learning about objects, actions, and events which are true.
- Social support: physical and emotional or informational comfort given to individuals by family or community members, friends, co-workers, and others.

Motivation determinants:

- Beliefs/attitudes: opinions of a product or behaviour which may or may not be true (individual level).
- Outcome expectations: the benefits or disadvantages of adopting a behaviour/buying a product.
- Threat: a person's assessment of their risk of getting a disease and their risk of dying from it.
- Intention: what can be done to make the practice easier- intention represents an individual's plan to engage in a behaviour (i.e. placing soap near water).

[12]Coombes, Yolande and Devine, Jacqueline. (2010). Introducing FOAM: A Framework to Analyze Handwashing Behaviors to Design Effective Handwashing Programmes. Water and Sanitation Global Scaling Up Project, Working Paper. Available on: http://www.wsp.org/sites/wsp.org/files/publications/WSP_IntroducingFOAM_HWWS.pdf

4. STUDY OBJECTIVES & RESEARCH

4.1 Study objectives

The overall aim of the formative research is to understand the barriers and motivations to hygienic use, operation and maintenance of latrines and HWWS in the Terai. The study will serve three purposes: 1) the findings will be used to inform the development of an evidence-based BCC programme to promote improved sanitation and hygiene behaviours in the four target districts of the Terai; 2) the study design will be replicated in other SNV project areas in Nepal; and 3) the findings will contribute to the WASH sector knowledge of these two behaviours.

4.2 Research questions

The research aims to answer the following questions.

Hygienic use, operation and maintenance of latrines among LOs:

- What are current latrine usage patterns (i.e., who is using latrines, when are they used, and how are they used)?
- How do households clean their latrines and what are the barriers and facilitators to keeping latrines clean?
- What do people know about how to empty their pits and how does this affect latrine usage?
- What are the current pit emptying practices, if any?

HWWS at critical times among caretakers of children under five:

- How do women prepare food and does this routine include washing hands?
- How do women clean up after their children have urinated/defecated and and how are the faeces disposed of?
- What do women do with regards to washing hands before they eat and before they feed their children?
- What are the barriers and facilitators to HWWS in these districts including:
    - o level of access/availability to cleaning agents,
    - o social norms about washing hands,
    - o knowledge of the times for washing hands,
    - o levels of social support in the family for use of soap,
    - o attitudes about the importance of HWWS,
    - o outcome expectations following handwashing, and
    - o perceived threat of common childhood illness?

Communication channels within these districts:

- How do people obtain new information and which channels are the most credible and accessible?

5. METHODOLOGY

5.1 Data collection methods

Data was collected in April 2015 for Saptari and Siraha districts and in June 2015 for Sarlahi and Mahottari districts using two key methods of data collection: one-on-one interviews, and FGDs which are described in more detail below.

1. **One-on-one interviews:** These are individual interviews lasting roughly an hour, which allow a facilitator and the respondent to have a confidential and secure conversation about a particular topic that can lead to increased insight into people's thoughts, feelings, and behaviours. Individual interviews will be the primary source of data collection, as FGDs have proven in other countries to be more suitable for discussing more objective topics such as the purchasing process. For this study, there were two types of one-on-one interviews.

    a. Key informant interviews: Decision makers or people knowledgeable about the community were interviewed to gain an overview of the sanitation situation in each community. Such people included women group leaders, representatives from VDCs, and representatives from the Health Post.

    b. In-depth Interviews: These were conducted with heads of households, where possible, to understand the behavioural determinants to latrine adoption. In-depth interviews were conducted with both non-latrine owners LOs and with LOs in this study. Following in-depth interviews with LOs, household observations were conducted using a checklist to determine the type of latrine and level of cleanliness for each latrine. Interviews about HWWS also included handwashing demonstrations, which allowed the interviewers to observe the location of water sources and the presence of soap near points of handwashing.

2. **Focus Group Discussions:** FGDs were held with 6 to 10 people and lasted roughly 1.5 to 2 hours. In this format a group of people are asked about their perceptions, opinions, beliefs, attitudes, etc. Questions are asked in an interactive group setting where participants are free to talk with other group members. One FGD about latrine maintenance was conducted with one male group comprising Dom ethnic group members, and five FGDs were conducted with female caretakers of children under five about HWWS. All tools were pretested in the Terai target districts and adjusted before data collection commenced.

Figure 5: FGD with Dalit Dom men

Figure 6: Key informant interview

5.2 Sampling

The sampling frame for the study was based on two criteria: 1) the district must be supported by either DFAT or DFID funding for SSH4A, and 2) participants should come from various ethnic groups living in the Terai region. Of the eight possible districts, Siraha, Saptari, Sarlahi and Mahottari districts were chosen to represent similar districts within the Terai. Within the selected districts, eight VDCs were selected for inclusion in the study. The sample included six groups representing various ethnicities, occupational castes, and religions including populations from the southern Terai plains, hill areas and norther Terai area, the Tharu, Dom (dalit group), Yadav and Muslim groups. In total, 82 interviews were conducted with 108 participants that included key informants, LOs, and caretakers of children under five. Table 4 below presents a detailed breakdown of the study sample by location, ethnicity, and data collection method.

Table 4: Study sample in detail

VDC	Ethnicity	# KII	# IDI latrines	# IDI HWWS	# FGD (# participants)	Total # of interviews	Total #
Siraha District							
Itaharwa	General Terai	2	5	7	0	14	14
Gadha	Dalit Dom (Terai Dalit)	1	3	4	1 (6)	9	14
Subtotal Siraha		3	8	11	1 (6)	23	28
Saptari District							
Malahanma	Tharu	2	4	6	2 (11)	14	23
Subtotal Saptari		2	4	6	2 (11)	14	23
Sarlahi District							
Karmaiya	Hilly Terai	2	6	7	1(7)	16	22
Bhandsar	Muslim	2	6	8	1(7)	17	23
Subtotal Sarlahi		4	12	15	2 (14)	33	45
Mahottari District							
Sanul	Yadav	1	3	3	0	7	7
Raghunathpur	Yadav	1	3	5	0	9	9
Subtotal Mahottari		2	6	8	0	16	16
Total sample size		11	30	40	5 (31)	86	112

5.3 Human resources

The team was comprised of the following persons.

1. Ms. Nga Kim Nguyen, Behaviour Change Communication Specialist and Lead Researcher, who developed the overall study design and tools, conducted a one-day training for Facilitators and led the pre-testing of the research tools. Following data collection, she analysed the findings and developed the Topline Findings presentation and drafted the report.
2. Ms. Harishova Gurung, Behaviour Change Communication Advisor, who provided input to all of the study activities including the study design and sampling, coordinating data collection, leading the validation workshops with stakeholders and commenting on the report.
3. Mr. Ratan Budhathoki, Mr. Umashankar Yadav, Mr. Ram Prakash Singh, Mr. Krishna GC, WASH Advisors, who assisted in data collection, transcription of the interviews, and provided comments to the study report.
4. Mr. Kabir Das Rajbhandari and Anup Regmi, Project Leaders, who assisted in the study design.
5. Ms. Ranjita Tiwari, Intern, who assisted in the translations of the transcripts.
6. Ms. Nadira Khawaja, WASH Sector Leader, who assisted in providing overall guidance to all key outputs of the study.

5.4 Process of partner engagement

SNV builds the capacity of local government clients to implement their own development projects, which includes improving knowledge of the process of developing evidence-based BCC and the importance of formative research. The commitment to build government capacity resulted in the addition of a few more steps within the study to obtain client input, buy-in and understanding of the study design and findings. The additional activities included:

- Initial consultations with district stakeholders (development partners, government agencies and local community-based partners) from Siraha and Saptari districts to present the proposed research questions and sampling frame and to obtain input before commencement of the research. During these consultations, the district stakeholders agreed on the focus of the study behaviours, and the research questions and the sampling frame were finalised based on their feedback.
- Similarly, the research framework was shared and discussed in multi-stakeholder workshops in Sarlahi and Mahottari districts. Importantly, findings from data collected from the different ethnic and caste categories in Siraha and Saptari were shared with stakeholders in Sarlahi and Mahottari to verify whether these findings also applied to the same ethnic and caste categories in these districts or whether further sampling would be needed in these districts also. The validation workshops took place in June 2015, where the majority of participants confirmed that the findings were applicable in Sarlahi and Mahottari also and it was agreed that the research team could continue to Sarlahi and Mahottari using the sampling frame as designed by the research team.
- Following completion of the draft report and based on the results of the research, the SNV Nepal team conducted results verification and BCC strategy development workshops in the study districts with sector stakeholders.

5.5 Ethics

The purpose of this formative research study was to inform the design and implementation of BCC activities. Before the interviews, participants were informed of the objective and duration of the interview. They were assured that all information would be kept confidential and consent would be obtained beforehand. Beyond the interview, there were no other requirements and participation was voluntary. Thus, the risk for participants was minimal to none. All information related to the identity of the participants, except for the gender of the participant and location of the interview, was omitted from the final report.

