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Strengthening Partnerships, Results, and Innovations in Nutrition Globally

Shifting Nutrition and Hygiene Behaviors in Sierra Leone Utilizing Trials of Improved Practices

December 2017

About SPRING
The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project is a five-year USAID-funded cooperative agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

Recommended Citation
SPRING and HKI. 2017. *Shifting Nutrition and Hygiene Behaviors in Sierra Leone Utilizing Trials of Improved Practices*. Arlington, VA: Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project and Helen Keller International.

Acknowledgements
The assessment was conducted by Helen Keller International with the support of Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING).

Helen Keller International Sierra Leone would like to take this opportunity to express its gratitude to all those who contributed effectively to this trial. Our sincere thanks to the SPRING Technical Advisors Philip Moses and Kristina Granger for their technical support and training and guidance on the TIPs methodology. Finally, our sincere thanks to all members of households in Madora, Kombra Junction, and Kaimp Kakoloh for making themselves available during this trial period.

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Acronyms

DBC	Designing for Behavior Change
DHMT	District Health Management Team
EVD	Ebola virus disease
HH	households
HKI	Helen Keller International
MAFFS	Ministry of Agriculture, Forestry, and Food Security
MCG	Mother Care Group
MCHP	Maternal and Child Health Post
MIYCN	maternal, infant, and young child nutrition
PHU	Peripheral Health Unit
PLW	pregnant and lactating women
SBCC	social and behavior change communication
TIPs	Trials of Improved Practices
WASH	water, sanitation, and hygiene

Executive Summary

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project, together with Helen Keller International (HKI), recently used Trials of Improved Practices (TIPs), a qualitative research methodology, to design social and behavior change communication (SBCC) efforts to improve the nutritional status of women who were pregnant or lactating and children under the age of 2 years old in Sierra Leone.

The TIPs approach provided an opportunity to pretest behaviors at the household-level before they were widely promoted. By focusing on behavior—what people do —rather than on knowledge — what people know or believe, TIPs provided an understanding of families' preferences and capabilities, as well as the barriers and enablers encountered in trying new behaviors. This methodology engaged people in dialogue and involved them as partners in designing the interventions that worked best in their lives to achieve positive health outcomes for themselves, their families, and communities.

In May of 2016, SPRING/Sierra Leone conducted TIPs research with 24 selected households in two chiefdoms in the Tonkolili region of the country. The analysis from TIPs assisted in the development of a grounded SBCC strategy and materials, and also provided guidance and understanding on the issues and practices raised for future development efforts, and an awareness of the TIPS methodology that can be replicated to other assessment topics.

The first step was to create and prioritize a menu of evidence-based behavioral options for: handwashing with soap at critical times; cleaning home/play environment, including safe disposal of feces; and appropriate complementary feeding of children 6–23 months. In addition, TIPs developed a methodology to test mothers' responses to the recommendations for improving infant and young child nutrition, WASH (water, sanitation, and hygiene), and other desired practices and determined which ones were most feasible and acceptable.

The selection of the menu of key behaviors was followed by three household visits, during which enumerators:

- interviewed, observed, and understood the household's context and current behaviors;
- counseled and negotiated one to two new behaviors that the household was willing to try; and
- followed-up to understand which behaviors households were able to do and to learn about the most important barriers and enablers to the suggested behaviors. The third visit also served to solicit suggestions from the participants about how to modify and promote the behaviors.

The dialogue and data from these three visits helped to develop tailored, contextually appropriate, and pretested messages for the promotion of these behaviors to the target audiences.

Creating handwashing stations and prioritizing soap for handwashing were some of the most tried and accepted interventions for the households in the study. One of the most common reasons that individuals gave for adopting this behavior related to the fact that TIPs team members explained the behavior and construction to participants, and the large water bottles needed to construct the simple handwashing stations were readily available.

In addition, behaviors agreed to be trialed for improved feeding practices included trying to find and buy pumpkin to feed their young child. The options for sub-practices to trial included: preparing pumpkin as a snack, combining pumpkin with other food, and cooking and mashing up pumpkin to serve as pap along with the less popular suggestion of buying a pumpkin with their neighbor to split. For the households that agreed to feed

pumpkin a positive experience was reported although the availability throughout the year was reported as major barrier. Mothers were interested in feeding children colorful foods recognizing pumpkin as one of a few options.

However, not all of the behaviors were as likely to be adopted. Fourteen of the households interviewed were counseled on the importance of keeping their small child in a fenced-in clean, play area to protect them from contacting waste that could make them sick. While five households were interested in trying the behavior, none of the participants had actually built an enclosure by the follow-up visit. Many households preferred to continue the practice of periodically sweeping the home environment instead, providing crucial insight to design a WASH 1,000 intervention.

Although the TIPs methodology does not intend to provide statistically representative information about the greater populations we work with, it is an effective way to pretest new behaviors to better understand the factors that may impede or facilitate households' adoption of a new behavior. By engaging in a dialogue with the same household members during three visits over the course of several weeks *while the household was trying out a practice*, the team was able to examine householders' experience with each practice in detail. This detail helped the team to develop a specific SBCC strategy for each practice. Conversations with household members regarding a specific practice helped the team to identify the following SBCC strategy elements: *influencers, those* individuals whose opinion encouraged or discouraged the practice, perceived *barriers* and *enablers* to adoption, potential *messages* to encourage adoption, and potential *noncommunication activities* to promote adoption, such as increasing access to soap or potties at an affordable price. The rich data obtained during household visits played a key role in refining the choices of SBCC messaging, including drafting messages to capture or address the motivators or deterrents. (See Appendix 3. Behavior Change Frameworks.) Building on the specific SBCC actions, potential activities were suggested to detail platform and audience to increase uptake of each practice in Sierra Leone. This analysis shaped which specific practices to promote, and the instructions and key messages to employ to motivate adoption on a wider scale.

Introduction

Despite increased donor attention, particularly in the wake of the 2014-2015 Ebola crisis, Sierra Leone remains one of the poorest and least developed countries in the world. This continued poverty has significantly contributed to stunting in the country's most vulnerable population. As of 2014, 76 percent of children 6 to 59 months of age were anemic and 29 percent were stunted (SLMN 2013; SMART Survey 2014). In the Tonkolili district, stunting increased between 2010 and 2014 from 33 to 41 percent (SMART Survey 2010; SMART Survey 2014).

SPRING commenced work in Sierra Leone in January 2016. During the fall of 2015, BFS requested SPRING to conduct a nutrition assessment to inform the broader Feed the Future investments in nutrition-specific and nutrition-sensitive actions that would complement other donor and government investments to address stunting and anemia, especially among pregnant/lactating women and children under two years of age.

Following the assessment findings, SPRING commenced the development of small-scale approaches for improving stunting and documenting learning to inform longer-term programming. Given the short timeframe, SPRING placed an emphasis on maximizing opportunities for collaboration, learning, and adaptation during the eight month implementation period. Working through HKI, our international partner with an established presence in Sierra Leone, SPRING tested several approaches for increasing the demand for and consumption of diverse, nutrient-rich foods at the household level as well as increasing the access to and quality of nutrition-sensitive agricultural services.

In order to test the approaches, SPRING/Sierra Leone first identified two commodities based specifically on those that would address nutrient gaps among pregnant/lactating women and children 6–23 months of age ("1,000 days households") and would allow active collaboration with other Feed the Future initiatives in Tonkolili. To this end, the two commodities identified were pumpkin and fish, which are widely consumed in Sierra Leone but not necessarily by the target population, those families with young children ages 6 - 23 months, the "1000 days households. The team agreed to conduct three complementary formative research activities in the 1,000 days households: barrier analysis for fish and pumpkin consumption; TIPs for key critical WASH behaviors that impact behaviors and infant and young child feeding practices; an adapted value chain analysis to identify barriers and enablers within the food system for access to fish and pumpkin.

Methodology

Nutrition and WASH interventions often request households to change behaviors without much discussion as to why or how certain pre-selected behaviors should be adopted or how they affect specific members of a household. HKI and SPRING instead aimed to improve the uptake of select behaviors by consulting with families on which improved behaviors might be most feasible and acceptable for them to adopt. In order to improve on the nutrition and WASH practices, the program designed a research study using the TIPs methodology to test increased consumption of pumpkin, handwashing with soap, and keeping children away from feces within 1000-day households.

TIPs makes provisions for practices to be selected and pretested at the household level. It provides an understanding of families' preferences and capabilities, as well as the barriers and enablers encountered in trying new behaviors and practices. TIPs focuses on behavior, that is, what people do, rather than on knowledge, that is what people know or believe. Through this assessment, the program learns directly from families themselves who trial the behaviors.[1] The dialogue and data from the TIPs visits helps to select priority behaviors to promote and develop tailored, contextually appropriate, and pretested messages for the promotion of these behaviors to the target audiences.

In order to test approaches to increase demand for and consumption of diverse, nutrient-rich foods at the household level, SPRING/Sierra Leone first identified two commodities based specifically on identified nutrient gaps among women who are pregnant or lactating and children 6–23 months of age, The two commodities identified were pumpkin and fish. Pumpkin and fish are widely consumed in Sierra Leone but not necessarily by the target population. Pumpkin is rich in vitamin A and fish is rich in protein; both of which are deficient in the Sierra Leone diet. The team agreed to carry out three complementary formative research activities within the 1,000 days households: barrier analysis for fish and pumpkin consumption; TIPs for key critical WASH behaviors and infant and young child feeding practices; and an adapted value chain analysis to identify barriers and enablers within the food system for access to fish and pumpkin. The specific objectives of the TIPs research were as follows:

1. Test mothers' responses to recommendations for improving infant and young child nutrition, WASH and other desired practices and determine which ones are most feasible and acceptable.
2. Investigate the constraints on mothers' willingness to change feeding patterns as well as hygiene and other daily routines and their motivations for trying and sustaining new practices.

Process

The first step in the TIPs methodology was to create and prioritize a menu of evidence-based behavioral options using existing data and knowledge of the local context. This step also included a WASH technical advisory meeting which contributed to the selection of priority behaviors with district WASH representatives. This research focused on three key areas of WASH and nutrition behaviors that impact stunting during the first 1,000 days of life, or WASH 1,000: handwashing with soap at critical times; cleaning the home/play environment, including safe disposal of feces; and appropriate complementary feeding of children 6–23 months. Counseling cards were

[1]Brendon R. Barnes, Angela Mathee, Lonna B. Shafritz, Laurie Krieger, and Susan Zimicki, "A Behavioral Intervention to Reduce Child Exposure to Indoor Air Pollution: Identifying Possible Target Behaviors," *Health Education and Behavior* 31, no. 3 (June 2004): 306–317.

drafted depicting the key behaviors to assist interviews during the second visit. (See Appendix 3.) The selection of the menu of key behaviors was followed by three household visits, during which enumerators:

1. interviewed, observed, and understood the household's context and current behaviors;
2. counseled and negotiated one to two new specific behaviors that the household was willing to try;
3. followed-up to understand which behaviors households were able and not able to do and to learn about the most important barriers and enablers to the suggested behaviors. The third visit also served to solicit suggestions from the participants about how to modify and promote the behaviors.

Training of Enumerators

A three-day training introduced enumerators to the TIPs process, familiarized them with Themne[2] translations of the forms, and prepared them to interview and subsequently negotiate the suggested practices with mothers and other members of the household. Five individuals (four men/one woman) were identified as interviewers and note takers and participated in the training along with the technical and logistic advisors. The two strongest counselors were selected as interviewers (one woman/one man) while two other trainees were selected as note takers (two men) to visit households in pairs. A half day of training was used to pretest the questionnaire to ensure appropriateness, understanding, and fluidity, and allow interviewers and note takers to practice in the field.

An additional day of training was provided immediately before the third household visits to review, finalize, and practice the third visit Follow-up Interview Guide.

Sample Selection and Size

The TIPs assessment was conducted in eight households in three communities Helen Keller International asked the District Health Management Team (DHMT) to facilitate household selection within communities with mixed religions and of varied size and distance from main roads. DHMT worked through Peripheral Health Units (PHUs) to identify households with children aged 6–23 months and various occupations of mothers. The three communities visited were Komrabia Junction, Kaimp Kakoloh, and Mododra within the two chiefdoms Malal Mara and Kholifa Mabang in the Tonkolili District. The communities were selected based upon distance from the main road varying from close to far as it would impact access to market. Within the households that were identified by the PHU was the occupation of the mother, a variety of those who were farmers, traders and those with disposable income as these were seen to impact on access to commodities. Pre-visits were made to ensure appropriateness and route, share our purpose, and confirm approval from the Village Headmen of each community. At the beginning of the first household interviews, interviewers asked to verify the child's age with the child's health card and the mother's occupation was recorded. Three visits spread over two and a half weeks were made to each of the 24 households. One household was unavailable for the second visit, so the findings and conclusions reflect the 23 households who participated for all three visits.