5.6 Limitations

This study faced a few challenges related to sampling, which included:

- Inability to find two groups of Dalit Dom men whose occupation is to clean latrines, resulting in only FGD;
- Due to cultural barriers for the Terai women, it was difficult to have them speak freely in front of other family members including husbands and in-laws; therefore, permission was requested (and granted) from family members to allow interviews separately with the women without disturbance.
- Male interviewers in particular faced challenges when entering compounds in the Muslim areas due to restrictions and a lack of clear entrances to the houses.

The sampling for this study was large for a qualitative study, and although the findings were similar across ethnic groups and districts, the findings cannot be generalizable to the entire Terai eco-zone.

6. HYGIENIC USE, OPERATION & MAINTENANCE OF LATRINES

This study seeks to investigate two behaviours among households in the selected Terai districts. The first is the hygienic use, operation and maintenance of latrines among LOs. Specific questions were developed to explore various facets of this behaviour, including: how many household members can access and use the latrines; how hygienic is their use; who cleans the latrines and how do they do it; what do households do to ensure that their latrines work properly (including what to do when pit latrines are full); and finally, what do households feel are the benefits of having a latrine?

This section begins with an overview of latrine ownership in the districts, including types of latrines, numbers of latrines in each household, and amount of money spent on construction (including required labour and other related costs). Following this is a presentation of the answers to the above questions. Text in italics are quotes from study participants, and the quotes are followed by a brief description in brackets that identifies the gender (M/F) of the quoted person, and the district where the interview took place.

6.1 Overview

Key takeaways:

- LOs tend to be older and have more people in their families.
- All households in the study owned one latrine; one of the households built a latrine with four stalls.
- All latrines in this study were pour flush models.
- The average amount spent on latrines was 33,660 NPR (320 USD).
- Almost every LO hired a mason or had family/friends help build the latrines.

A total of 108 participants were interviewed for the study, including 13 interviews with members of the VDC and 95 interviews with household members (comprising 30 LOs and 65 caretakers of children under five). This detailed information below is about the 95 household members, and is disaggregated by gender, average age, number of people in each household and number of children under five in each household. In this study, there were significantly more women than men interviewed because the HWWS questions explored activities related to cooking and childcare of children under five, tasks generally done by females. For the interviews about latrine use, both men and women could have been informants, but, in the end, more LOs were men than women. As Table 5 illustrates, the average age of all participants interviewed was 31 years old; LOs tended to be older, averaging 37 years of age, while caretakers of children under five tended to be younger, with an average of age of 26. The average number of people living in one household also tended to be higher in latrine owning families at roughly 8.1 persons.

Table 5: Overview of LOs and caretakers

Latrine ownership	Gender		Average age	Average # people in HH	Average # of children
	Men	Women			
Latrine owners (n= 24)	19	11	37	8.1	2.1
Caretakers of children under five (n= 65)	0	65	26	7.3	2.3
LOs and Caretakers (n=89)	19	76	31	7.5	2.5

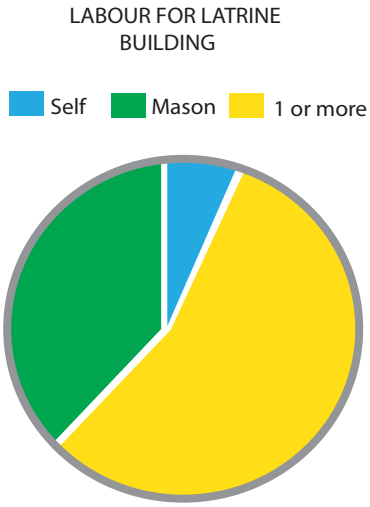
6.2 Laterine ownership in detail

Key takeaways:

- Latrine models were all pour flush with single or double concrete pit rings.
- The average amount spent on latrines was about 33,660 NPR.
- Most latrines were self-financed through earnings, savings, and, to a lesser extent, remittances.

Financing and labour costs: All latrines in this study were pour flush latrine models. The majority of latrines were offset with sealed water pans that emptied into single or double concrete ring pits; only a few latrines were septic tanks. Of the 23 LOs who could recall the cost of their latrines, the range of expenditures varied between 1,000 and 150,000 Nepali Rupees (NPR), with the average spent being 33,660 NPR (320 USD). Of the 24 LOs, 70% (17) of households financed their own latrines without outside assistance, while 30% (7) of households received external assistance to build their latrines. The majority of LOs paid for their latrines with savings earned through labour or by selling agricultural products such as bamboo, sugarcane or maize. Six households took out loans and one household mentioned receiving remittances from a spouse working abroad.

Figure 7: How latrines were built



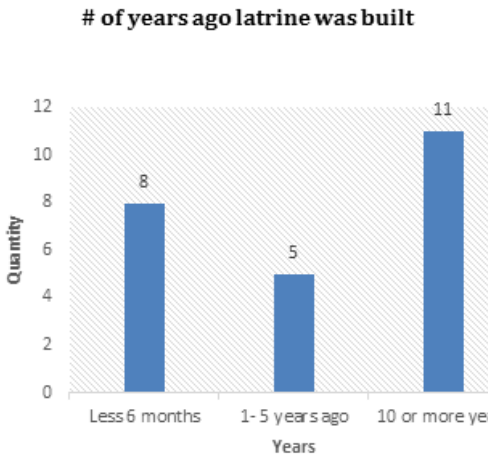
The seven households that received external assistance were provided with cement, rings or pans (or a combination of the three), with rings being the most frequently mentioned item. One latrine owner received assistance in transporting the materials to his home from his relatives. None of the households mentioned receiving financial assistance in the form of cash, credit, loans, or reduced pricing for their raw materials. NEWAH (a non-governmental organisation) was the source of assistance for some households, and only one household received assistance from the 1,000 Golden Days Programme. When key informants were asked about the types of donor assistance programmes active in their communities, several mentioned the 1,000 Golden Days Programme. When LOs were asked if they knew why they were offered external assistance, some said it was because they were of the Dalit caste and because they were poor. Others received assistance, though the source was not always clear because they were poor families, and also because of the collective push in their villages to be declared Open Defecation Free (ODF).

In the HWWS interviews, several caretakers mentioned receiving assistance for latrines from the 1,000 days programme, however, their numbers have not been included here since LOship was not a criteria for inclusion in the HWWS interviews and the information was not collected systematically.

Labour required for building latrines: Of the 24 LOs, 23 owned just one latrine, while one man had built one latrine with 4 separate stalls, one for each of his sons. All 24 latrines were pour flush offset latrines with either single or double pits. Given the complexity of building pour flush models, only one LO had built his own latrine; all others had hired out the work to masons or had used a combination of personal labour and help from a mason, family member(s), or friend(s) (see Figure 7).

Age of latrines: In Saptari District, where the data collection began, the VDCs chosen had recently been declared ODF. As a result, most LOs had only built their latrines within the last year. Based on this, the team decided to sample from the VDCs that had latrines older than 2 years so that the households could discuss pit emptying and latrine maintenance. In the other districts the latrines are much older, ten years old or more in Mahotari and Sirlahi districts.

Figure 8: Year latrines were built



6.3 Consistent and hygienic use of latrines

Key takeaways:

- Most LOs are able to and do use their latrines when they are at home, the exception being the elderly and some men.
- OD occurs when LOs are working in the fields or when there are too many latrine users that need it at the same time.
- Restrictions against women using latrines during their menses do not seem to exist.

Almost every LO, regardless of gender, said they were able to consistently use their latrines when they were within the premises of the home. Many reported being so used to using a latrine that they would feel uncomfortable defecating elsewhere. Observations of latrines following the interviews revealed that 23 of 24 latrines looked as if they were being used. In addition, in some VDCs, sanctions in the form of fines were in place to deter OD.

> *I always go to latrine. A penalty of NPR 501 has been set for not using latrine and defecating in the open. Instead of doing that, I have to use latrine only. (M_Saptari)*

There are, however, situations where not everyone who would like to use a latrine is able to access it. These situations include during family functions such as weddings or when greater demand for latrines forces the user to find alternatives. LOs are unlikely to use their latrines when they are working in fields far from home. In those instances, they resort to OD in paddies, along river banks or in bushes. Another notable time for OD is during Ashar from June to July when farmers must work in the fields to plant their paddies.

> *At home or outside, I go to the latrine as long as it is possible. But when I have to go out for work and marriage ceremonies, if there is no latrine then I go outside. I go to the field... (M_Mahottari)*

> *For many years I have been using my own latrine… but now while going for field work during Ashar month, I have to go out. There will be no latrine and it takes time to come back home. (M_Saptari)*

However, in a few households some LOs still choose to defecate in the open rather than use their latrines because they are elderly and are not accustomed to using the latrine. Ironically, in the household in Mahottari district where a father built four latrine stalls for his sons, he himself does not use them because his daughters-in-law use the latrines. He uses the latrine only when he is sick or when it rains. In other households, the men sometimes also choose to defecate in the open to avoid having their latrine pits fill up too quickly. Given that the average family size is about seven people, the fear of pits filling up quickly is not surprising.