Implementation Schedule

Each day of fieldwork, each of the two field teams visited four households (total of eight) within one community. During the first visits, interviewers offered the participating mothers (and members of the household the mother invited to join the interview) a brief explanation of the research, emphasizing that the team would visit two more times, and interviewed about household consumption of pumpkin as a complementary food as well as about

[2] Themne is the language commonly spoken in the communities selected for the trial.

specific WASH practices. Fathers were eager to be involved and some participated in all three visits and assisted with the trial of new practices. During the first visit to each village, the technical and logistics support persons also conducted transect walks of the villages and informal key informant interviews with village heads, in order to provide additional observational data to be triangulated with the interviews and help to develop trial recommendations.

Based on interview responses and observations, the teams analyzed the initial data to identify areas for improvement and to develop recommendations tailored to each household for the second visit a few days later. During the second interview, the interviewer counseled each family with targeted suggested practices based on the priority research behaviors and areas of improvement identified in the first household visit. More crucially, interviewers and families negotiated their selections from the menu of suggested practices, in order for mothers to express their preferences, concerns of practicality, modifications, and to agree to try the new selected practices for the period of the trial.

Approximately two weeks later, the third and final visits offered an opportunity to follow up with mothers to observe and discuss if and how mothers adopted the suggested practices, why or why not, if and how they modified the recommended practice and why, and their positive and negative reactions. Specific questions for mothers aimed to capture not only what made adopting the practice easy or hard and who in the household supported the adoption, but also if and how she would recommend the same practice to a friend. In some households, mothers had adopted and shared information for practices in addition to the ones that they had agreed to during the second visit.

Findings

Characteristics of the Communities

Information on characteristics of each of the communities was gathered during the transect walks and key informant interviews with village heads.

Komrabai Station, Kholifa Mabang

- 25 Houses – soon to be 29
- 5 wells, 3 functioning
- Maternal and Child Health Post (MCHP) – small with derelict facilities, no soap or water in Veronica bucket,[3] nearby well dry
- Primary school in village
- Secondary school 4 miles away

Kiamp Kakolo, Malal Mara

- 71+ Houses
- River at one end of village
- 5 wells, only 1 functioning (at the school)
- MCHP – larger seemingly in good condition
- Primary school in village
- Told that pumpkins do not seem to grow well in village

Madora, Malal Mara

- 64 Houses
- 3 functioning wells
- Primary school in village
- No PHU in village
- Community cassava factory & community rice fields
- Fire destroyed numerous homes the week prior to TIPs visit

Ideal Practice 1: Feed Pumpkin to Children 6–23 Months at Least Two Times a Week

During the first household visits, interviewers inquired about current feeding practices within each family. The interview team found that most mothers were currently breastfeeding their child aged 6–23 months, while two mothers were still practicing exclusive breastfeeding and had yet to introduce complementary foods to their children who were aged seven months and 13 months. The majority of children were sick with diarrhea, fever, or

[3]A veronica bucket facilitates handwashing and consists of a bucket of water with a spigot near the bottom, set on a wooden stand with a basin beneath to catch water.

vomiting at the time of or just prior to the first household visit. Few mothers had previously fed pumpkin to their children and identified current barriers to be lack of availability and the high price. Children of all ages and adults in the villages were observed frequently eating mangos, which were in season.

From the information gathered during the first household visit, the team created a targeted menu of behaviors specific to each household that would be recommended to mothers during the second visit. Based on the concerns about availability of pumpkin at the time of the TIPs assessment, interviewers discussed adapting the recommendation to promote both increased consumption of pumpkin and other colorful fruits and vegetables as complementary foods.

More mothers were interested in feeding their children colorful fruits and vegetables for the period of the trial than in finding and feeding their children pumpkin due to issues of seasonality. Of the 16 families counseled on feeding practices, 13 households agreed to try feeding their 6–23 month olds other colorful fruits and vegetables as complementary foods in place of pumpkin until it was available and nine households agreed to specifically try to find and buy pumpkin to feed their child. The options for sub-practices to trial for increasing consumption of pumpkin included: preparing pumpkin as a snack, combining pumpkin with other food, and cooking and mashing up pumpkin to serve as pap along with the less popular suggestion of buying a pumpkin with your neighbor to share. (See Appendix 1 for the analysis of sub-practices suggested and tried.). Mothers who did not choose this practice were asked why they were not interested in trying the behaviors, and one mother explained, "The unavailability makes it very hard and the cost also for now. And sometimes risky to send someone to go for it from a far distance for he/she might not come with your money." For the two mothers who had yet to introduce complementary food, interviewers negotiated introducing complementary food including colorful fruits and vegetables and the mothers agreed to try. (See Table 1 below for a list of the commonest reasons for agreeing to try or adopt and commonest reasons for not agreeing to try or adopt a specific feeding sub-practice.)

Upon returning two weeks later for the third household visit, five of the nine households that agreed to try had fed pumpkin to their child. Many households had positive experiences providing pumpkin to their child: the child liked the taste (finished the bowl given), it alleviated the child's constipation, it filled the child's stomach, and after eating it, the child apparently disturbed mothers less (due to fullness): "Because I can see great improvement in her growth and she now stools freely and very active and disturbs less. So I will continue."

For the 9 of 13 households that agreed to feed their children colorful fruits and vegetables, mangoes were provided most frequently as they were plentiful, along with bananas and papaya in some cases. Participants not successful in adopting the behavior referenced cost and availability issues; "It was hard to get the rice and the palm oil (cost) and banana and pineapple are not available." One of the two mothers who agreed to introduce complementary food to her child had successfully tried the practice, while the other mother shared with the interviewer that she struggled to get the child to eat anything, despite having tried on multiple occasions.

This practice was promoted because consuming vitamin-A rich foods such as pumpkin, mango, and papaya provides a critical micronutrient for children aged 6–23 months. The positive and negative input families shared during the research will inform the creation of SBCC materials to promote using these foods as complementary foods to be used in Tonkolili and surrounding communities.

Table 1. Reasons for Agreeing or Not Agreeing to Try or Adopt Specific Feeding Sub-practices

Suggested Practice	Most Common Reasons for:		
	Agreeing to try	Trying or adopting	Not agreeing to try or adopt a practice
1.1 Try feeding to child more than once before giving up. 1.2 Encourage the child with active/responsive feeding. 1.3 Cook and mash up the pumpkin for stews or pap. 1.4 Combine pumpkin with other foods. Use clean bowl and spoon to mash pumpkin and serve on its own. 1.5 Buy slice more often/when available and cook all so no rot/waste 1.6 Buy a pumpkin with your neighbor to split 1.7 Buy it on your own 1.8 Increasing consumption of pumpkin by children aged 6–23 months	Counseling motivated mother Pumpkin can make her child stronger and healthier	Child likes pumpkin and fills stomach; child disturbs less. Child no longer constipated	Pumpkin not always available; expensive
1.9 Prioritize other colorful fruits and vegetables as complementary foods	Counseling	Health benefits for child Mangos plentiful, children like	Colorful fruits and vegetables are unavailable Child did not like mango and other foods are expensive

Ideal Practice 2: Handwashing with Soap and Running Water at Five Critical Moments

The first interview included a number of questions on handwashing practices. Only one mother claimed to always wash her hands with soap, while two mothers indicated they never use soap, and the remaining 20 mothers sometimes use soap when washing their hands. Some mothers shared that ash was occasionally used to wash hands as almost all mothers perceived that it was hard for their family to have soap for handwashing,

predominantly due to issues of affordability and availability at the village level. Four of the five critical moments prioritized for handwashing - before preparing food, before eating or feeding a child, after defecating, and after changing or cleaning a baby – had high frequency of 'always' and 'sometimes.' Handwashing after working with livestock/animals had the poorest responses with five 'never,' 15 'sometimes,' and only two 'always.' There were no designated handwashing stations observed in any households, though culas[4] were strategically placed (and moved often) around to rinse hands at various times. Similarly, household members were observed rinsing their hands often but seldom with soap. While few wells were functioning in any of the communities, respondents did not voice inaccessibility of water as a barrier to handwashing.

Eighteen households agreed to try an improved handwashing practice during the second household visit. Fifteen families agreed to trial keeping soap by the handwashing station, including instruction on making liquid in a bottle, after being counseled to do so. See Table 2 below for a list of commonest reasons for agreeing to try, trying or adopting and commonest reasons for not agreeing to try or adopt a specific handwashing sub-practice. Motivating factors included the counseling visit that households received and an increased perception of importance of soap to clean hands and to prevent hands from smelling of feces ("poo"). Along a similar thread, counselors negotiated with mothers to prioritize soap for handwashing as most families typically had it available and used soap for bathing and laundry but not for handwashing. Six agreed to trial. Also popular was the suggested practice of establishing a handwashing station using a "tippy tap." The interviewers counseled and provided illustrated instructions on various types of tippy taps and also demonstrated for each family how to make one using an empty one-liter water bottle. After the demonstration, many families were enthusiastic to adopt this practice. While a variety of designs were presented to the families, the water bottle design was demonstrated – and was appealing to the families - because of the bottles' availability and low cost and the fact that it all that was needed.

While a few mothers had previous knowledge of how to make soap, seven of the ten families who were suggested to make their own soap either alone or with neighbors, considered trying it. Yet only two agreed to try the practice. The issues voiced included the expense of materials to make soap and the challenge of organizing and sharing costs of purchasing with neighbors. The least popular recommended practice was buying soap and splitting it with neighbors to share costs as only one family of the nine counseled agreed to try the practice. One woman explained, "Buying soap with neighbor the problem there is the person sharing will think he/she should have more than the other. So this one won't work."

Upon returning for the third household visit, interviewers were pleased to observe improved WASH practices and hear positive experiences trying new practices from the majority of participants. Frequent responses included fresher and better smelling hands, "I like when you come from the latrine and wash hands with soap and water as I no longer have the smell of my poo." While only six families had committed to prioritizing soap for handwashing, 11 families shared with interviewers they had adopted this practice, often citing the counseling during the second visit as the reason: "Through the counseling…that really motivated me because before I (did) not know the benefit of using soap." Incorporating the messages and input from households will create stronger, contextualized messages and more effective SBCC materials.

For the practice of establishing a designated handwashing station, the 16households who planned to continue the behavior surpassed the 12 households that were initially willing to try. Four additional households not part of TIPs

[4]A plastic container used to pour water, predominately to wash hands and body after defecation. Also known as a "kettle" outside of Sierra Leone.

independently decided to construct tippy taps after seeing their neighbors use one even though some households targeted did not succeed. Families appreciated that the TIPs research team demonstrated construction and that materials needed to construct the simple handwashing stations were readily available. Many mothers felt that the handwashing station additionally "serves as a reminder to wash hands immediately after using the toilet or handling dirt or feces." In many cases, there was strong male involvement as husbands, uncles, and fathers-in-law assisted in the construction and maintenance of the handwashing stations. For families that did not succeed in trialing and adopting the practice of designating a handwashing station, problems included lack of time, money, and the concern that children would destroy it.

While children wasting liquid soap was voiced as a concern, ten of the 15 households who agreed to keep liquid soap at the handwashing station adopted the practice and appreciated the benefit of their bar soap lasting longer when placed in a bottle with water to make liquid form.

The high uptake of building a handwashing station with liquid soap shows promise for future WASH interventions.

Table 2. Reasons for Agreeing or Not Agreeing to Try or Adopt Specific Handwashing Sub-practices

Suggested Practice	Most Common Reasons For:		
	Agreeing to try	Trying or adopting	Not agreeing to try or adopt a practice
2.1-2.2 Prioritize soap for handwashing and keep soap by the handwashing station - i.e. make liquid soap	Counseling and increased perception of importance of soap to clean hands; to prevent hands from smelling of poo.	Counseling and health benefits To have clean hands; to prevent smelling or eating poo Liked innovation of liquid soap	Expense and unavailability of soap and ingredients to make soap
2.3 Home make soap yourself or with others (i.e. a mother's support group).	Already know how to make soap and practicing	More cost-effective to buy ingredients and make larger amount than buying soap	Hard to organize and share costs with neighbors Ingredients expensive
2.4 Buy soap and split with neighbors to share costs			Sharing problematic
2.5 Use ash instead of soap.	Had previously practiced		
2.6 and 2.10 Handwashing Station (Tippy tap or cula and scoop)	Counseling, ease of practice Serves as reminder to wash hands	Counseling To improve health and cleanliness of family Materials readily available, others support it	No time or money to construct Children destroy or waste

Ideal Practice 3: Keep Children Away from Feces

Animal feces were observed in all three communities and near most houses, along with trash, mango peels, and other debris. All respondents had seen human or animal feces on the ground around their house or compound. Most mothers knew and explained the fecal-oral route when probed about illness from feces. Two mothers reported placing their children on mats rather than directly on the ground, while other mothers shared that they regularly sweep the courtyard right outside their homes. Almost every household noted that they had a latrine, though many noted it was unusable and full. Even among households with latrines, they indicated that they also still used the bush to defecate. Approximately half of the children 6–23 months were using "poos" (child-sized potties), and mothers were observed teaching children to use poos at quite young ages (around ten months of age). Only two children wore "napkins" (diapers) which were typically cloth wrapped around the child's bottom and sometimes covered by a repurposed plastic bag or sheet. Many mothers described regularly disposing of children's feces in the latrine, but a high number of mothers described throwing their child's feces behind the house or latrine, in the bush, in an open pit, or in a dustbin.