> *Compared to other wards, our ward is very good because everyone uses a latrine. Five percent do it outside but everyone else uses latrine. Elderly people from the village that have been going outside find it disgusting to use latrine... (M_Siraha)*

> *Some (men) go out as well. They say in the morning the air is fresh. If everyone uses it, the ring would fill up fast, so they go out. (M_Mahottari)*

> *Apparently, ring pits fill quickly. That problem comes within 5-10 years and Dom charges 3000 to 5000 to clean. (M_Sarlahi)*

While the study was not designed to explore menstruation management, one question was asked in the interviews about whether there were beliefs in their community that prevent women from using latrines during their menses. This question was met with adamant responses from both men and women who said that the taboos against menstruation and latrine use do not exist in the study areas.

> *It's not like that, we have to bath even more and go to bathroom. Latrine use is necessary. (M_Sarlahi)*

When asked about proper or hygienic use of latrines, all LOs described very hygienic, ideal practices including urinating and defecating only in the pan (the exception being children who may not use it hygienically), flushing the pan with water after each use, washing face, legs and hands with water and, in most instances, with soap. However, like handwashing behaviours that cannot be observed directly, reported hygienic use and cleaning of latrines need to be cross checked by observations of the latrines, as described in more detail below

6.4 Latrine cleaning

Key takeaways:

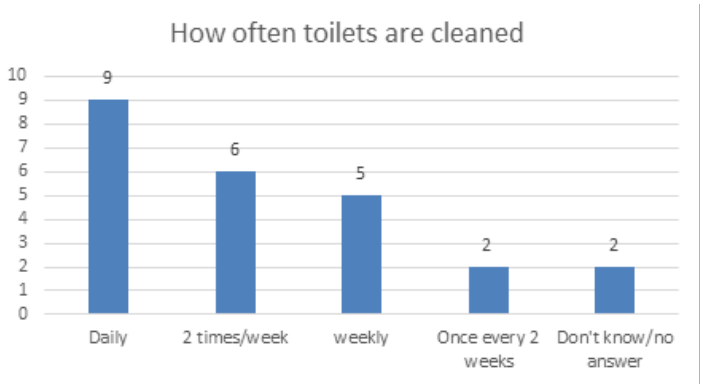
- LOs report very hygienic usage and cleaning practices after every use, and face few challenges to keep their latrines clean.
- Frequency of cleaning varies, with daily cleaning being the most commonly mentioned.
- Weekly cleanings are done with a brush and cleaning agents.
- Access to water is not a major challenge for most households in this study.
- Access to supplies/materials are readily available and felt to be affordable.
- Females, including daughters-in-law, are more likely to clean latrines than males.
- LOs would feel "bad", "disgusted", "embarrassed" and/or "loss of dignity" if other family members had to use a dirty latrine.

Following questions about usage, LOs were asked about cleaning practices, such as who cleans the latrine, how often it is cleaned, what materials are used and how easy is it to buy supplies for cleaning. Households reported using one or more of the following tools: brooms, brushes, Harpic (a brand of latrine cleaner and chemical used in cleaning agents), phenol, and in a few households, kerosene. Not all households used cleaning agents; however, some households relied only on a brush and water. The reported quantity of water used for cleaning ranged from one to five (5L) buckets of water.

One bucket of water is used. There is no problem, water comes through the drinking water tap. There will not be difficulties if we keep water tank full. To date, water has not betrayed us. (F_Sarlahi)

To prevent latrine from getting dirty, we have been cleaning with water after use. We clean latrine with meds (chemicals), brush and water and I have kept separate slippers for latrine use. (M_Mahottari)

Figure 9: Frequency of latrine cleaning



I clean regularly with water and with meds, a brush and water as well. Firstly, I put meds, Harpic, phenol and scrub with a brush and then clean with water on all parts. (M_Mahottari)

Cleaning frequency: The frequency of reported cleaning ranged from every day, the most common practice, to once every two weeks (Figure 9).

Once a week by brushing with Harpic and (I) use 1 capful of phenol for fresh smell. This cleaning, I do as per the advice from a shopkeeper while buying those materials. (M_Saptari)

It is likely that households that clean daily are using only water, while those cleaning weekly or bi-monthly use a cleaning agent. When asked how often they have to buy their supplies, most households said that the supplies last for several months.

Every day with water and brush but with meds (Harpic, phenol) in 10 to 15 days. (M_Mahottari)

Access to water: Although this cannot be generalized to all areas of the Terai, most respondents in this study did not mention insufficient access to water as a challenge to keeping latrines clean. Only a few mentioned not having sufficient water. During observations of household latrines, the majority of latrines were within 20 meters of the house or located within the compound. The farthest distance to a water source for two of the households was 50 meters. Many families have their own well or, in Muslim households, several families shared a common well. In the KII, local leaders noted the presence of ponds in or near their VDCs.

(I) don't feel satisfied without using 1 bucket full of water. It (availability of water) is sufficient, there is a 1,000l water tank so there is plenty of water. The water tap is nearby. The drinking water committee distributes this water so meter system is used. (M_Sarlahi)

I don't pour a lot of water, I pour 1-2 buckets of water and that is enough. Tap water is nearby and I use that water only. It comes from 6am to 8am, sometimes it's enough, sometimes it's not…If there is no water, I take a cycle and pot and go to Milan Chowk and bring water. (M_Sarlahi)

Access to cleaning agents and tools: Most households clean their latrines with a broom, water, bucket, brush, Harpic and phenol. Cleaning supplies are easy to obtain at the market and most LOs felt the supplies were affordable.

I clean with broom and meds and I buy and bring from Lahan. It is easily available to buy from the Bazaar. The cost is 100 to 150 and the meds are finished in 3-4 months. (F_Siraha)

Roles/decisions about cleaning: Although most HHs reported that it's "everyone's" responsibility to clean latrines, they were more likely to emphasize females (wives, daughter, and daughters-in-law in particular) as the primary latrine cleaners. One female respondent felt that it was not suitable for a man to clean latrines.

> *Daughter has been mostly cleaning. I clean as well but it is now the job of our son and daughter-in-law. Now, son and daughter-in-law can run the household. (F_Siraha)*

> *I do the cleaning myself. This is not the work of the male members. I do not think I need to ask them to clean the latrine. (F_Saptari)*

While the women clean, in some households, the men are in charge of buying and managing the amount of supplies used for cleaning latrines. Some women indicated that their husbands bought the supplies, and therefore they did not know the price of supplies.

> *Daughter-in-law, women do it. Their everyday chores revolve around cleaning, they clean inside and outside and bath. I have never had to clean it. That responsibility [of cleaning] is of everyone. The main responsibility [of managing supplies] is mine. (M_Sarlahi)*

Attitudes and beliefs about the need for clean latrines: LOs were asked several questions regarding the need to have a clean latrine, including questions to assess both their own view and their families' view about using a dirty latrine.

> *As for the latrine] if we don't clean, it smells while eating. When it's dirty, flies come to the eating area; there is a risk of diarrhoea. (F_Sarlahi)*

LOs cited feeling "bad", "disgusted", "embarrassed" and/or "losing dignity" if their family and guests have to use a dirty latrine. In some households, family members would ask the cleaner to "clean it fast" if the latrine was found to be dirty. Other female participants mentioned that family members would be angry and say bad things about them if the latrine was left dirty.

> *To date nothing like that has happened but it feels bad to allow them to use a dirty latrine. (F_Siraha)*

> *If a latrine is dirty, it has not been cleaned properly…I feel embarrassed. (F_Mahottari)*

> *I don't like it because it would be dirty and smelly and they (the family) would say bad things. (M_Mahottari)*

> *They (the family) would say "why haven't you put water? Why haven't you cleaned?" (F_Siraha)*

When asked what they would do if they found their latrine dirtied, there is indication that some male heads of households have the power to enforce cleaning of the latrine by the person who dirtied it.

> *I would) find out whoever dirtied it, clean it ourselves if the person is sick, or else make that person clean it. (M_Sarlahi)*

No one mentioned any challenges to keeping their latrine clean, except one female who felt it would be easier to clean if she had a brush and Harpic to use for cleaning. One female LO admitted that having a latrine increased her work load.

> *Cleaning the home is regular work and now latrine is added. Obviously work is increased but it is our own work and we need to do it. (F_Saptari)*

6.5 Latrine maintenance

Key takeaways:

- Few LOs face problems in operating or maintaining their latrines, including both recent and long-time owners.
- LOs were aware of the need to empty their pits.
- Some LOs mentioned formal (companies) and informal (Dom caste) pit emptying options in their communities.
- A few LOs had already used a service and some had emptied their own pits.

When LOs were asked about problems with their latrines, only a few mentioned having problems operating or maintaining them, even those who have had their latrines for a long time. At the time of the interviews, households with newly built latrines had not yet faced problems, and most LOs were aware that they needed to empty their pits. LOs with double pit latrines, when faced with a full pit, just closed one pit and used the other. Several households knew of, or had already availed of, cleaning services and some had cleaned their pits themselves, according to the head of the VDC.

If latrine fills up, it is said in advertisements that latrine cleaning men are available, call them. If they aren't available, Dom come in an interval of 3-4 month and we tell them to clean. (M_Sarlahi)

When water comes up to pan we know that latrine has filled. I will get a machine from Lahan and get it cleaned but it hasn't filled up yet. (M_Siraha)

When water comes up to pan we know that latrine has filled. NEWAH had taught in a training. Close one pit and use the other one and clean in a few days. We do it like that only. It is like mud. (M_Siraha)

I have a single pit. If pit fills up, everyone should clean it together and if it doesn't work, we should bring [help] from outside and get it cleaned. I have known that it should be cleaned by using machine. (M_Mahottari)

We have two pits, we used T connection and used the pits however both the pits filled at once and caused a problem so we dug another pit and buried dirt in that and spent around 1500. The pits have filled up twice and we have to clean the pit. Pit cleaning men are available nearby and I have cleaned it myself once. (M_Sarlahi)

Life of a Dalit Dom man

Despite living in the village for over five generations, none of the respondents from the Dalit Dom caste owned land. Their income from cleaning latrines varies greatly, depending on the size and type of pit being cleaned. The average income for emptying a single pit latrine was 1,000 NPR, or 2,000 NPR for a double pit latrine, and anywhere from 10,000 to 60,000 NPR for a septic tank cleaning.

Latrine cleaning, however, is not a desirable job nor does it provide continuous work. Dom men resort to latrine cleaning because they lack farm land and other income producing options.

In grandfather's time, if we did these works, they would kill us. (They) would not let us enter the house. Because of poverty and no choice, now we have to do whatever we do.

A latrine owner in Saptari District who had owned her latrine for over 16 years mentioned:

> *The latrine was cleaned 5 months ago when it was full. At that time, a rat had opened its way in between the rings and dropped mud. Since one pit was full, it was directed to another pit. Feces in the pit had turned into mud so we cleaned it by digging it and putting it in a sack. That mud was kept in the field. Since I cleaned it myself, there was no cost. (F_Saptari)*

None of the LOs with biogas tanks said they did not have to empty their pits, but they also said they were not able to use chemicals to clean their latrines.

> *While using ring pit, there was a problem of cleaning pit/tank every 5-7 years after it filled. Now, that it is connected to biogas it doesn't fill but we cannot use cleansing chemicals. (M_Sarlahi)*

In addition to interviews with LOs, one FGD was conducted with men from the Dalit Dom caste who are often hired to clean latrines. According to their estimates, latrines fill up, on average, every year, with some latrines filling up as quickly as four months in households with many members. The most common problems in older latrines include blockage in pipes from faeces, broken pipes (from cows stepping on the pipes), broken ring covers, and/or clogged pans from sticks and stones being thrown in by children. However, since the Dom men they clean the latrines but are not allowed in the latrines so they could not speak about the cleanliness of the latrines.

6.6 Latrine observations

Key takeaways:

- Almost all latrines appeared to be used.
- Contrary to reported hygienic use and cleaning behaviour, observations revealed a significant number of latrines had one or more signs of unhygienic use or lack of cleaning.
- Latrines appeared to be in good working condition.

Following interviews with LOs, interviewers observed latrines and, using a checklist, noted the condition inside and outside of the latrines. The checklist criteria were developed to evaluate three dimensions:

- Latrine use (i.e., a clear pathway, latrine looks like it has been used);
- Latrine cleanliness (floor, pan and walls are clean with no visible faeces, lack of strong odour, and presence of cleaning supplies and equipment); and
- Latrine operation/maintenance (pipes and junctions are not leaking effluent and the ground is dry, and pit does not appear damaged or to be overflowing)

Almost all latrines appeared to be in use with the exception of one latrine in Gadha VDC in Siraha District which was recently built and may not have been completed at the time of the interview. The observations of latrine usage are consistent with the responses from LOs. Observations regarding the operation and maintenance of latrines are also consistent with informants who said they do not face major problems in maintaining and operating their latrines. None of the latrines were leaking effluent and none had overflowing or visibly damaged pits.

Figure 10: Respondent shows his clean latrine following interview

However, when reported data on latrine cleanliness was compared to observations, there were significant discrepancies between how clean LOs reported their latrines to be versus how clean the latrines appeared.

Out of the 24 latrines:

- 35% did not have clean floors
- 40% did not have a clean pan
- 13% did not have clean walls
- 30% had two or more areas that were dirty (floor, pan, walls)
- 40% did not have cleaning materials in the latrines (Harpic, phenol, etc.)
- 30% did not have cleaning equipment in the latrine (brushes, brooms, etc.).

6.7 Conclusions for hygienic use, operation and maintenance of latrines

As detailed in the Research Objectives section, this study was designed to answer five key questions: 1) what are current latrine usage patterns (i.e., who is using latrines, when are they used, and how are they used); 2) how do households clean their latrines (what products are used, how often are latrines cleaned, who cleans them, and who maintains them); 3) what are the challenges to consistent cleaning of latrines; 4) what do people know about how to empty their pits and how does this affect latrine usage; and 5) what are the current pit emptying practices, if any? Based on the evidence presented above, this section presents conclusions related to each of these questions.

1. **What are current latrine usage patterns?**

   With regards to latrine use, in households with latrines most family members are able to use them when needed, the exceptions being when household members are working in the fields or when there are too many people who need to use the latrine at the same time. There are households where family members, particularly the elderly, prefer OD over using a latrine. Disgust and lack of habit of using latrines were cited as reasons for not using a latrine. Several VDCs in Siraha District were declared ODF right before data collection started, and in those villages formal sanctions were in place to fine those caught defecating in the open (up to 500 NPR). There was no indication of taboos against women using latrines, even during their menses. Both reported and observed data for latrine use are consistent with LOs who reported that they use them, with observations confirming that almost all latrines had signs of use.

2. **How do households clean their latrines, and what are the barriers and facilitators to keep latrines clean?**

   Cleaning practices: With the exception of one household that did not have time to buy cleaning supplies, all other LOs reported using brush, water, phenol and/or Harpic to clean their latrines. The frequency in which latrines are cleaned varies; some families report daily cleaning and some report cleaning once every week or once every two weeks. The majority of households say they clean their latrines daily although this is more likely to be with just water because LOs also reported that their cleaning supplies lasted for several months. Access to water and to cleaning supplies were not mentioned as barriers to keeping latrines clean in these areas, although easy access to water cannot be generalized to the entire Terai belt. Female members of families are the most likely to clean latrines, particularly daughters-in-law. While LOs cited ideal cleaning behaviours - i.e. latrines are cleaned daily, and household members believe that dirty latrines bring illness and shame to the family – observations revealed that 33% (8 of 24) of latrines had one or more dirty parts (floor, pan, or walls).

Table 6: Facilitators and barriers to hygienic use, cleaning and maintenance of latrines

Facilitators	Barriers
Access/availability: Cleaning materials are readily available	**Knowledge:** insufficient knowledge of how to use, clean and keep latrines clean.
Social, physical, emotional drivers: A desire to be respected in the community, and the desire among cleaners that their family have a positive experience when using latrines.	**Roles/decisions:** The responsibility of cleaning latrines is assigned to females and daughters-in-law.

There may be a couple of reasons for the discrepancy between reported cleaning and observations including:

- People know that they should report ideal cleaning behaviour (similar to HWWS behaviours, people know that they should report frequent handwashing despite not practicing it consistently); and
- People do not perceive that their latrines are dirty even when there is visible dirt or faeces (for example, if the norm is that everyone's latrine has some stains, then it may not be clear to household members that a hygienic latrine should be not have stains).

3. What do people know about how to empty their pits, how does this affect latrine usage, and what are the current pit emptying practices, if any?

Maintenance: LOs did not report major problems in using and operating their latrines, irrespective of the age of the latrines. This is consistent with the SNV baseline studies that show that although the prevalence of latrines is very low in the Terai as compared to other areas of Nepal, the latrines that are built are properly maintained and operational. The majority of households knew that they need to empty their pits (in the case of pit latrine owners), and biogas LOs know that they should not use chemicals to clean their pans. In cases where the pits were full, LOs either hired someone (often through a service company) to empty them or emptied the pits themselves. In addition, observations confirmed that none of the observed latrines showed signs of malfunction. The relatively good condition of the latrines is encouraging although somewhat unexpected. There may be several possible explanations for this, as explained below.

- **Operation and maintenance messages are already being disseminated:** New LOs have been instructed on how to clean and maintain their latrines, including the need to empty their pit latrines.
- **Services exist and are already being utilized:** There is indication that both formal and informal pit emptying services exist, either through companies that advertise their services or through Dom men who have lived in these communities for many generations and who are known to the larger community for their latrine maintenance services.
- **Households choose to empty their pits before they overflow:** There is an acute awareness, even anxiety, that the larger the family the faster the latrines will fill up. This is why some LOs, particularly men, are opting to practice OD to avoid filling up their pit latrines too quickly. This heightened sense of awareness may lead LOs to seek out pit emptying services or, in some cases, empty the pits themselves before they overflow.
- **Sampling:** It cannot be ruled out that households selected for inclusion were chosen by VDC chiefs because they have, or are known to have, clean latrines. Given that the study was conducted by SNV in its program areas, there may have

- **There is a high value placed on latrines:** The average amount spent per latrine was 33,660 NPR in the sampled VDCs, which is a significant amount. This substantial financial investment may be one reason why households keep their latrines in good condition.