There was also a large number of animals who roamed freely in all the villages, including pigs, goats, sheep, ducks, chickens, dogs, and cats. Animals did, however, have pens and houses used at night to protect them from predators or theft. There were various types of fences observed in every village – around gardens, young trees, animal pens, protecting mosques - though rarely observed around household areas.

During the second household visits, interviewers counseled 14 families on various suggested practices to keep children away from both human and animal feces. Out of the households interviewed, 14 households were counseled on the importance of keeping their small child in a clean, enclosed area to protect them from coming into contact with waste that could make them sick, yet only five were interested in trying a suggested behavior related to this. See Table 3 below for a list of commonest reasons for agreeing to try, trying or adopting and commonest reasons for not agreeing to try or adopt a specific sub-practice to keep children away from feces. At the follow-up visit, neither of the two participants who said they were interested in building a fenced in play area had actually done so. When asked why they were not successful with adopting the behavior, they said that their children were not used to their movement being restricted and they expected that their children would cry or not find the behavior appealing, despite any initial interest in this practice. Four of the 12 families counseled to try placing their child on a clean mat or lapa rather than directly on ground agreed to try, and only one family was successful in trying the practice "child(ren) that have started movement cannot be easily penned or put down on a *lapa* because they will move off from the penned area or *lapa*."

Many households preferred to continue the practice of periodically sweeping the home environment instead, explaining, "Seeing my child play with feces and dirt, especially now that she crawls, motivated me to be sweeping regularly." This is crucial information to have when designing a WASH 1,000 intervention. As evidence suggests that clean play spaces, free from human and animal feces, for children is a high priority behavior that impacts nutrition. SPRING and partners will use this deeper understanding as we continue to investigate how to further contextualize this suggested behavior and adapt the suggested practices to make them more acceptable.

Table 3. Reasons for Agreeing or Not Agreeing to Try or Adopt Specific Sub-practices to Keep Children Away from Feces

Suggested Practice	Most Common Reasons For:		
	Agreeing to try	Trying or adopting	Not agreeing to try or adopt a practice
3.1 Put child on a clean mat or lapa inside the home and outside.	Counseling To keep child clean and healthy	To improve health and cleanness of child	No mat/lapa to use or money to buy Child moves too much to stay on mat/lapa
3.2 Put child in a penned area that is clean. -Keep the child entertained with homemade toys, siblings, and games.	Keep child healthy and safe		Child not used to movement being restricted Too unfamiliar, not appealing Difficult to construct; others unable to assist
3.3 Collect feces on the ground and dispose of it immediately in latrine/pit/bury far from house (animal and other).	To improve cleanliness and health	Counseling To improve cleanliness and prevent sickness; improve appearance and smell of home	Not enough time at home (at farm during the day), difficult to maintain
3.4 Organize with community for a clean shared play area for all children.			Too difficult to organize, too unfamiliar
3.5 Help your child use a 'poo' (baby toilet) or teach them to use poo on their own. Properly dispose of poo in latrine or bury with ash.	Counseling; nicer than child defecating on the ground		No money to buy a 'poo'
3.6 Use cloth napkin; clean your child immediately after defecating, pouring dirty water in the latrine or bury it with ash.	Counseling	To improve cleanliness and health of child; avert smell of poo and rash for child	No cloth to use for napkins Prefer teaching child to use 'poo', washing napkins a lot of work

The inclusion of men, mothers-in-law, and other members of the household in all three household visits seemed to help facilitate the adoption of practices and encouraged full household participation in the various practices, especially the construction of the tippy tap. Recommendations that necessitated community or neighborly sharing

were not widely appealing nor commonly trialed. Overwhelmingly, participants told the research teams that they would continue all trialed practices, though there was no mechanism to verify the long-term adoption of practices.

Although the TIPs methodology does not intend to provide statistically representative information about the greater populations we work with, it is an effective way to contextualize and pretest recommended behaviors to better understand the factors that may prevent or encourage households from adopting a new behavior. This methodology engages people in dialogue and involves them as partners in designing the interventions that work best in their lives to achieve positive health outcomes for themselves, their families, and communities. SPRING is using the results from this research and other complementary research initiatives to inform the development of a social and behavior change strategy to guide the nutrition and WASH 1,000 activities implemented by SPRING and collaborating local partners.

Application of the Findings

To employ these findings to create stronger, contextualized behavior change materials for Sierra Leone, the team developed a modified behavior change framework for each recommended practice to guide analysis and the development of social and behavior change materials. Tracking the number of households that were counselled on each practice, that agreed to try the practice, that did try the practice, and that intend to continue the practice, provided the first indication of acceptability and practicality of each suggested practice (See Appendix 1. TIPs Ideal Practices/ Suggestions Tracking.) Following the completion of the fieldwork, the team entered the responses from all three visits and findings were sorted by each behavior. For each practice that was trialed by households, modified behavior change frameworks were developed to analyze responses from both those who did try and did not try the suggested practice.

The behaviors that were identified to be promoted were those that were trials and found acceptable and feasible to participating households. However, the practice of restricting movement of the young child was not popular, but has been kept as a behavior to be promoted. This is due to the fact that the consumption of animal feces is a critical issue and the promoted behavior to address was new and unusual, but no other option currently exists to address this gap so the team felt it was worth moving forward.

The frameworks were adapted from the Designing for Behavior Change Framework.[5] Within each framework, the team classified reported motivators for trying or not trying the behavior under commonly used behavioral determinants.

The team identified specific SBCC actions to address each determinant based on TIPs findings, including drafting messages to capture or address the motivators or deterrents. (See Appendix 3. Behavior Change Frameworks.) Building on the specific SBCC actions, potential activities were suggested to detail platform and audience to increase uptake of each practice in Sierra Leone. This analysis shaped which specific practices will be promoted and the instructions and key messages that will be employed to motivate adoption on a wider scale. Specific messages and images were developed directly from the TIPs findings.

[5] Food Security and Nutrition Network Social and Behavioral Change Task Force. *Designing for Behavior Change: For Agriculture, Natural Resource Management, Health and Nutrition*. (Washington, DC: The Technical and Operational Performance Support (TOPS) Program, 2013). http://www.fsnnetwork.org/designing-behavior-change-agriculture-natural-resource-management-health-and-nutrition.

Conclusions

Following up with each household on the specific nutrition and WASH practices over a three week period allowed the team to capture impressions and interest in trying new behaviors, and also to understand the day-to-day realities that facilitated or impeded the adoption of a specific practice in target households. This analysis not only assisted in the development of strategic SBCC strategy and materials, it also provided guidance and understanding on the issues and practices raised for future development efforts and an awareness in Sierra Leone of the TIPS methodology that can be replicated to other assessment topics.

Beyond identifying which specific practices householders find acceptable and feasible, TIPS constituted a crucial step in framing SPRING's SBCC efforts. By engaging in a dialogue with the same household members during three visits over the course of several weeks *while the household was trying out a practice*, the team was able to examine householders' experience with each practice in detail. This detail helped the team to develop a specific SBCC strategy for each practice. Conversations with household members regarding a specific practice helped the team to identify the following SBCC strategy elements: *influencers,* those individuals whose opinion encouraged or discouraged the practice), perceived *barriers* and *enablers* to adoption, potential *messages* to encourage adoption, and potential *noncommunication activities* to promote adoption, such as increasing access to soap or potties at an affordable price.[6]

The rich data obtained during household visits played a key role in refining the choices of SBCC messaging. Examples of impactful findings include the following:

- Building/using tippy taps and liquid soap were accepted much more enthusiastically than expected. As a result SPRING developed four different counseling cards on handwashing with soap: Critical times to wash, building a tippy tap, creating liquid soap, and steps for proper handwashing.
- In the communities, many individuals associated the foul smells of feces with ill health (much more so than perceptions of germs.). The images and messages in the counseling cards emphasize the elimination of bad smells as positive consequences of handwashing with soap, keeping the courtyard free of feces, and proper disposal of children's feces.
- For keeping children away from feces, informants showed discomfort and unfamiliarity with the idea of placing a child in a pen to prevent contact between the child and animals or other sources of contamination. Householders preferred to sweep the courtyard more frequently since sweeping seen as part of traditional role of women. However, conversations showed that extra sweeping may divert a mother's time and energy from needed self-care and care of children. Therefore the materials developed promote regular sweeping, but also contain less prominent images of a child in a pen to slowly help familiarize community members with the practice.
- Household members who reported difficulty in obtaining pumpkin to feed their child showed enthusiasm when the team suggested they substitute mango (which was plentiful at the time and also a good source of vitamin A). Based on these observations, the team is exploring the use of seasonal calendars to promote different locally available vitamin A-rich foods during the season when each is most plentiful.

Such findings would have been difficult to obtain through other formative research methods.

[6]These elements of the SBCC strategy were adapted from *Accelerating Change through Nutrition-Sensitive Agriculture: An Online Training for Agriculture Programmers,* SPRING (Forthcoming).

Appendix 1. TIPs Ideal Practices/ Suggestions Tracking

Ideal Practice 1: Feed Pumpkin to Children 6–23 Months at Least Two Times a Week

Suggested Practices	Number of people to whom it was suggested	Number of people interested in trying	Number of people who agreed to try	Number of people who did the practice during the trial	Number of people who plan to continue the practice
1. Initiate complementary foods.	2	2	2	1	1
2. Try feeding to child more than once before giving up. Encourage the child with active/responsive feeding.	14	14	9	5	5
3. Cook and mash up the pumpkin for stews or pap.	5	5		1	1
4. Combine pumpkin with other foods.	13	13	5	3	3
5. Use clean bowl and spoon to mash pumpkin and serve on its own.					
6. Try a little mashed pumpkin.					
7. Try it without skin.					
8. 8. Buy slice more often/when available and cook it all so no rot/waste.	3	3	3	2	2
9. Buy a pumpkin with your neighbor to split.	2				
10. Buy pumpkin on your own.	2	2	2	1	1
11. Prioritize other colorful fruits and vegetables as complementary foods.	12	12	13	9	9
12. Introduce family food.	2	2	2	2	2

Ideal Practice 2: Handwashing with Soap and Running Water at Five Critical Moments

Suggested Practices	Number of people to whom it was suggested	Number of people interested in trying	Number of people who agreed to try	Number of people who did the practice during the trial	Number of people who plan to continue the practice
1. Prioritize soap for hand washing (especially in households with soap used for laundry or body.)	13	12	6	11	11
2. Put and keep soap by the handwashing station (cut off a small slice to keep at the station, make liquid in a bottle, put soap on string and out of reach of animals.)	15	15	15	10	10
3. Home make soap yourself or with others (i.e. a mother's support group). Talk to neighbor to learn how.	10	7	2		
4. Buy soap and split with neighbors to share costs.	9	1			
5. Use ash instead of soap.	3	3	3		
6. Make and use a tippy tap to use a smaller amount of water than a cula and scoop.	13	14	12	16	16
7. Use clean water to wash your hands.	1	1			
8. Gather and set aside water for handwashing purposes; prioritize water for handwashing.	1	1			
9. Get other members of the family, such as men with wheelbarrows, to help with fetching water for handwashing.					
10. Put a cula and scoop out as a handwashing station near kitchen and latrine.	5	5		1	1
11. Use reminder posters, etc. with the critical moments for hand washing.	5	4	1		
12. Use veronica bucket for handwashing station.			2		

Ideal Practice 3: Keeping Children Away from Feces

Suggested Practices	Number of people to whom it was suggested	Number of people interested in trying	Number of people who agreed to Try	Number of people who did practice during the Trial	Number of people who plan to continue the practice
1. Put child on a clean mat or lappa inside the home and outside.	12	7	4	1	1
2. Put child in a penned area that is clean. Keep the child entertained with homemade toys, siblings, and games.	14	5	2		
3. Collect feces on the ground and dispose of it immediately in latrine/pit/bury far from house (animal and other.)	19	15	15	7	7
4. Organize with community for a clean, shared play area for all children.	6				
5. Help your child use a poo or teach them to use poo on their own.	6	5	1		
6. Use cloth napkin pouring dirty water in the latrine or bury it.	4	4	3	2	2
7. Pen animals.					

Appendix 2. Counseling Guides for TIPs Sierra Leone

Ideal Practice 1: Feed Pumpkin to Children 6–23 Months at Least Two Times a Week

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
Pumpkin is in household, but is not fed to children 6–23 months	• Try feeding child more than once before giving up. Encourage the child with active/responsive feeding.	• Small children need three meals and 1-2 snacks every day. • Colorful fruits and vegetables are needed for your child to be healthy. • Vitamins in pumpkin are good for baby's eyesight. • Your children will be healthy and grow strong. • Active/responsive feeding will help the child eat more food and grow strong. • Children benefit from even small amounts of pumpkin.	• Maybe your child's tastes have changed. • Active/responsive feeding gives caregiver time to bond with your child. • It's tasty and sweet! • It keeps children from being constipated.
	• Cook and mash up the pumpkin for stews or pap.	• Small children need three meals and 1-2 snacks every day. • Colorful fruits and vegetables are needed for your child to be healthy. • Vitamins in pumpkin are good for baby's eyesight. • Your children will be healthy and grow strong. • Active/responsive feeding will help the child eat more food and grow strong. • Children benefit from even small amounts of pumpkin.	• Maybe your child's tastes have changed. • It's tasty and sweet! • It keeps children from being constipated. • Active/responsive feeding gives caregiver time to bond with your child.

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
	• Combine pumpkin with other foods.	• Small children need three meals and 1-2 snacks every day. • Pumpkin mixes well with a variety of foods. • Colorful fruits and vegetables are needed for your child to be healthy. • Vitamins in pumpkin are good for baby's eyesight. • Your children will be healthy and grow strong. • Children benefit from even small amounts of pumpkin.	• Maybe your child's tastes have changed. • Feed the same food for the whole family (less time cooking) • It's tasty and sweet! • It keeps children from being constipated.
	• Use pumpkin as a snack or finger food.	• Small children need three meals and 1-2 snacks every day. • Finger foods are good for child development, makes kids smarter • Colorful fruits and vegetables are needed for your child to be healthy. • Children benefit from even small amounts of pumpkin. • Vitamins in pumpkin are good for baby's eyesight. • Your children will be healthy and grow strong.	• Easy for kids to feed themselves. • Pumpkin mixes well with a variety of foods. • Maybe your child's tastes have changed. • It's tasty and sweet! • It's a healthy and easy snack for growing kids. • It keeps children from being constipated.
	• Use clean bowl and spoon to mash pumpkin and serve on its own.	• Small children need three meals and 1-2 snacks every day. • Colorful fruits and vegetables are needed for your child to be healthy.	• Easy preparation, right in the serving bowl. • Maybe your child's tastes have changed. • It's tasty and sweet! • It keeps children from being constipated.

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		• Easy for young children to eat. • Vitamins in pumpkin are good for baby's eyesight. • Your children will be healthy and grow strong. • Children benefit from even small amounts of pumpkin.	
Household does not like pumpkins	• Cook and/or combine with other foods.	• Small children need three meals and 1-2 snacks every day. • Colorful fruits and vegetables are needed for your child to be healthy. • Your children will be healthy and grow strong. • Adds more nutrition and calories to your meals • Children benefit from even small amounts of pumpkin.	• Your family may love it. • Adds variety to your meals, so your family doesn't get bored with the same meals. • Maybe your family's tastes have changed. • You can use the seeds as snacks, or to grow pumpkins. • It's good for the skin.
	• Try a little.	• Small children need three meals and 1-2 snacks every day. • Adds more nutrition and calories to your meals. • Keeps your child healthy. • Children benefit from even small amounts of pumpkin.	• Your family may love it. • Adds variety to your meals, so family doesn't get bored with the same meals. • Maybe your family's tastes have changed. • You can use the seeds as snacks, or to grow pumpkins.
Fear of side effects	• Try a little.	• Small children need three meals and 1-2 snacks every day. • Adds more nutrition and calories to your	• Your family may love it. • Adds variety to your meals, so family

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		meals. • Keeps your child healthy.	doesn't get bored with the same meals. • Maybe your family's tastes have changed. • You can use the seeds as snacks, or to grow pumpkins.
	• Try pumpkin without skin.	• Small children need three meals and 1-2 snacks every day. • If your child has gotten a rash before, it may be from the skin, so eating without skin can solve the problem. • Adds more nutrition and calories to your meals.	• Your family may love it. • Adds variety to your meals, so family doesn't get bored with the same meals. • Maybe your family's tastes have changed. • Keeps your child healthy. • You can use the seeds as snacks or to grow pumpkins.
Pumpkin is not purchased for the household	• Buy slice more often/when available and cook all so no rot/waste.	• Some traders do have pumpkin in all seasons. • Small children need three meals and 1-2 snacks every day. • Adds more nutrition and calories to your meals • Children benefit from even small amounts of pumpkin. • Colorful fruits and vegetables are needed for your child to be healthy.	• Your family may love it. • Adds variety to your meals, so your family doesn't get bored with the same meals. • Maybe your family's tastes have changed. • Keeps your child healthy. • It's good for the skin. • You can use the seeds as snacks, or to grow pumpkins.
	• Buy a pumpkin with your neighbor to split	• Some traders do have pumpkin in all seasons. • Small child need three meals and 1-2 snacks every day. • Adds more nutrition and calories to your	• Less costly. • Your family may love it. • Adds variety to your meals, so your family doesn't get bored with the same meals. • Maybe your family's tastes have changed.

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		meals. • Keeps your child healthy. • Children benefit from even small amounts of pumpkin. • Colorful fruits and vegetables are needed for your child to be healthy.	• You can use the seeds as snacks, or to grow pumpkins. • It's good for the skin.
	• Buy it on your own	• Some traders do have pumpkin in all seasons. • Small children need three meals and 1-2 snacks every day. • Keeps your child healthy. • Adds more nutrition and calories to your meals. • Children benefit from even small amounts of pumpkin. • Colorful fruits and vegetables are needed for your child to be healthy.	• Your family may love it. • Adds variety to your meals, so your family doesn't get bored with the same meals. • Maybe your family's tastes have changed. • You can use the seeds as snacks, or to grow pumpkins. • It's good for the skin.

Ideal Practice 2: Handwashing with Soap and Running Water at Five Critical Moments

Problem	Suggestions	Key Messages/Important Points	Potential Motivations

No use of soap	• Prioritize soap for handwashing
	  o Use the soap you have for washing body or for washing clothes.
	  o Dilute small pieces of soap for handwashing.
		• Five Critical Moments, Every time, All day.
		• Child's poo is just as bad for you as adult poo. Infection can spread from all poo.
		• You can use the same soap that you use for washing clothes and body on your hands.
		• You can add small pieces of soap to a bottle with water and make a small piece last longer.
			• Using soap leaves you with softer hands.
			• Washing with soap will make you look and smell nice.
			• Cleaner hands and kills germs.
			• Clean hands will reduce illness for the whole family.
			• Kids will grow healthy and strong.

	• Put soap by the handwashing station; cut off a small slice to keep at the station, make liquid in a bottle, put soap on string and out of reach of animals.	• Existing soap will last much longer. • Five Critical Moments (i.e. child poo just as bad for you as adult poo) • Kids will grow healthy and strong.	• A station with soap available makes it easy to remember to wash hands at critical moments. • Cleaner hands and kills germs. • Using soap leaves you with softer hands. • Washing with soap will make you look and smell nice. • Clean hands will reduce illness for the whole family. • Kids will grow healthy and strong.
	• Home make soap yourself or with others, for example, with a mother's support group.	• Others in the village know how to make soap, so work together to learn and save money. • Five Critical Moments, Every time, All day • Child's poo is just as bad for you as adult poo. Infection can spread from all poo. • You can add small pieces of soap to a bottle with water and make a small piece last longer.	• Making soap allows extra social time between women and you can sell extra soap. Using soap leaves you with softer hands. • Washing with soap will make you look and smell nice. • Can buy caustic soda in bulk with neighbors to make affordable. • Cleaner hands and kills germs. • Clean hands will reduce illness for the whole family.

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
			• Kids will grow healthy and strong.
	• Buy soap and split with neighbors to share costs.	• Reduces costs while still getting the benefit of handwashing. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo. • You can use the same soap that you use for washing clothes and body on your hands. • You can add small pieces of soap to a bottle with water and make a small piece last longer.	• Using soap leaves you with softer hands. • Washing with soap will make you look and smell nice. • Cleaner hands and kills germs. • Clean hands will reduce illness for the whole family. • Kids will grow healthy and strong.
	• Use ash instead of soap. *(Only suggest if mother says using soap is not at all possible.)*	• Put aside ash and use every time you wash your hands. • Will help clean dirt off hands but may not get rid of all germs. • Is better than just using water alone. Not as good as using soap to wash hands. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	• Easily available in the home. At no cost.
No water available for hand-washing	• Make and use a Tippy Tap to use a smaller amount of water than a cula and scoop.	• Use less time hauling water as the tippy tap uses less water. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo. • Is a reminder to wash hands.	• Neighbors and family will be interested and excited to try it. • You'll look progressive and modern. • Time will be more productive. • Hands smell better.
	• Use clean water to wash your hands	• You won't be wasting purified water that could be used for drinking.	• Mom can avoid their kids getting sick. • Time will be more productive. Hands smell

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		• Five Critical Moments, Every time, All day • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	better.
	• Gather and set aside water for handwashing purposes – prioritize water for handwashing.	• Serves as a good reminder to wash your hands. • Mom can avoid their kids getting sick. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	• Time will be more productive. • Hands smell better.
	• Get other members of the family to help with fetching water for handwashing (potentially men with wheelbarrows)	• Frees up time for mother for other responsibilities. • Mom can avoid their kids getting sick. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	• Involves the family. • Everyone understands the importance of handwashing. • Time will be more productive. Hands smell better.
People forget to wash their hands and child's hands	• Create a handwashing station - Keep soap and water for handwashing visible, specifically near cooking area and latrine. o Install a Tippy Tap. o Designate a cula and scoop	• Serves as a visual reminder to wash hands. • Tippy tap uses less water. • Mom can avoid their kids getting sick. • Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	• Neighbors and family will be interested and excited to try it. • You will look progressive and modern. • Use less time hauling water. • Your time will be more productive. • Hands smell better.
	• Use reminder posters, etc. with the critical moments for hand washing.	• Five Critical Moments, Every time, All day. • Child's poo is just as bad for you as adult poo. Infection can spread from all poo.	• Hands smell better. • Kills germs. • Mom can avoid their kids getting sick. • Can help other family members remember on their own.

Ideal Practice 3: Keeping Children Away From Feces

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
Children 6–23 months do not have clean play spaces	• Put child on a clean mat or lappa inside the home and outside. o Find engaging ways to limit a child's mobility (homemade toys, siblings, games).	• The clean mat would keep kids from playing in and maybe eating poo. • Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • Must wash hands after collecting and disposing poo. • Even children who are older will stay on a mat to play if there are toys or siblings to play with them.	• Mom has hands free/more time for other activities. • It would keep kids healthy and sick less often. • The toys and interaction stimulate the child's mental development. • Homemade toys (i.e. shake shake) can free hands for mother as will entertain/engage the child.
	• Put child in a penned area that is clean. o Keep the child entertained with homemade toys, siblings, and games.	• The clean designated area free of poo would keep kids from touching or eating poo. • It would keep kids healthy and sick less often. • Child and animal poo just as bad for you as adult poo and needs to be disposed of properly.	• Mom has hands free/more time for other activities. • The toys and interaction stimulate the child's mental development. • Homemade toys (i.e. shake shake) can free hands for mother as will entertain/engage the child.
	• Collect feces on the ground and dispose of it immediately in latrine/pit/bury far from house. o Bury with ash to help decompose.	• Kids grow better and are stronger. • Keep kids from eating and touching poo. • Keep kids healthy and sick less often. • Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • Must wash hands after collecting and disposing poo. • Better to bury with ash than to dispose of poo in stream or bush. • Humans, animals, and insects (i.e. flies) can	• Your neighbors will be impressed with how clean your house and yard are. • Your walking areas and gardens will be clear and cleaner. • You'll attract fewer bugs. • Area around house will not smell of feces. • If others see your clean yard and also sweep theirs, the whole community will be cleaner and safer.

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		carry poo from yard and bush into family's home.	
	• Organize with community for a clean shared play area for all children.	• A clean designated area would keep kids from eating poo. • It would keep kids healthy and sick less often. • Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • Positive developmentally for children to play together.	• Crèches are social opportunities (social capital) for kids and families. • Mom has hands free/more time for other activities. • If you sweep your own area, the whole community can work to be cleaner together.
Baby's feces is around the yard and not adequately disposed of	• Help your child use a poo or teach them to use poo on their own: o Keep poo covered. o Sit child on the poo as soon as you think the child will go poo (watch face and body for signs). o Use separate bowl to bail water when cleaning poo. o Pour dirty water in the latrine or bury it. o Bury with ash to help decompose.	• Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • If you can't clean the poo in the latrine right away, cover and set out of reach of children and dispose as soon as you can. • Must wash hands after disposing poo. • Put the water from cleaning the poo and baby in the latrine or bury. This water is also dirty and harmful. • Better to bury with ash than to dispose of poo in stream or bush. • Humans, animals, and insects (i.e. flies) can carry poo from yard and bush into family's home.	• Less cleaning around the house, when using poo or napkin. • Your neighbors will be impressed with how clean your house and yard are. • Your walking areas and gardens will be clear and cleaner. • Less cleaning of baby's clothes and mom's clothes, since a napkin contains the mess. • Kids grow better and are stronger. • Keep kids from eating and touching poo. • Keep kids healthy and sick less often. • Area around house will not smell of feces.
	• Sweep and shovel any poo on floor/ground immediately and dispose in latrine or bury. o Bury with ash to help decompose.	• Keep kids from eating and touching poo. • Kids grow better and are stronger. • Keep kids healthy and sick less often.	• Your neighbors will be impressed with how clean your house and yard are. • Your walking areas and gardens will be

Problem	Suggestions	Key Messages/Important Points	Potential Motivations
		• Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • Must wash hands after collecting and disposing poo. • Put the water from cleaning the baby in the latrine or bury. This water is also dirty and harmful. • Humans, animals, and insects (i.e. flies) can carry poo from yard and bush into family's home. • Better to bury with ash than to dispose of poo in stream or bush.	clear and cleaner. • You'll attract fewer bugs like flies and mosquitos. • Area around house will not smell of feces. • If you sweep your own area, the whole community can work to be cleaner together.
	• Use cloth napkin o Change napkin as soon as it's wet or dirty – check at least 5 times daily. o Keep spare/clean napkins ready for easy access as needed. o Wash clothes if feces gets on baby's clothes o Use separate bowl to bail water when washing the child's bottom after pooing. o Pour dirty water in the latrine or bury it. o Bury with ash to help decompose. o Wash hands.	• Keep kids from eating and touching poo. • Kids grow better and are stronger. • Keep kids healthy and sick less often. • Child and animal poo just as bad for you as adult poo and needs to be disposed of properly. • Must wash hands after disposing of poo. • Put the water from cleaning the napkins and baby in the latrine or bury. This water is also dirty and harmful. • Better to bury with ash than to dispose of poo in stream or bush. • Humans, animals, and insects (i.e. flies) can carry poo from yard and bush into family's home.	• Baby looks smart, fresh, good, modern. • The rope used to tie napkin can help show baby's growth. • Less cleaning of baby's clothes and mom's clothes, as napkin contains the mess. • Changing napkins is a time to bond with child and talk to them. • Area around house will not smell of feces.