- **Inconvenience resulting from a broken latrine:** The average family size for households in this study is large, with an average of seven persons per family. A broken latrine results in inconvenience and lack of safety for many people, which provides motivation to keep the latrine in good shape.

Barriers and motivations are similar among ethnic and religious groups: In addition to the above research questions, the study also included a large and varied sampling framework to determine if there were any significant differences between ethnic and religious groups. For hygienic use, cleaning, operation and maintenance of latrines, there appears to be no discernible differences. Respondents consistently provided the same answers throughout the study.

6.8 Recommendations for hygienic use, cleaning, operation and maintenance of latrines

Based on the above conclusions, this section provides some recommendations to guide the development of future BCC activities, as well as further formative research, if resources permit.

Three behaviours in one: Although the hygienic use, cleaning, operation and maintenance of a latrine are often lumped into one behaviour, the findings show that there are, in fact, three distinct behaviours that must be clearly defined and explored during formative research. The findings here show that although 30% of households may not use and clean their latrines in a hygienic manner, most households are maintaining and operating them well. Therefore, BCC efforts should focus on promoting hygienic use and cleaning of latrines rather than emphasizing operation and maintenance. That said, messages around operation and maintenance should still be disseminated through sanitation marketing activities to ensure that messages are provided to new owners who may be more open to receiving messages given the significant investment they have just made to acquire a latrine.

Focus on creating new norms and clear definition of "hygienic latrine": As mentioned above, the largest gap between what was reported and what was observed was in the hygienic use and cleaning of latrines. These two behaviours should be addressed in upcoming BCC campaigns. Observations reveal that 30% of latrines had two or more areas that were dirty (floor, pan, walls), which means that 70% of latrines are being kept clean. While 40% of latrines did not have cleaning supplies within the latrines, 60% of latrines do have cleaning supplies. A campaign that highlights these existing positive norms could create peer pressure for noncomplying households to keep their latrines clean and ensure cleaning supplies are within easy reach could be considered. Given that many of these communities have or will have been exposed to CLTS, follow-on messages about hygienic use and cleaning of latrines as the new community norm may be a good way to motivate communities to maintain higher standards of hygiene. In addition, clear definitions of what constitutes a "hygienic latrine" should also be communicated.

Hygienic use requires everyone's participation: While most LOs did not mention cleaning latrines to be a burden, keeping the latrine clean requires that all household members use it properly or else the cleaner will be faced with a constant burden of cleaning every time the latrine is used. It is, therefore, crucial to engage every person within the family to ensure they adopt and sustain hygienic usage practices, and to define each person's role.

Communication objectives: The campaign should, therefore, aim to address the three key areas: 1) improve knowledge of what is a hygienic latrine; 2) make users and cleaners feel that it's everyone's responsibility to keep the latrine clean; and 3) make users and cleaners want to keep their latrines clean because everyone else in the village has a clean latrine. Table 7 below suggests addressing three audiences – decision makers (likely to be men), users (all members except babies) and cleaners (likely to be a woman) – and includes specific communication objectives that target different behavioural determinants for each audience.

Table 7: Communication objectives per target audience

Audience	Communication objectives
After the campaign, family members will:	1. Feel that everyone should use the latrine (attitude)
After the campaign, cleaners of household latrines will:	1. Know what is meant by a clean, hygienic latrine (knowledge) 2. Know how to periodically deep clean their latrines to ensure they are hygienic (knowledge) 3. Want to clean their latrines well to ensure that their families have pleasant and clean experience in using the latrine (social/emotional drivers) 4. Want to keep their family latrine clean so that they are like other respectable families in the village (social norms, social driver) 5. Make a "clean latrine family plan" to ensure that latrines stay clean (intention/roles and decisions)
After the campaign, all users of household latrines will: Note: users means everyone who is able to use a latrine (excluding babies)	1. Know what is meant by a clean, hygienic latrine (knowledge) 2. Know how to keep their latrine clean after every use (knowledge) 3. Feel that it is everyone's duty to keep the latrine clean (attitudes, roles and decisions) 4. Want to keep their family latrine clean so that they are like other respectable families in the village (social norms, social driver) 5. Follow the "clean latrine family plan" to ensure that the latrine stays clean (intention/roles and decisions)

Research: Future studies that address latrine maintenance should consider applying a different sampling frame that is closer to a random sample, rather than purposeful sampling. For example, villages that have high latrine coverage, irrespective of whether they are in SNV-supported areas or not, should be considered. After selection of the village, a list of all households owning latrines and the year the latrines were built should be obtained. Next, only latrines that have been used for over 5 years (for example) would be included and the interviewers would then randomly choose the households for interviews. This may reduce selection bias and increase the chances of finding households who have faced problems in maintaining their latrines. Future studies should also include questions related to overall satisfaction of latrines as this may also provide insights into why latrines are well maintained or not well maintained. For the Terai belt, future studies may not need to include such a large sample size given that this study did not find any differences between respondent answers.

7. HANDWASHING WITH SOAP

7.1 Overview

The study sought to understand the following about handwashing behaviour: 1) how do women prepare food and does their routine include washing hands; 2) how do women clean up after their children have urinated/defecated and how are the faeces disposed of; and 3) what do women do with regards to washing hands before they eat and before they feed their children? The behavioural determinants of access/availability, knowledge, social support, attitudes/beliefs, outcome expectations and threat were explored and the results are presented in detail below.

Figure 11: Mother and two children

This portion of document is further divided into the following subsections: Section 7.1 provides an overview of caretaker profiles, including daily activities and times; Section 7.2 – 7. 4 describe what caretakers are doing at critical times when HWWS could occur; and Section 7.5 presents the key barriers and motivations to HWWS. Throughout Section 7 only the district where informants reside are noted next to each quote since all participants were females.

Key takeaways:

- Caretakers report very similar daily routines that revolve around domestic responsibilities.
- Women's mobility beyond the house appears to be limited.
- Daily routines for caretakers are basically the same, irrespective of ethnicity, religion or caste.

In total, 65 women were interviewed about HWWS through 40 IDIs and four FGDs involving 25 women. Women were recruited for the study if they had at least one child under age five and participants for the FGDs were chosen to represent three ethnic/religious groups: the Tharu, Dalit Biswa Karma Tole (an artisan caste), and Muslims. The average age for caretakers was 26 years. Each family had roughly 7 members and caretakers had, on average, 2.3 children. Only women in the FGDs were asked about their sources of household income. Among those 25 women, most were farmers, some made cigarettes by rolling tobacco (bidi) in their homes, and one caretaker sold bangles in her village. While the women stayed in the villages, their husbands were likely to be working in Kathmandu or abroad, most often as labourers.

Based on descriptions of their daily routines, mobility outside the family compound seems to be limited. In the IDIs, some caretakers mentioned going to their fields, but the majority of daily activities took place within the home. These include cooking, cleaning, caring for children and tending to animals. No one mentioned going to the market to purchase food, cleaning supplies or snacks for children as part of their daily activities. In addition, when asked about how others in their community cook or care for their children, the majority of caretakers, particularly daughters-in-law, said they did not know given that they were not able to observe activities outside of their homes.

Daily activities were consistently the same for all women, irrespective of ethnicity or caste. The exception was Muslim women who spend some time in the morning or evening each day reading the Koran. A typical day in the life of a Terai woman in these districts is illustrated in the quotes below; one is a story from a non-latrine owner and one is from a LO.

I wake up at 5 am and then I go to the river to defecate. I wash my hands with soap, wake the kids up and send them to defecate. I clean the children, the house and the front yard. I make the children wash their hands with soap, serve food to them and send them to school. [Then I] wash the other small children's hands and legs, feed them, eat, watch TV, rest, do household chores, cook [another] meal in the evening and do household chores. (Mahottari)

I wake up around 5 to 5:30 am. First, I go to latrine and I wash hands with soap. Soap is inside the latrine only. Then I sweep the house, wash dishes from the night before, clean the chicken coop and go to fetch water nearby. Then I make breakfast from rice from the night before or I make noodles or beaten rice. I send the children to school, clean the youngest baby, cook food and feed the baby, take care of the baby, wash dishes, wash clothes, bath, sweep the house and front yard, fetch water and cook food. (Sarlahi)

7.2 Handwashing before food preparation

Key takeaways:

- Two meals are cooked each day and preparation time varies from 1-2.5 hours.
- Multiple points of contact with water exist during meal preparation but HWWS was mentioned by very few.
- HWWS most likely occurs after the meal has been cooked when hands are soiled by grease or spices.

Food preparation is a complex behaviour that requires many activities from the time the food is prepared until the time it is served. Caretakers were asked about meal preparation to better understand whether handwashing takes place, and if so, at what point in the process. Interviewees were given a chance to provide detailed descriptions of their food preparation routine and to spontaneously mention any handwashing. Only when handwashing was mentioned did interviewers further probe with questions about material used and attitudes regarding the importance of HWWS during food preparation.