Appendix 3. Behavior Change Frameworks[7]

Ideal Practice: Feeding pumpkin to children aged 6–23 months		
Primary Audience: Mothers		
Secondary Audience: Fathers, husbands, grandmothers, mothers-in-law, fathers-in-law		
Tertiary Audience: Health workers in community health posts / health units		
Determinants	**Bridges to Action**	**Activities**
Informants often attributed their motivation to the fact that they were visited and counseled. (Very frequent: 4)		Ensure household level visits with key decisionmakers (husband, mother-in-law, etc.) are included. Prioritize dialogue and counseling over simply "telling" as much as possible.
PERCEIVED SOCIAL NORMS: 10 Father-in-law, Mother-in-law, Husband, All of the house: Approve [Interviewee mentions she has seen others in the community feeding pumpkin to children] Mother-in-law helped. Husband helped by buying pumpkin. Mother [grandmother] helps with the cooking and looked for pumpkin.	Enhance the perception among mothers that husbands and mothers-in-law approve of feeding pumpkin to children. Increase the level of knowledge among husbands, mothers-in-law about the benefits of feeding pumpkin to children.	Messages: Your husband/mother-in-law will approve if you give your child pumpkin. [E.g. Community video with husband saying that feeding the child pumpkin is a good idea and he will buy it.] Include husbands, fathers/mothers-in-law in counseling sessions. Target them for other activities.
PERCEIVED POSITIVE CONSEQUENCES: 7 ● Child was disturbing a lot. Now doesn't disturb. ● Child likes pumpkin / child eats it. ● Child likes pumpkin combined with other foods.	Increase the perception among mothers and other household members that: ● Children like pumpkin ● It can help reduce constipation ● Makes a child happier & more active ● Makes child healthier.	Include in materials (e.g. counseling cards, videos, radio spots) images/stories showing children happily eating pumpkin. Well-fed children playing nicely. Happy mothers who have more time/energy now that children are less fussy/demanding. Healthy children eating pumpkin.

[7] The frameworks that appear in this annex were adapted from: Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. *Designing for Behavior Change: For Agriculture, Natural Resource Management, Health and Nutrition*. Washington, DC: The Technical and Operational Performance Support (TOPS) Program. http://www.fsnnetwork.org/designing-behavior-change-agriculture-natural-resource-management-health-and-nutrition

● It's healthy to eat. ● "My child was having difficulty pooing but after that day he was pooing freely." ● "Now I know that my child likes eating pumpkin because she almost emptied the bowl twice." ● "Since my child likes eating pumpkin, I will try cooking pumpkin frequently." ● Because of the benefit I have from the counseling and the problem solved of my child freely pooing. ● It makes my stomach extra full. ● Because I can see great improvement in her growth, and she now stools freely and is very active and disturbs less. So I will continue. ● She almost emptied her bowl twice. ● He was eating more of the pumpkin stew than the rice. ● She was able to eat all I gave here. (3) ● She does not reject it. **PERCEIVED NEGATIVE CONSEQUENCES: 8** ● I have forgone buying potato leaf that day for pumpkin.	Increase the perception that feeding children well can help make them better behaved and easier to care for.	
ACCESS Hard. ● Unavailable in the village or costly. (If purchased from other village) ● When you have money or can get to markets it is easier.	Increase the perception that pumpkin is available in the off season. Increase the perception that pumpkin is affordable in the off season Increase awareness of which vitamin A rich foods are available each season of the year.	Promote growing of pumpkin at home or in village in the off season. Exercises in managing food purchases and allocating money to more nutritious foods like pumpkin. Use a food calendar during clinic talks, counseling sessions and home visits.
PERCEIVED ACTION EFFICACY ● Breastmilk not enough for child.	Increase the perception among mothers, fathers, parents-in-law that conducting proper	Include in materials (e.g. counseling cards, videos, radio spots) images/stories showing children happily

• Because I can see great improvement in her growth.	**complementary feeding** will help the child to grow better.	eating proper complementary foods. Well-fed children playing nicely. Healthy children eating complementary foods.
PERCEIVED SELF-EFFICACY: 3 **CUE TO ACTION / REMINDERS** **POLICY** **CULTURE** **Messages/testimonials.** • My child loves pumpkin. If your child likes it you can save money and grow pumpkin yourself. • It helps your child grow well. It helps in eyesight and frequent stooling.		**Communication** • **Messages** • **Channels** • **Materials** ENABLING ENVIRONMENT Advocate for household level interventions [Note. Look at AVCA for ideas on needed changes in markets etc.]

Indicators:
Quotes/photos
Ideal Practice: Handwashing with Soap and Running Water at Five Critical Moments
Feasible Practice and Sub-Behavior: Have soap and make it into liquid
Primary Audience: Mothers
Secondary Audience: Fathers, husbands, grandmothers, mothers-in-law, fathers-in-law
Tertiary Audience: Health workers in community health posts / health units

Bridges to Action	Activities
Reinforce perception among mothers that they can buy or make soap to ensure all members of the household always wash their hands with soap at five critical moments. Enhance knowledge among mothers and other members of the household about the importance of washing hands at five critical moments with soap to improve hygiene, remove smell of feces, and prevent sickness. Increase perception among mothers and other members of the household that making liquid soap	Message: Prioritize soap for handwashing to improve hygiene, remove smell of feces, and prevent sickness. Message: You can ensure your family has soap at all times by making homemade soap and/or making soap into liquid. Provide counseling at household-level on the importance of prioritizing soap for handwashing. Counsel MCGs and through other channels on the importance of always using soap to wash hands and prolonging soap by making into liquid. Instruct on how to create liquid soap.

• Is easy • Is affordable • Makes it easier to wash hands • Enables soap to lasts longer • Is more cost-effective. Enhance awareness among children about the importance and expense of soap for handwashing.	Educate children through school WASH programs on the importance of soap for handwashing. Discourage wasting of soap and water, highlighting the expense of soap.
Reinforce the perception among mothers that husbands, mothers- in- law, fathers-in-law, and other family members approve of handwashing with soap at five critical moments. Increase the perception among family members that creating liquid soap is cost-effective and facilitates easier handwashing. Enhance the knowledge among husbands, fathers-in-law, mothers-in-law, and other family members about the importance and benefits of prioritizing soap for handwashing at five critical moments.	Messages: Your family members will approve if you prioritize soap for handwashing. Your family members will approve of making soap last longer by making it into liquid to ensure saving money. You and your family will be happier and healthier if you all use soap at five critical moments throughout the day. Include husbands, fathers-in-law, mothers-in-law, etc. in counseling sessions. Target them for other activities. Message: All members of the household must wash hands at five critical moments with soap to improve hygiene, remove smell of poo, and prevent sickness.
Reinforce perception among mothers and other members of the household that washing hands with soap at five critical moments will • improve smell of hands • improve cleanliness of hands • prevent sickness • make hands 'fresh' and soft. Increase awareness among children about the importance and expense of soap for handwashing.	Messages: If you do not want your hands to smell of poo or be dirty, wash your hands with soap. If you want soft, fresh hands, wash your hands with soap. Always washing your hands with soap at five critical moments can help you and your family to be healthier.
Increase perception that soap and the materials for soap-making are worth the cost as prevention is better than treatment. Increase knowhow of producing homemade soap. Increase the perception that soap-making can be a profitable business. Increase availability of affordable soap and of affordable materials to make soap at the village level. Increase perception among mothers and other members of the household that	Promote knowledge sharing between neighbors through MSGs and VSL groups about how to home make soap, encouraging with recognition those mothers who know how. Increase the demand for locally made soap by encouraging all households to maintain soap in their household to wash hands. Message: Soap is available and you can find ingredients to home make soap as well.

● Purchasing soap should be prioritized over other household expenses ● homemaking soap is cost-effective ● that ash is a beneficial alternative when soap is not unavailable.	
Increase perception among mothers and other members of the household that washing hands with soap at five critical moments will ● improve smell of hands ● improve cleanliness of hands ● prevent sickness ● make hands 'fresh' and soft Increase perception among family members that using soap for handwashing improves hygiene and health.	Message: Pass your hands in front of your face and notice the poo smell if you don't use soap to wash hands….After cutting peppers, touching your eyes will sting if you only wash your hands with water and do not wash with soap; similarly, poo will still be on your hands (as indicated by the smell) if you do not wash hands with soap. Message: You can keep your family healthier and happier if you prioritize soap for handwashing at five critical moments.
Increase the perception among mothers that they can remember when and how to wash hands with soap and water. Increase perception that handwashing with soap must be adopted long-term and not as a temporary practice during Ebola, cholera outbreaks, etc.	Demonstrate to MCGs and other household members how to make liquid soap in a bottle and leave visible by latrine and kitchen to serve as reminder. Include WASH 1000 lessons in harmonized MSG curriculum. Health Promoters/CHWs and PHU staff teach critical WASH practices as part of child wellness visits year-round. Distribute posters to each household with critical moments for handwashing to serve as reminder.

Ideal Practice: Handwashing with soap and running water at five critical moments		
Feasible Practices & Sub-Behaviors: Construct handwashing stations (tippy tap or cula) within 2 meters of the latrine and the kitchen; maintain and use at five critical moments.		
Primary Audience: Mothers		
Secondary Audience: Fathers, husbands, grandmothers, mothers-in-law, fathers-in-law		
Tertiary Audience: Health workers in community health posts / health units		
Determinants	**Bridges to Action**	**Activities**
PERCEIVED SELF-EFFICACY: 3 **Perceived ability/enablers for creating/maintaining handwashing station:** ● Able to construct station and keep filled with water and soap o 221 "It was easy because water, string and sticks are readily available." o 232 "The water is available and my brother helped me in making the station." "It was easy. The water is readily available and we use just a small amount of soap." ● Materials readily available, others support it o 213 "It was not difficult because the materials like string - used to make the station – are available. There is a mango tree where the handwashing station is tied next to." "The materials are available such as string and an empty rubber bottle and family members give their support." o 222 "It was easy because the materials used to create the handwashing station are available such as soap, rubber bottles and string." o 233 "I got help from family members in getting the string, sticks, and to set the station up." ● Counselor's help made it easy o 121 "It was easy because of the stations and tippy tap you gave us." **Challenges:** ● Refilling water and soap o 112 "I did not encounter any problem except my swollen	Increase perception among mothers they can construct a handwashing station and that other members of household will help to build it. Increase perception that a tippy tap ● makes an attractive handwashing station ● facilitates easier, more frequent handwashing with soap at five critical moments (i.e. no one needs to help pour water) ● can be placed to make handwashing convenient Increase perception that a handwashing station is easy to maintain since a tippy tap enables less water to be used for handwashing more effectively and a rubber bottle of soap with small hole reduces amount of soap used by each person. Increase perception that all members of household/compound can contribute to refilling and	Messages: Constructing a handwashing station is easy and the **materials are readily available** including sticks and soap. You should place one station near latrine and another station near the cooking area to facilitate frequent handwashing at five critical moments. **Create instructional materials** – posters or video – to demonstrate how to construct tippy tap and handwashing station. Distribute during counseling sessions. Message: A handwashing station with a tippy tap (or kettle) is an **attractive, water-saving** method of washing hands. **Counsel MCGs** and through other channels on the importance of maintaining soap at handwashing stations and how to make liquid soap. **Provide counseling at household-level** on properly constructing a handwashing station using a tippy tap or cula to effectively use water and prevent animals from contaminating and how to involve other household members in building, refilling, and