Interviews revealed that caretakers typically cook two meals a day. Total time for preparation and cooking ranges between 1-2.5 hours, depending on the size of the family. The variety of dishes prepared and cooking methods were consistent across all caretakers interviewed.

I cook twice, once in the morning and once in the evening. The food prepared in the morning is eaten for breakfast. Another meal is cooked [and] is eaten for the afternoon and the evening meal. For breakfast, I make roti and vegetables. For the other meals I prepare lentil soup, rice and potato fries. Chutney is prepared sometimes. (I) organize firewood, make the fire, cook rice, cut potatoes and ladies' fingers and wash and cook those. For the potato fries I cut the potatoes, wash and cook. (Sarlahi)

I boil water on the stove, wash rice and cook it in the water. After it boils, I strain the rice water, cook lentil soup and fry it, cut potatoes and onion, cook roti and serve to the family to eat. (Siraha)

Caretakers report multiple occasions throughout meal preparation when they have contact with water, such as when they wash rice or vegetables. Washing hands with soap, however, was mentioned by very few women during the storytelling exercise. HWWS most likely occurs after the meal has been cooked, mainly because the hands are soiled by grease or spices. Only a few women mentioned HWWS before starting to prepare food.

I wash hands with soap, make fire, wash rice, cut vegetables and clean spinach 2-3 times. For other vegetables, I wash and cut and wash again and cook. While I wash rice or vegetables, I keep touching water. (Sarlahi)

Before and during cooking [I] wash with only water. After cooking I wash with soap. After cooking, the hands get dirty with oil and chilly. When I hold my baby he/she would get chilly and black. (Saptari)

7.3 Handwashing before feeding children and before eating

Key takeaways:

- Some caretakers wash their hands before feeding children but only with water.

Caretakers in Mahottari and Sarlahi were also asked how they fed their children to understand whether handwashing took place before the child was fed. Although some caretakers acknowledged knowing they should wash hands with soap, the common practice was for mothers to report washing hands only with water, for both herself and the child.

(The baby) eats on his own. I wash his hands by rinsing with water. Applying soap it is not critical. I apply soap if I see dirt. We should apply soap everyday but we don't. (Sarlahi)

(Children) feed themselves. (I) make them wash their hands, even if it's only with water. (I) send them to wash hands at the tap when they are going to eat with grandad, they wash and come and I serve them. (Sarlahi)

7.4 Management of child's faeces and handwashing

Key takeaways:

- Babies wear underpants or nothing at all before they can walk; no potties are used.
- Children are held between the caretaker's legs and allowed to defecate onto the ground, after which the faeces is thrown away.
- LOs dispose of their children's faeces in the latrine, but non-latrine owners throw their children's faeces into the field, roads or in rivers near the home.
- Soap was used for handwashing after cleaning the child's bottom because of disgust from touching faeces.
- Improper disposal practices appear to be dependent on latrine ownership rather than beliefs that children's faeces are pure and HWWS is, therefore, not needed.

Another important but often overlooked juncture is handwashing after cleaning a baby's bottom and proper disposal of the child's faeces. In 2011, 69% of households in Nepal reported unsafe disposal of their youngest child's faeces. Even among those with latrines, nearly 40% of households reported unsafe disposal behaviour. Although caretakers may know that handwashing is needed after touching "dirty" things such as adults' faeces, in many other countries, due to beliefs about the purity of babies' faeces, adults are much less likely to feel that child's faeces is harmful enough to warrant handwashing, much less with handwashing with soap. Ideas related to purity of children's faeces are common around the world and this is one of the challenges to addressing hygienic management of child's faeces, specifically HWWS after cleaning a child's bottom. In light of the body of evidence, this study also sought to understand how caretakers manage children's faeces and whether HWWS takes place afterwards.

Caretakers were asked about how they managed their children's urine and faeces when the children were young. In the Terai, babies wear underpants or nothing at all before they can walk. If the child is asleep and soils the bed, the sheet or mattress are washed afterwards with water and soap (in some households). One caretaker put a plastic cover on the mattress to protect the mattress from being soiled. If the child is awake and needs to defecate, the caretaker will hold the child between her legs and allow the child to defecate onto the ground, after which the faeces is thrown away. Caretakers did not mention using potties. In households with latrines, caretakers report disposing of child's faeces in the latrine, but in households without latrines, caretakers reported throwing the faeces into the field, roads or in rivers near the home.

Figure 12: Mother showing how child is held when defecating

> *He does it on floor, I make him poop by sitting on my legs at times. [Then I] clean the baby with water and pick up poop with grass and collect/heap it in field and burn it, mop floor with water and mud or if he does it on front yard then sweep it with water. [Then] I [apply] oil on the baby. (Siraha)*

> *If [he defecates] in the panty, then I remove it and take him to hand pump and wash him below his waist. I dry him and put clothes on him and wash and dry the panty. If he does on the floor, then I pick it [faeces] up with grass or hay and throw it on the roads or onto the fields and wash hands with soap thereafter. (Saptari)*

Once the child is older and if the house has a latrine, the child will be led to the latrine and assisted so that the faeces is disposed of correctly. For non-latrine owners, however, faeces will still be discarded improperly irrespective of the age of the child.

> *Now, he doesn't do it on panty. He calls me, I open his shorts and he goes out to front yard and pees. I keep him in an open space and make him poop, then I clean him. I scoop the poop with a shovel and throw it out in the roads or in a pit sometimes. I mop the pooped spot with animal dung and then clean hands with soap. Nowadays, we have our own latrine so he does it there. (Mahottari)*

Despite previous hypothesis that caretakers may feel that child's faces is pure and would not require soap, most caretakers in these Terai districts reported washing both their children's' bottom with soap as well as washing their own hands with soap after cleaning the child. The reason cited for washing hands was disgust at having touched something dirty. Ash and mud are used as substitutes if soap is not available.

> *I have to wash [my hands] after washing baby's bottom. Poop and urine gets on the hands and smells later. While washing [child's] bottom I apply soap. Some days I wash [my hands] with other things as well. I rub ash or mud and wash without applying soap with water. If the soap is inside in a box, who will open it now and then? That's why I wash with mud as well. (Sarlahi)*

7.5 Barriers and facilitators to HWWS

Key takeaways:

- **Key barriers include:**
  - Lack of knowledge about the need for soap for truly clean hands and the important times when hands should be washed with soap;
  - Social norms that facilitate rinsing hands with only water;
  - Lack of social support from mothers-in-law who criticise caretakers for using "too much" soap;
  - Beliefs that soap is only needed if hands look dirty, feel greasy or smell;
  - Daily routines that keep women inside the home adds to their perception that their hands are "clean".
- **Key drivers include:**
  - Easy access and availability of water and cleansing agents;
  - Desire to feel clean, light and at ease after HWWS, having a "clean soul" achieved after using soap, looking clean and nice; and wanting to keep their children healthy.
  - Caretakers feel "dirty" "embarrassed" and "ashamed" and would be criticized by their family members if they did not maintain basic hygiene habits, which do not include HWWS.

The following section presents findings that highlight the barriers and drivers to HWWS in these four districts of the Terai. They are classified by the behavioural determinants within the FOAM framework. For this study, access/availability, knowledge, social support, attitudes, outcome expectations and threats were examined.

Access and availability: Similar to LOs in this study, access to water for handwashing was not mentioned as a key barrier to HWWS, although this cannot be generalized to the entire Terai area. Most caretakers have a water source within their own home or, in the case of Muslim families, share a well among several families. Most women felt soap was affordable and readily available. Many families had several varieties of soap in their homes. The most common types/brands of soap, their uses and costs are provided in Table 8 below.

Table 8: Soap types, uses and cost

Soap type	Use	Estimated cost
Lifebouy, Lux, Detol	Hand soap and bathing	12-20 NPR and 50 NPR, depending on size
Aha, Nirma	Laundry, sometimes hands	25 – 30 NPR
Laundry bar	Laundry and hands	18 - 20 NPR
Ash	Dishes, sometimes hands	none
Mud	Sometimes for hands	none

While most participants cited no significant challenges to consistent HWWS, a few women felt it was challenging to ensure that soap was always next to the water source. Before the end of the interview, caretakers were asked to show interviewers where they washed their hands. Observations were made about location(s) for handwashing, availability of water, presence of and types of soap visible, as well as how the caretaker washed her hands. Observations revealed the following:

Figure 13: Caretaker washing hands

- Of the 40 households, 29 households, or 72.5%, had soap located at an area for handwashing.
- Of the 29 households, 11 did not have soap on hand. During the observations, nine of these caretakers brought soap from inside the house for the handwashing demonstration. Two households did not use soap for washing hands.
- Of the nine households that had to bring soap from inside their homes to the handwashing area, eight were from Mahottari District where it was more common for four to five households to share a water pump and where each household brought their own soap each time they went to clean or wash.
- Of the 29 households that had soap on hand, 15 households had more than one type of soap.

When asked about the use of ash or mud, it was reported that ash was reserved for washing dishes in most families. When households run out of soap or when it's not conveniently available, ash or mud are used for washing hands.

> *If hands are clean while feeding others, no one falls sick. When hands are washed, during cooking and serving, food remains clean. If hands are not washed, everyone will eat dirt. Using only water doesn't remove dirt, doesn't remove smell. Ash is not used to wash hands, it's used to wash dishes but if hands are oily, then it is washed with ash first and then it should be washed with soap water. (Saptari)*

> *It (ash) would not be the same as soap - soap is soap! Washing with soap removes dirt, makes it white, smell goes away and it smells of soap. (Sarlahi)*

Knowledge: In these districts of the Terai, caretakers acknowledged the need for clean hands, however, most felt that rinsing hands with water was sufficient to clean hands. Soap is reserved for when hands are truly dirty, which is determined by physical signs of contamination such as visible dirt, feelings of grease or oil and, or the presence of an unpleasant or strong smell. These findings is similar to other formative research findings in Asia whereby people feel that water is good enough for cleaning hands.

> *In the morning - after going to latrine - I wash my bottom so they [my hands] become dirt. After doing the dishes my hands get black. After working in the fields, my hands get muddy and sandy. It has become a habit for me to washing hands at all times. (Siraha)*

Caretakers were asked when they thought HWWS would be most important and why. Over 50% of women in the IDIs cited "after using the latrine" as the most important time. Another common juncture was after cleaning animal (goats, cows, chickens) sheds, and after completing chores. These were the "easiest" times to remember because caretakers could see or smell contamination, resulting in a sense of disgust that motivates them to wash with soap.

After going to latrine, poop and dirt are stuck on the hands. There is bacteria and it smells. After cooking food, hands have oil, chilly and black dirt on them, and if the baby is touched without [me] washing my hands, the baby will get chilly and black. (Saptari)

Some days I wash, some days I don't wash, if it (hands) gets dirty I wash, if it's not dirty I don't wash. If washed, it becomes clean. If I wash dishes, I wash with Surf soap but mostly I wash with water only. If I don't wash, I don't feel good. I feel uneasy. (Mahottari)

Caretakers were much more likely to mention needing to wash hands "after" eating, cooking and cleaning activities rather than "before" eating, feeding a child or preparing food. In fact, the time that was most "difficult" for caretakers to remember to hand wash included before cooking. Reasons for forgetting included not having physically dirty hands (a reminder), babies crying, or when in a hurry (competing priorities).

Social support: "Social support" is the physical and emotional comfort given to individuals by family or community members, friends, co-workers and others. Social support can take several forms: physical, emotional or informational. In the case of this study, there was a lack of social support for caretakers to do HWWS. While soap was easy to buy and was not felt to be expensive, some caretakers were discouraged from accessing as much soap as they wanted or needed by their mothers-in-law. These caretakers felt criticized for their "excessive" use of soap.

The hand pump is a little far to go out for washing hands now and then. My mother in law shouts about washing hands too often, because soap gets used up. Even if the hand pump was in my own front yard, but there is no place to keep soap or a place to bath. It would be easier if they were there. (Sarlahi)

At times I wash with soap, sometimes I wash with water only. In the mornings [I wash] with soap and evenings with water only. If I don't find soap I wash with mud but I don't feel satisfied. I came here by doing love marriage so mother-in-law keeps shouting. She just went after shouting just now. She gives me a limited amount of soap so I don't have soap when I want. (Mahottari)

While mothers-in-law were mentioned as barriers to accessing soap by a few women, husbands or fathers-in-law were not mentioned as sources of discouragement in accessing/using soap.

Attitudes, beliefs: "Attitudes/beliefs" are defined as opinions about a product or behaviour, which may or may not be true. Caretakers were asked about what people in their community do to keep themselves clean and why these particular activities are important. Activities included brushing teeth, washing faces, cutting nails, combing hair, wearing dry clothing, bathing, and (for some) applying oil and putting on makeup. Then they were asked how they would feel and what others would think of them if they did not carry out these hygiene activities. "Disgust" and "shame" were words often used to describe their feelings, as well as a feeling of unease because their "soul" was not clean. They said that they would be criticise by their family if they did not carry out these behaviours.

(I) should wash because I would have cleaned the children's noses and my nose as well, and the hands would have gotten dirty. I wash only with water. I don't care about washing with soap. I don't have a habit, but I wash after cleaning animal dung, if I realize that I ate without washing hands, I feel disgusted. (Sarlahi)

I would feel ashamed when wearing dirty clothes. One should washing their hands and legs. I would feel disgusted eating without washing hands. If we bath and wash, we look smart. (Saptari)

[We] should wash. After washing, everyone's soul will feel at rest. If we don't wash it feels disgusting. I don't feel easy if I'm unwashed, and others will also say, "What a dirty baby." If I'm clean, people will say "wow the baby is so clean," so I think we should be clean. If hands have a lot of dirt, then use soap or else wash with water only. The soul doesn't feel at rest and I feel disgusted. When I see a dirty baby, I wash. (Mahottari)

Two women in Raghunathpur VDC, Mahottari District felt that because they were inside most of the day, they did not need soap, which was reserved for use after completing work outdoors.

> *If I do work inside the house, I mostly wash with water only. If I do work outside, then I wash hands with soap. (Mahottari)*

> *Some days I wash, some days I don't wash. If it gets dirty I wash, if it's not dirty I don't wash. If I wash dishes, then I wash with Surf soap. I mostly wash with water only. I don't go out to work. Since I stay at home, [my] hands don't get dirty. When hands aren't dirty – what is there to wash it for? (Mahottari)*

Figure 14: Caretaker washing hands

Caretakers were also asked about customs or traditions that may act to prevent women from practicing personal hygiene. Consistent with the responses from LOs, there are no restrictions on mensing or women's ability to use the latrine. Interviews with caretakers revealed very few customs that were detrimental to personal hygiene.
A group of women in Siraha district, Gahda VDC all mentioned the same belief where if they defecated, they would have to HWWS before they could enter their house.

> *After defecating, we should enter the house only after washing hands and legs. If we directly go inside without washing, we would have stepped on dirty things and the gods would get angry because the front yard has god in it. If babies are touched then they shrink they say. (Siraha)*

One Tharu caretaker said that women avoided bathing every day during the postnatal period, but she did not provide any other details (Saptari). In Sarlahi district, one female mentioned that Muslims need to be clean on Friday and Mondays before they go for prayers at the mosque (Sarlahi).

Outcome expectations: "Outcome expectations" are the benefits or disadvantages of adopting a behaviour. Caretakers were asked what they felt were the advantages of HWWS for both themselves and their families. Many of them cited their children's health, keeping clean and looking nice. Feeling light, bright and cool were also sensations experienced after HWWS.

> *If I clean, the food will be clean. It will benefit the baby if I wash hands while feeding milk. Washing with soap makes it look good, bright. With water it is not as good. Water doesn't benefit as much as soap does. (Sarlahi)*

> *If I become dirty, my whole family becomes dirty and the family gets diseases. If hands are clean, it will be clean when I massage my mother-in-law's legs. When hands are clean, whatever you do will be clean. (Mahottari)*

In addition, they were asked what would happen if they only used water or if they used ash instead of soap.

> *It will be good for me and the babies. [I] will look clean and it feels nice to cook. I have to feed [children] food. If the hands have no dirt, then the food will be clean. It will be good for children because they won't fall sick. If I wash with soap, it looks nice. With only water it won't be good. (Siraha)*

Threat: "Threat" is defined as perceived dangers or negative outcomes linked to a behaviour. Threat can be examined in two ways. The first is perceived susceptibility, which is an individual's assessment of the risk posed by a particular condition or illness – such as "how easy is it for the child to get the disease". The second is perceived severity, an individual's assessment of the seriousness of the condition – such as "how likely is it that the child would die from the disease". There are some diseases that are believed to be easy to get, such as colds, but in these cases the child would not likely to die from the illness. Other diseases like HIV, for example, are hard to contract but a person could more easily die in the absence of anti-retroviral medicines.

FGDs were conducted with a key objective of exploring the perceived threat among caretakers of common childhood illnesses. When asked about the most common illnesses, caretakers listed four (in descending order of priority): 1) common cold and flu, 2) fever, 3) diarrhoea, and 4) pneumonia. There were strong beliefs that changes in the weather and temperature cause all of these illnesses. For diarrhoea, although participants felt the child is not likely to die from it, in one FGD they said diarrhoea would be expensive to treat. Several caretakers also mentioned children in their own families or within the village dying from pneumonia. The perceptions of the most common and most threatening illnesses, along with their treatments, as described by the caretakers are summarized in Table 9 below.