<table>
<tr>
<td>finger which sometimes stop me (late) in refilling water."
o 131 "It was hard (difficult) because my compound mate is only interested in using it but not refilling it so it is actually a hard work."
● No materials to make station/animals drink from our handwashing bowl if used in station
o 231 "It was difficult because getting the sticks was difficult."
o 134 "…we don't have the resources to make the others (tippy tap like the one you gave us). And the open bowl we are using, the animals always drink from it."
● Children play with station as toy
o 132 "Yes it was easy by the latrine since our other children don't play around that area but by the kitchen it was difficult because our children as to cut the soap and spoil the set up. The children frequently used it and the water in that tippy tap does not last long, they used it as toys."
o 224 "It was difficult because the older children waste the soap. The water bottle has to be refilled frequently and more soap is used this is a result of the older children actions. They use the soap and leave it open."</td>
<td>maintain handwashing stations.
Increase perception among mothers that a tippy tap or cula (kettle) for water and a rubber bottle for soap prevents animals from contaminating and wasting water and soap.</td>
<td>maintaining the station.
Educate children through school WASH programs on the importance of handwashing and maintaining soap in their household for all members to use. Encourage support such as filling with water and discourage wasting by emphasizing the benefits and cost of soap.</td>
</tr>
<tr>
<td>PERCEIVED SOCIAL NORMS: 10
Approved and Helped
o 233 "It was easy because I was supported by other family members to install it."
<table>
<tr><td>Who?</td><td>Approved or helped?</td></tr>
<tr><td>Husband</td><td>111 "My husband. He is the one who prepared the station immediately after you left."
114 "My husband constructed the station and provided the soap."
132 "My husband is the one who actually approved the practice because he was the one who put the station and provided</td></tr>
</table>
</td>
<td>Enhance the perception among mothers that husbands, mothers-in-law, fathers-in-law, and other family members approve of handwashing stations and tippy taps and will support you to install and to maintain it.
Increase perception among mothers that husbands, mothers in law, fathers-in-law, and other family members find tippy taps and handwashing stations attractive.
Increase the knowledge among</td>
<td>Messages to mothers: Your family members will approve if you create and maintain a handwashing station. Your family members will help you create and maintain a handwashing station. Your family members will find a tippy tap attractive.
Messages to other family members: Your family will be happier and healthier if you use soap at five critical moments throughout the day. You can help to install and maintain a handwashing station to facilitate handwashing at five critical moments with soap to improve hygiene, remove smell of</td>
</tr>
</table>

	money for the soap." 134 "My husband, he constructed the only station we have." "My husband also helps in refilling the water."	husbands, fathers-in-law, mothers-in-law, and other family members about the importance and benefits of a handwashing station and handwashing at five critical moments. Increase perception that handwashing improves hygiene and health.	poo, and prevent sickness. Create SBCC materials with **construction and refilling images**: photos of men of the house happily constructing a tippy tap handwashing station, small children helping to fetch water, mother-in-law refilling the liquid soap, father-in-law using tippy tap to wash his hands. **Include husbands, fathers-in-law, mothers-in-law, etc. in counseling sessions.** Target them for other activities.
Father-in-law/Father	123 "My father-in-law because at times he direct the children how to use the soap and tippy tap and he was also present at our first talk." "He sometimes refill the tippy tap and look after it for the children not to destroy it." 131 "My father-in-law constructed the station." 231 "My (Father) in law helped. He pierced and tied the rubber bottle to the sticks using a string."		
Mother- in-law	213 "My mother-in-law. She replaces the water in the water bottle and refills the liquid soap."		
Mother	121 "My mother always reminds me of refilling and takes the tippy tap outside every morning."		
Uncle	222 "My uncle helped in installing the station by helping with sticks and strings." 233 "My uncle and brother. They went to the bush and cut the sticks and pierced the rubber bottles and tied the rubber bottle to the stick using a string."		
Brother	232 "My elder brother helped and participated. He planted the sticks and helped me tie the rubber using a string." 233 "My uncle and brother. They went to the bush and cut the sticks and pierced the rubber bottles and tied the rubber bottle to the stick using a string."		
Sister-in-law	221 "Sister-in- law helped me in refilling the bottle."		
Aunt	222 "My aunt replaces the water in the water bottle."		
Men of the house	112 "The men in the house constructed the station and my husband provides money for soap." 221 "Men broke the sticks."		
Adults of the	132 "Other adults help in refilling the tippy tap water."		

house			
My children	114 "My husband and children. My husband constructed the station and provides the soap while the children refill and provide the water."		
PERCEIVED POSITIVE CONSEQUENCES: 7 ● Can wash hands without help o 134 "The way the water pumped from the rubber you don't have to call someone to help you put the water … " ● Makes handwashing simple, easy to use o 221 "It went well as the practice helps us prevent many sicknesses, more so using the tippy- tap, it makes hand washing simple." o 134 "Yes it was easy actually using this tippy tap you gave us." ● Station easy to use and can be placed to facilitate handwashing o 213 Tippy tap easy to use, makes handwashing simple o 134 "Because it is close to the house and easy accessible so when I have play (interacted) with any dirt." ● More hygienic and prevents sickness o 134 "Yes the cleanness in doing the practice." o 213 "The tippy tap prevents us from scooping the water and what contaminates and it is not destroyed by the children because it is hang up in the tree." o 221 "Yes it helps promote handwashing and help us prevent sickness." **PERCEIVED NEGATIVE CONSEQUENCES: 8** Child see station and liquid soap as if a toy and waste, constantly refilling ● 224 "It was hard because the children waste the soap when they open it, they fail to close it afterwards and the soap has to be refilled frequently"	Increase perception that a tippy tap ● makes an attractive handwashing station ● facilitates easier, more frequent handwashing with soap at five critical moments (i.e. no one needs to help pour water) ● can be placed to make handwashing convenient. Increase perception among mothers and other members of the household washing hands with soap at five critical moments will ● improve smell of hands ● improve cleanliness of hands ● prevent sickness ● make hands 'fresh.' Increase knowledge among mothers and other members of the household about the importance of washing hands at five critical moments with soap to improve hygiene, remove smell of poo, and prevent sickness. Increase perception among mothers and other members of the household that making liquid soap ● is easy	Message: A handwashing station with a tippy tap (or kettle) is an **attractive, water-saving** method of washing hands. Message: Creating and maintaining a handwashing station with soap **can prevent sickness**. Include liquid soap at your handwashing station if you do not want your hands to smell of poo or be dirty. Message: Your **neighbors will be impressed** by the innovation of your new tippy tap and handwashing station. Create SBCC materials with **handwashing images**: photos of mothers, fathers helping healthy, happy children to wash their hands at the handwashing station tippy tap. **Educate children** through school WASH programs on the importance of handwashing and maintaining soap in their household for all members to use. Encourage support such as filling with water and discourage wasting by emphasizing the benefits and cost of soap.

	• is affordable • makes it easier to wash hands • enables soap to lasts longer • is more cost-effective. Increase perception among children that handwashing station is important for their health and that they can help improve the health of their family by refilling water, not wasting water or soap, etc.	
ACCESS • Materials hard to get o 231 "Getting the materials to create the station was difficult unless I go to the bush. There are string, sticks." • Water and soap o 112 "I did not encounter any problem except my swollen finger which sometimes stop me (late) in refilling water."	Increase perception among mothers and other family members that it is worth it to find the materials in the bush to facilitate handwashing. Increase perception soap and the materials for soapmaking are worth the cost and that prevention is better than cure.	Message: **It is worth finding** the materials to construct the station to improve the health of your family. **Promote knowledge sharing** at MSGs and other platforms between neighbors about installing handwashing stations/tippy taps, encouraging with recognition those mothers and members of the community who know how. Conduct a brief **exercise to calculate the cost** to the family of a child having a case of diarrhea. Include costs for transport to the hospital, costs for medicines, lost time from other work, etc. Then compare with the cost of soap and other materials for a tippy tap.
PERCEIVED ACTION EFFICACY • Prevents sickness, child healthy o 111 "It helps us to be clean and become healthy." o 232 "…the benefit of hand washing, how it will prevent sickness and helps immensely in keeping us healthy." o 231 "Yes. Because it helps us prevent sickness by regular washing hands and my child is healthy now."	Increase perception that a handwashing station facilitates easier, more frequent handwashing. Increase perception among mothers and other members of the household washing hands with soap at five critical moments will • improve smell of hands	Message: You can keep your **family healthier and happier** if you create a handwashing station and promote frequent handwashing with soap. Message: Pass your hands in front of your face and notice the poo smell if you don't **use soap to wash hands.** After cutting peppers, touching your eyes will sting if you only wash

o 232 "Yes, it makes us healthy and helped in preventing sickness." ● Cleans hands, no longer contaminating food o 121 "Yes it is good; it makes your hands clean." o 122 "Yes, there are benefits like now, after playing with dirt when you wash your hands you do not eat the dirt and you don't get sick."	● improve cleanliness of hands ● prevent sickness ● make hands 'fresh.'	your hands with water and do not wash with soap; similarly, poo will still be on your hands (as indicated by the smell) if you do not wash hands with soap.
CUE TO ACTION / REMINDERS ● Station serves as a reminder to wash hands o 221 "Yes this practice reminds us to wash hands especially when the station is visible and reachable." o 232 "Yes. It serves as a reminder after using the toilet." o 233 "Yes. I hardly forget to wash hands. It serves as a reminder for me." o 131 "Because from our previous talk what you really told me were good. And the posters also help." ● Easier to get children to wash hands with tippy tap and liquid soap o 132 "The practice is like now we don't have to tell or force our children to wash their hands before and after eating and defecation which is actually great."	Increase perception that having a handwashing station will serve as a reminder for frequent handwashing for all members of the household.	Demonstrate to MCGs and other household members how to make tippy tap and handwashing station with liquid soap in a bottle and **leave visible by latrine and kitchen to serve as reminder**. **Distribute posters** to each household with critical moments for handwashing to serve as reminder.
POLICY **CULTURE** **Messages/testimonials.** ● 221 "It is made easier by the collective effort of the family members. They help in refilling the water bottle and men broke the sticks." ● 113 "It is good. We now have two station (handwashing) with soap." ● 132 "We have hung the soap and bottle but still we go with cola because we are used to it. We used the tippy tap water later." ● 134 "It was great because as you can see that is one of our handwashing stations and every member in our house is now using the tippy tap." ● 213 "It was good as the station is visible and all the family members use it to wash hands."		

● 222 “It serves as a reminder for me to regularly wash hands.” ● 232 “It went on well as you can see I cut sticks and tied the tippy-tap to it using a string and made a liquid soap by the tippy-tap.” ● 123 “More especially my neighbor that we are sharing the same backyard with.” "I usually tell them that to avoid diarrhea and to get good smell from your hands even after poo you must wash your hands with soap." “Currently they themselves are using the same tippy tap.”		
Indicators:		
Quotes/photos		

Ideal Practice: Keeping children away from feces		
Feasible Practices & Sub-Behaviors: Collect feces on the ground and dispose of it immediately in latrine/pit/bury far from house		
Primary Audience: Mothers		
Secondary Audience: Fathers, husbands, grandmothers, mothers-in-law, fathers-in-law		
Tertiary Audience: Health workers in community health posts / health units		
Determinants	**Bridges to Action**	**Activities**
• Informants often attributed their motivation to the fact that they were visited and counseled. (Very frequent: 4)		Ensure household level visits with key decision makers (husband, mother-in-law, etc.) are included. Prioritize dialogue and counseling over simply "telling" as much as possible.
PERCEIVED SELF-EFFICACY: 3 Positive: • Have broom and have time at house (not away at farm all day) o 214 "It wasn't difficult at all. The broom is available and my elder daughter helps with the sweeping." o 214 "Not difficult at all as most times I am at home and when my child defecates, I sweep and dump into a latrine." • Now accustomed to tasks Negative: • Away from house/lack of time at home o 133 "I spent all my day time at the bush doing my farm work." • Animals defecate on property too frequently o 212 "It is difficult because the animals roam about freely and defecate all over. So regular sweeping is quite difficult." • More work and time o 214 "Yes, sometimes I stop the cooking to sweep around>' o 233 "Yes, I gave up my sleep to wake up earlier and sweep." "And during the day I most times stay at home to ensure a clean	Reinforce perception that mothers sweeping and properly disposing of waste in a latrine (or burying feces with ash) creates a more hygienic environment, absent of feces on the ground and the smell. Increase knowledge of the importance of burying feces with ash when latrine is not available. Increase perception that consistent cleaning rather than occasional work enables mother to maintain hygienic household without waste build up. Increase perception mothers can control movement of animals (create barriers like a fence, leash goats to tree/post, shoo chickens from the house, etc.) and minimize their children's access and interactions with animals and the animals' feces.	Messages: Feces are dangerous to your child and you as a mother can limit your child's contact with it by collecting it, properly disposing of it, and washing your hands with soap afterwards. Address and/or fix any problems with latrines to ensure all are functioning to allow mothers and others to use and dispose child's poo. Reach mothers through counselling to prioritize maintaining a clean environment. Message: Negative health impacts of children consuming poo will undermine all the work you do to provide and prepare food for them. Promote community led total sanitation efforts to increase ownership/pride in those who contribute to and prioritize hygiene in the community.

<table>
<tr><td>environment, unlike before."</td><td></td><td></td></tr>
<tr><td>PERCEIVED SOCIAL NORMS: 10
Approved:<table><tr><th>Who?</th><th>Frequency</th></tr><tr><td>Father-in-law</td><td>1</td></tr><tr><td>Mother-in-law</td><td>3</td></tr><tr><td>Husband</td><td>1</td></tr><tr><td>All the house</td><td>2</td></tr><tr><td>All lactating mothers and caregivers</td><td>1</td></tr></table>● 122 "Yes, all members of the house have approved it because they no longer get the smell they use to get from the dust bin."
● 214 "Yes my mother-in-law told me to be sweeping feces around to help avert sickness for my child."</td><td>Increase perception that mothers-in-law, husbands, and others approve of mothers and other members of the household taking the time to clean and throwing any feces to the latrine.
Enhance knowledge among husbands, mothers-in-law about the risk of exposure to feces and benefits of proper disposal of waste.
Enhance perception among all members of the household that they can make their house more hygienic.</td><td>Message to mothers: Your mother-in-law, other members of household, etc. will approve if you properly dispose of waste in latrine and keep a clean house.
Include mothers-in-law in counseling sessions
Target them for other activities.
Message to all members of household: Small cleaning activities every day can contribute to a healthier home.
Promote community-led total sanitation efforts to increase ownership/pride in those who contribute to and prioritize hygiene in the community.
Educate children through school programs on the importance of hygiene, including a clean environment at home and encourage their participation at both their school and their house.</td></tr>
<tr><td>PERCEIVED POSITIVE CONSEQUENCES: 7
● Clean play area for child
o 212 "It's nice because it keeps the play area of my child clean. And this helps prevent my child from getting sick."
o 214 "Yes. I don't want my child to be playing with feces and I don't want to see feces around as well."
o 233 "I will continue because seeing the environment clean really makes me happy and keeps me and the child healthy."
● Absence of bad odor
o 122 "Yes, there are benefits because we no longer get the smell of my child poo anymore."
o 211 "Yes. This practice helps us from getting or inhaling bad odors and</td><td>Reinforce perception that mothers sweeping and properly disposing of waste in a latrine creates a more hygienic, nice looking environment, absent of bad smells, enabling children to grow up healthier.
Reinforce knowledge of fecal-oral route.
Increase knowledge that livestock consuming feces can negatively impact their health.
Increase perception among mothers that the frequent trips to the latrine are worth the time and energy to avert the</td><td>Message: Maintaining a clean environment free of feces enables your family, especially your young child, to be healthier. Your family will be happier without the smell of poo around your house. You neighbors will notice your clean, nice looking yard.
Create video showing mother sweeping and collecting animal feces and burying with ash; then show mother smiling as she allows her small healthy child to sit down and happily play in the cleaned area.
Create a video with neighbors complimenting a mother on her clean</td></tr>
</table>

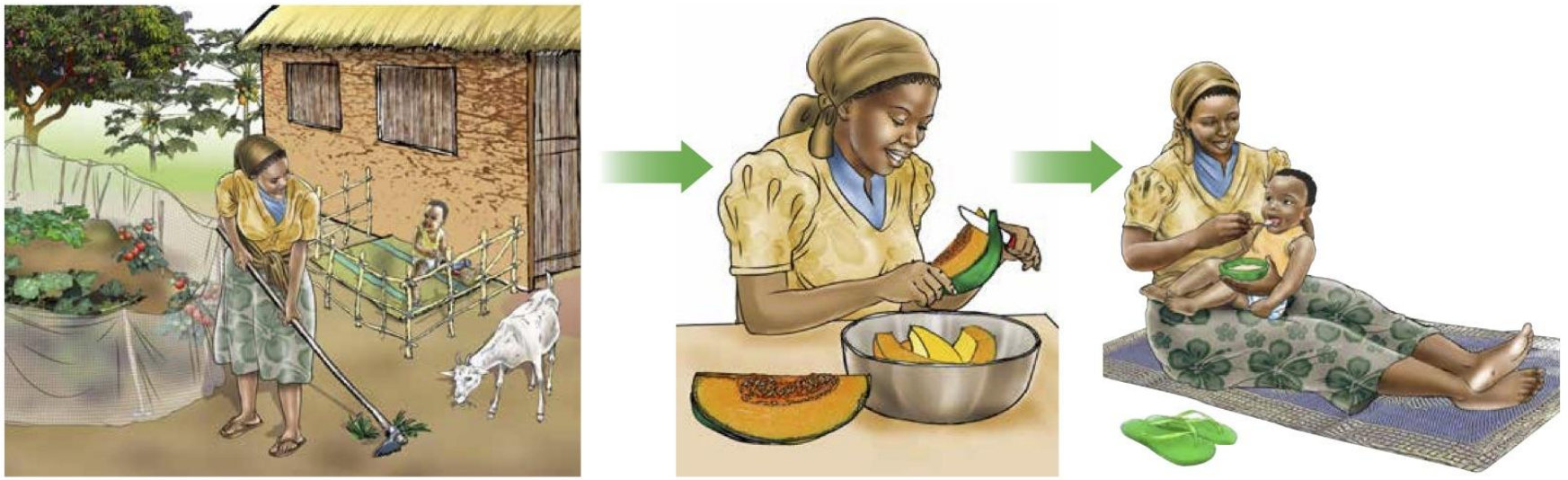
prevents flies and fowls from getting in contact with the feces and in turn contaminating food [Inhaling bad odors can cause illness]." ● Prevent sickness and promote better health o 211 "I like seeing a decent environment and this practice helps us prevent sicknesses for me & my child." o 214 "The child, flies, and fowls don't contact the feces any longer." ● Animals and flies no longer contaminate our food o 121 "Yes, it benefit the animals (chicken) who don't have to feed on it and later contaminate our food." **PERCEIVED NEGATIVE CONSEQUENCES: 8** o 122 "Dislike the frequent visit to the latrine"	fecal-oral route.	house, coming over to play with her healthy, happy baby, and then going home to clean their own homes. Message: The frequent trips to the latrine are worth the time and energy because you are making your children healthier. Your family will be happier without the smell of poo around your house. You neighbors will notice your clean, nice looking yard and be happy to support carrying your child whilst you do other household chores.
ACCESS Hard. ● Lack of materials – no shovel for collecting and disposing of poo o 123 "I do not have shovel or poo and before he used to poo at the dust bin." (Note: solved by using old pan as shovel.)	Reinforce perception of improved access to low cost tools, such as brooms, shovels, or child poos.	Support Mother Care Groups to encourage dialogue and sharing of resources (i.e. a poo) among mothers. Encourage local merchants to stock tools at affordable prices.
PERCEIVED ACTION EFFICACY ● 211 "So that my child won't play with feces and to prevent us from getting sick. This motivated me." ● 214 "The child, flies, and fowls don't contact the feces any longer." ● 233 "I told them the importance of having a clean environment. Which will help prevent us from sicknesses and have a clean space for the child to play."	Increase the perception that mothers are able to mitigate the risk of illness at their household by disposing properly of waste. Increase knowledge of the importance of burying feces with ash when latrine is unavailable.	Message: Small children can crawl/ walk fast and play with whatever is around them, so eliminating dangerous objects like animal and human feces can keep your child safe and healthy. Counsel mothers on the benefits of keeping a clean environment free of feces, specifically that preventing sickness can eliminate the expense and loss of work treatment and clinic visits.
CUE TO ACTION / REMINDERS **POLICY** **CULTURE** **Messages/testimonials.** ● 233 "Nobody approved or disapproved (of this practice). But I deemed it		

necessary." ● 121 "Other lactating mother and caregivers, "I use to tell them of the smell if you don't do it." ● 212 "I said to them that if the child has a dirty play space this will make the child sick and deter the growth of the child." ● 233 "I told them the importance of having a clean environment. Which will help prevent us from sicknesses and have a clean space for the child to play." ● 211 "I told them that it is nice and they should make their child use a poo as this will prevent sickness and help promote a healthy environment and keep them (mum and child) healthy."		
Indicators:		
Quotes/photos		

Ideal Practice: Keeping children away from feces		
Feasible Practices and Sub-Behaviors: Help your child use a poo or teach them to use poo on their own		
Primary Audience: Mothers		
Secondary Audience: Fathers, husbands, grandmothers, mothers-in-law, fathers-in-law		
Tertiary Audience: Health workers in community health posts / health units		
Determinants	**Bridges to Action**	**Activities**
PERCEIVED SELF-EFFICACY: 3 "Yes, it is easy because after I empty the poo at the latrine I will also clean the poo."	Increase perception that mothers can easily teach a child to use a poo and dispose of the waste properly.	Create video demonstrating the ideal behavior step by step, including mom **patiently** teaching child to use poo, celebrating when child does, throwing feces to latrine; then a child happily playing and running to use poo as needed.
PERCEIVED SOCIAL NORMS: 10	Increase perception that mothers-in-law, husbands, etc. approve of mothers taking the time to teach child to use poo and promptly throwing to the latrine. Increase the level of knowledge among husbands, mothers-in-law about the benefits of using the poo and proper disposal of waste.	Messages: Your mother-in-law will approve if your child uses a poo and you properly dispose of waste in latrine. Include mothers-in-law in counseling sessions. Target them for other activities.
PERCEIVED POSITIVE CONSEQUENCES: 7 ● Now emptying the poo at the latrine: "As you can see our dust bin very close to the house so now I get no smell of poo anymore." **PERCEIVED NEGATIVE CONSEQUENCES: 8** ● More work: "Dislike the frequent visit to the latrine>'	Increase perception that children using a poo and mothers properly disposing waste in latrine enables mothers to maintain a cleaner house without child's feces on the ground and the smell.	Create video demonstrating a child happily using poo while mom **patiently** does housework nearby and mom disposing of poo in latrine in an environment clean of poo and bad odors.
ACCESS Hard. ● If you cannot afford or find a poo "The problem was buying the	Increase the perception that poos are available and affordable. Increase access to low cost poos.	Support Mother Care Groups (MCGs) to encourage dialogue and sharing of resources (i.e. poo) among mothers.

poo."		
PERCEIVED ACTION EFFICACY ● "I usually tell them if you stop throwing poo at the dust bin you will get good smell around your backyard."	Increase the perception that by using a poo and disposing of the waste properly mothers are able to mitigate the risk of illness	Create video demonstrating a child happily using poo while mom **patiently** does housework nearby and mom disposing of poo in latrine in an environment clean of poo and bad odors. Include message that this practice helps to reduce risk of illness.
CUE TO ACTION / REMINDERS **POLICY** **CULTURE** **Messages/testimonials.**		
Indicators:		
Quotes/photos		

Appendix 4. Images for SBCC Materials



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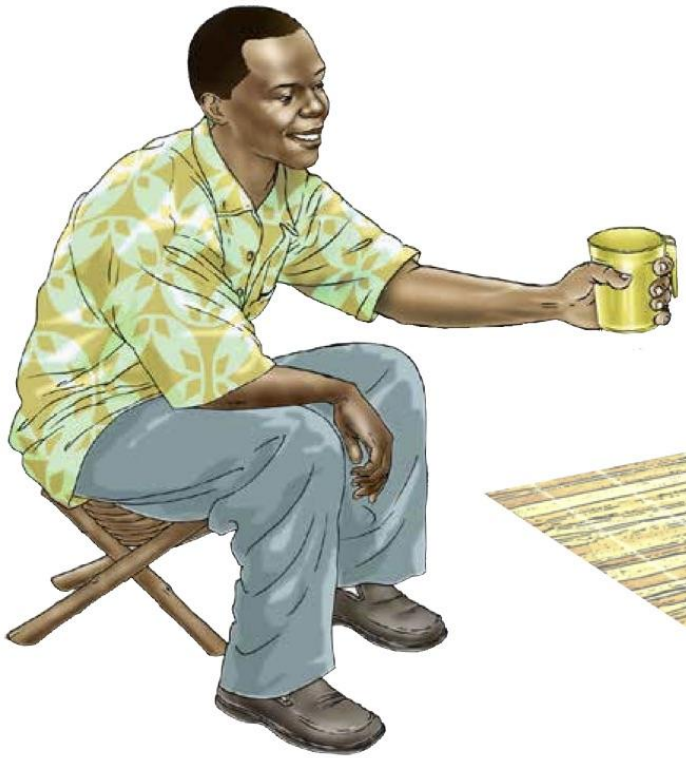