Table 9: Caretakers' views on common and dangerous child illnesses and their treatment

Most common illnesses and their sources	How are they treated	Most dangerous illnesses
1. Cold, flus: Cold weather, particularly during last years of the Nepali calendar (chait). When the weather changes and when children lose their baby teeth. When a mother returns from working in the fields and breastfeeds, her child may get coughs and colds.		Pneumonia
2. Fever: Heat from hot weather		Jaundice
3. Diarrhoea: Indigestion of contaminated water, overeating, mixing sour and spicy foods and teething.	Mix rice and pulses (khichadi), feed children bananas, sugar water, herbs and pomegranate. Give oral rehydration solution and medicate, feed honey, and take to hospital if initial remedies do not work.	Colds, flus
4. Pneumonia: Caused by cold and fever due to the heat.	Give medicines from doctor, apply Kadam leaves to reduce fever, apply cold/wet cloth to bring down fever. Make a paste of mustard oil and egg shells and tie to armpit. Take to hospital if needed.	Diarrhoea

7.6 Conclusions for HWWS

This study sought to understand what caretakers are doing at the critical junctures where HWWS would take place, and to explore the barriers and facilitators to HWWS in selected Terai districts. In particular, behavioural determinants of access/availability, knowledge, social support, attitudes/beliefs, outcome expectations and threats were explored. Based on the evidence presented above, this section presents conclusions related to each of these questions.

1. **What are caretakers doing at the critical junctures where handwashing with soap should take place (before preparing food, before feeding their children, before eating and after cleaning their children′s bottom)?**

HWWS before preparing food: In these districts of the Terai, caretakers cook two meals a day. The dishes cooked and cooking methods did not vary across ethnic or religious groups. Although caretakers report frequent contact with water during meal preparation, HWWS before starting meal preparations was rarely mentioned. HWWS was most likely to occur after meal preparation when hands were stained with oils or spices.

HWWS before feeding children and before eating: Although caretakers admit that they should use soap, children's hands are often washed only with water before eating. Caretakers also reported rinsing only with water before eating because water was perceived to be sufficient in getting hands clean. Soap was reserved for visibly dirty hands and following work outside the home when hands were felt to be "dirty".

HWWS after cleaning a baby′s bottom and management of children□s faeces: Proper disposal of child's faeces and subsequent HWWS depends on whether the caretakers own a latrine and also upon the age of the child. Caretakers that do not own latrines have the most unhygienic disposal practices. They are likely to dispose of the faeces anywhere as long as it is outside of the family home. Caretakers did not mention using a potty or any other latrine training device. Latrine owners are likely to report disposing their children's faces into the latrine. Handwashing after cleaning of the child's bottom, nappy or linens was common because caretakers felt disgusted at touching the child's faeces. They were more likely to report using soap after cleaning older children's bottoms.

2. **What are the barriers and facilitators to handwashing with soap in these Terai districts?**

Specific questions were asked in order to examine six behavioural determinants, including access/ availability, knowledge, social support, attitudes/beliefs, outcome expectations and threats. Table 10 below presents the factors, classified by barriers and motivators that would need to be addressed for improved handwashing behaviour and by drivers that could be used in future BCC campaigns to address these barriers.

Barriers and motivations are similar among ethnic and religious groups: As with latrine use, cleaning and maintenance, there also appears to be no discernible difference for HWWS. Caretakers in these districts of the Terai have the same daily routines, and the barriers and facilitators to handwashing are consistently the same among respondents. Management of child's faeces appears to be dependent upon latrine ownership rather than beliefs or attitudes about children's faeces.

Table 10: Facilitators and barriers to HWWS

Barriers (challenges)	
Knowledge about the need for soap and the important times for washing hands with soap	• Although caretakers are aware that they should wash their hands, they were happy to report that washing with water is sufficient to clean hands. • Soap is only used when there is presence of a physical cue (e.g., dirt, bad smell). • "After using the latrine" was the most mentioned time for HWWS; after cleaning animals' sheds or after completion of chores were the next most commonly mentioned times. • Caretakers were much more likely to mention needing to wash hands "after" eating, cooking and cleaning activities rather than "before" eating, feeding a child or preparing food.
Social norms in community about handwashing	• If handwashing occurs, it is mostly with plain water. Soap is not commonly used.
Social support for handwashing in the home	• In some households, caretakers are sometimes criticized for using too much soap for washing hands by their mothers -law.
Facilitators (drivers)	
Access and availability of soap products and substitutes	• Water and soap are available for handwashing in most households. • Caretakers feel that soap is affordable. • During handwashing observations, the majority of caretakers (38 out of 40) used soap. • 38% of households had more than one type of soap. • Ash is now used mainly for washing dishes though both ash and mud are used to wash hands if soap is not available.
Outcome expectations or benefits gained from HWWS	• Caretakers report feeling clean, light and at ease after HWWS • Having a clean soul was also associated with HWWS, whereas the absence of HW resulted in a "heavy soul". • Many caretakers cited their children's health, keeping clean and looking nice as benefits from washing hands with soap. Feeling light, bright and cool were also sensations experienced after HWWS. • Caretakers felt "dirty" "embarrassed" and "ashamed" if they did not do these things and they would also be criticized by their family members if they did not maintain basic hygiene, which does not include HWWS.
Perceived threat of common illnesses and their severity	• The four most common illnesses mentioned, in descending order of priority, were: 1) common cold and flu, 2) fever, 3) diarrhoea, and 4) pneumonia. • There is a strong belief that changes in the weather/ temperature are the cause of all of these illnesses. • For diarrhoea, although the child is not likely to die, in one FGD participants said it would was expensive to treat.

7.7 Recommendations for HWWS

Based on the above conclusions, this section provides some recommendations to guide the development of future BCC activities.

Address knowledge/belief that clean looking hands and non-smelly hands do not need soap: Caretakers in this study were comfortable reporting that they only rinsed their hands with water. They do not perceive a need to use soap unless there is a physical cue that their hands are soiled. BCC efforts must address this knowledge gap, however, since telling caretakers will not be sufficient. Activities must prove to caretakers that hands are in fact contaminated even when they look clean.

Use disgust, contamination and the idea of a "clean soul" to motivate: The most frequently mentioned reason for HWWS among caretakers was a feeling of disgust from having touched faeces. Ideas about contamination and purity are strong in Hinduism and Buddhism, and caretakers want to have a "clean soul" which can be achieved through, among other things, washing hands with soap. These drivers should be emphasized in communication efforts.

Emphasize other important times for HWWS: Caretakers are most likely to wash their hands after defecating and after washing a child' bottom if he/she has defecated. All three "before" junctures need more emphasis and could be linked to the desire to ensure that food and one's hands are clean before feeding the family.

Provide cues for HWWS: Caretakers mentioned forgetting to use soap if it is not readily available. This is particularly true for households that share a common water source or in households that do not have latrines. Behavior change programmes should look at building cues, which could include stickers to place on latrines suggesting that families buy a particular color of bar soap that they can associate with washing hands, or making a designated place for soap near a water source.

Communication objectives: A BCC campaign should aim to address following areas: 1) increase knowledge and change beliefs about the need for soap; 2) improve knowledge of the important times for HWWS with an emphasis on before preparing food and before feeding children; 3) change attitudes so that caretakers feel that HWWS is an "essential" behavior and use outcome expectations from washing with soap to create positive and encouraging messages. Disgust was also mentioned as a key motivator for HWWS and should be considered for inclusion in future campaigns.

Table 11: Communication objectives per audience for HWWS

Barriers (challenges)	
After the campaign, caretakers of children under five will:	1. Know that clean looking and non-smelly hands are still contaminated (knowledge) 2. Feel that washing with water is not enough, soap is needed for truly clean hands (belief) 3. Know that washing hands with soap before preparing food, before eating and before feeding children are as important as washing hands with soap after defecating and after cleaning a child's bottom (knowledge) 4. Want to wash their hands to feel clean, light and at ease (outcome expectations) 5. Feel that handwashing with soap is an essential hygiene behaviour (attitude)
After the campaign, all family members will:	1. Know that clean looking and non-smelly hands are still contaminated (knowledge) 2. Feel that washing with water is not enough, soap is needed for truly clean hands (belief) 3. Feel that handwashing with soap is an essential hygiene behaviour (attitude)

8. COMMUNICATION CHANNELS

The final objective of the study was to explore how people receive information, which channels are credible, which ones have greater reach, and which channels are people most likely to receive information on sanitation from. This information was obtained through KIIs and IDIs.

In general, the Terai belt is more densely populated than other areas in Nepal which helps to increase audience reach once messages are disseminated. However, reach of mass media, particularly radio, is not universal. In some VDCs in Sarlahi district, villagers could access multiple radio channels but in more remote VDCs such as Bhadsar in Sarlahi households were not reached by any radio stations. Exposure to sanitation communication campaigns in these district are mixed. In some VDCs, Key Informants could describe previous sanitation promotion campaigns while other Key Informants were not able to recall any promotion activities.

The most credible channels included: communication by VDC officials in the form of written notices, religious leaders such as "Maulanas" and ward social workers. Interpersonal communication through these individuals were considered to be more credible than mass media.

Channels with greatest audience reach include: television, FM radio, "miking" (someone riding on a bicycle or motorbike with a microphone makes public announcements or advertisements), street dramas and mobile phones.

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Formative Research:
Barriers and Facilitators to Hygienic Use and Maintenance of Latrines and Handwashing with Soap in Sarlahi, Mahotari, Siraha and Saptari Districts of the Terai, Nepal
(December 2015)

Jawalakhel, Lalitpur
P.O. Box 1966
Kathmandu, Nepal
Tel. +977 (0) 1 5523444
Fax. +977 (0) 1 5523155
Email. nepal@snvworld.org