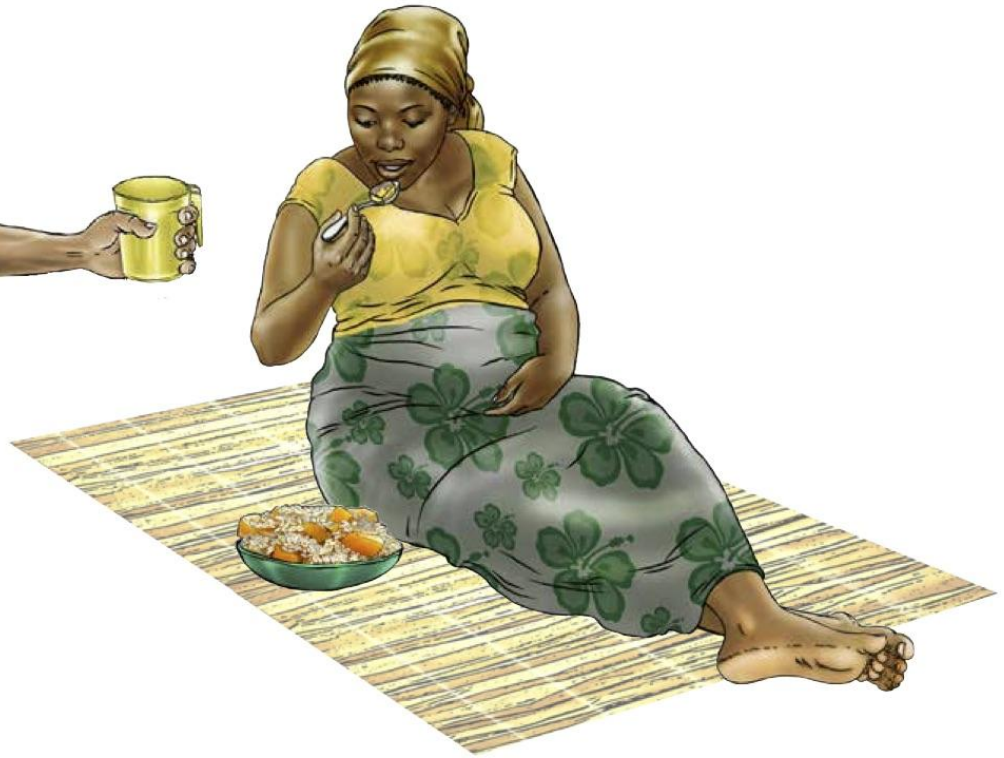

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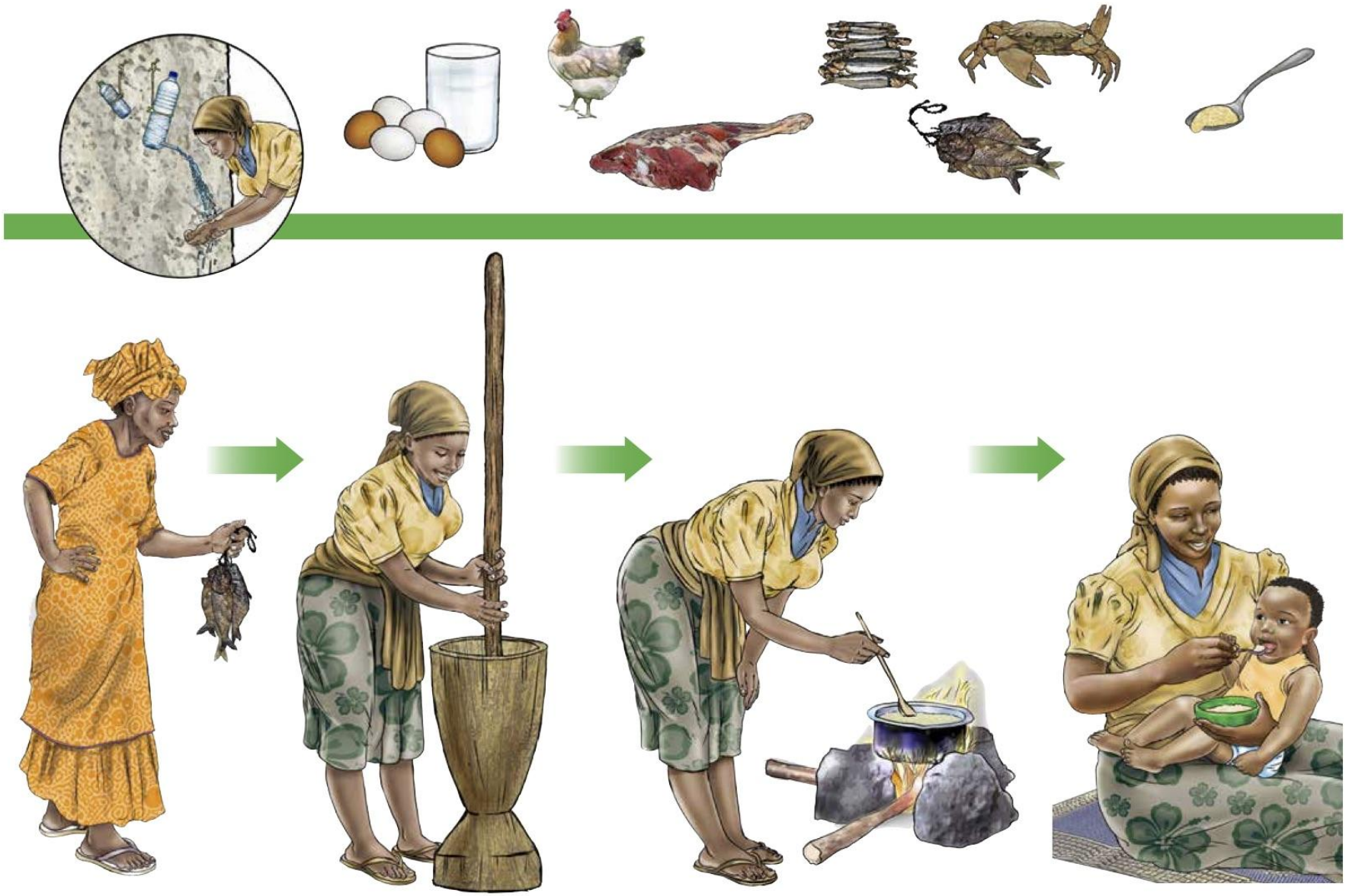

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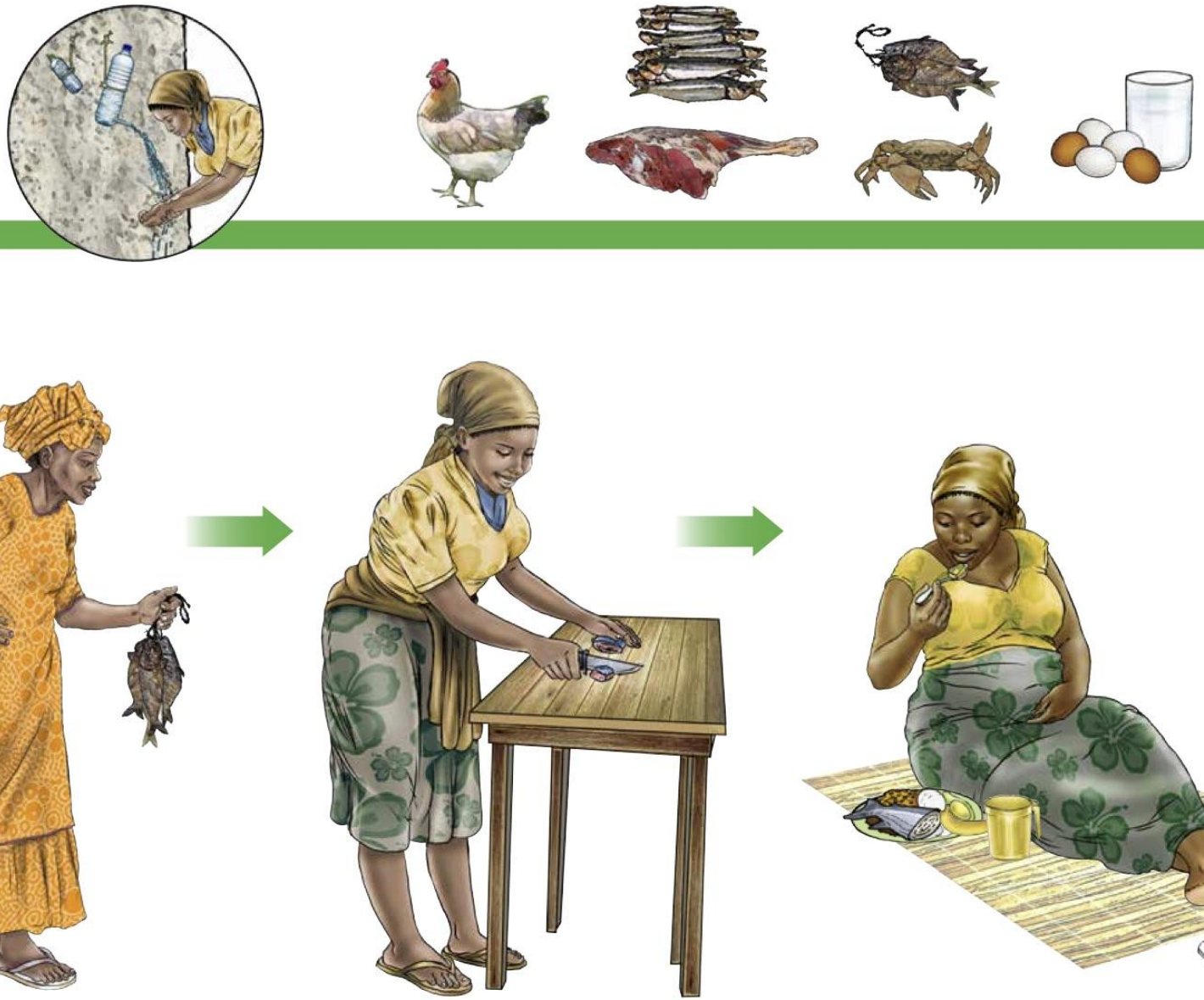

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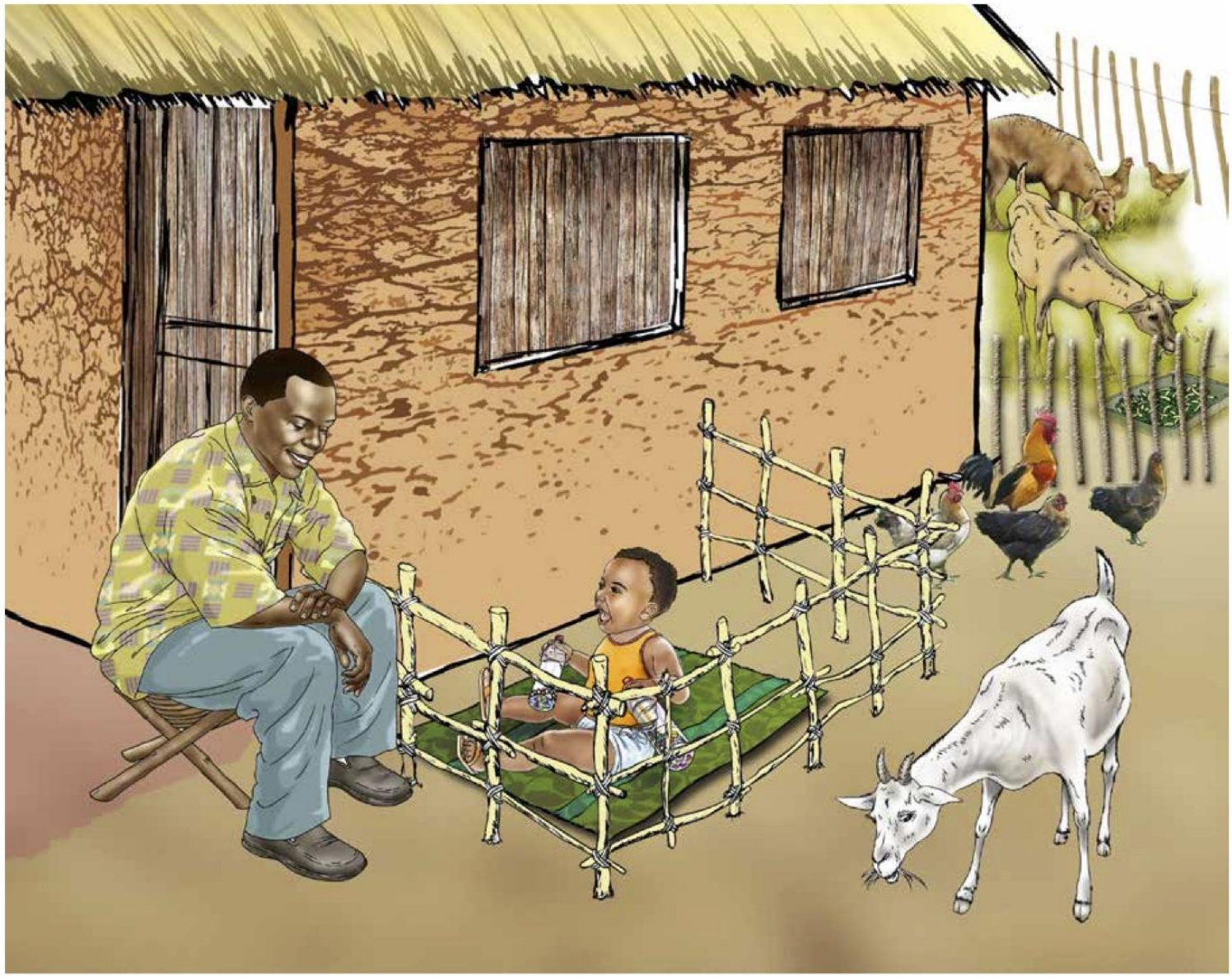

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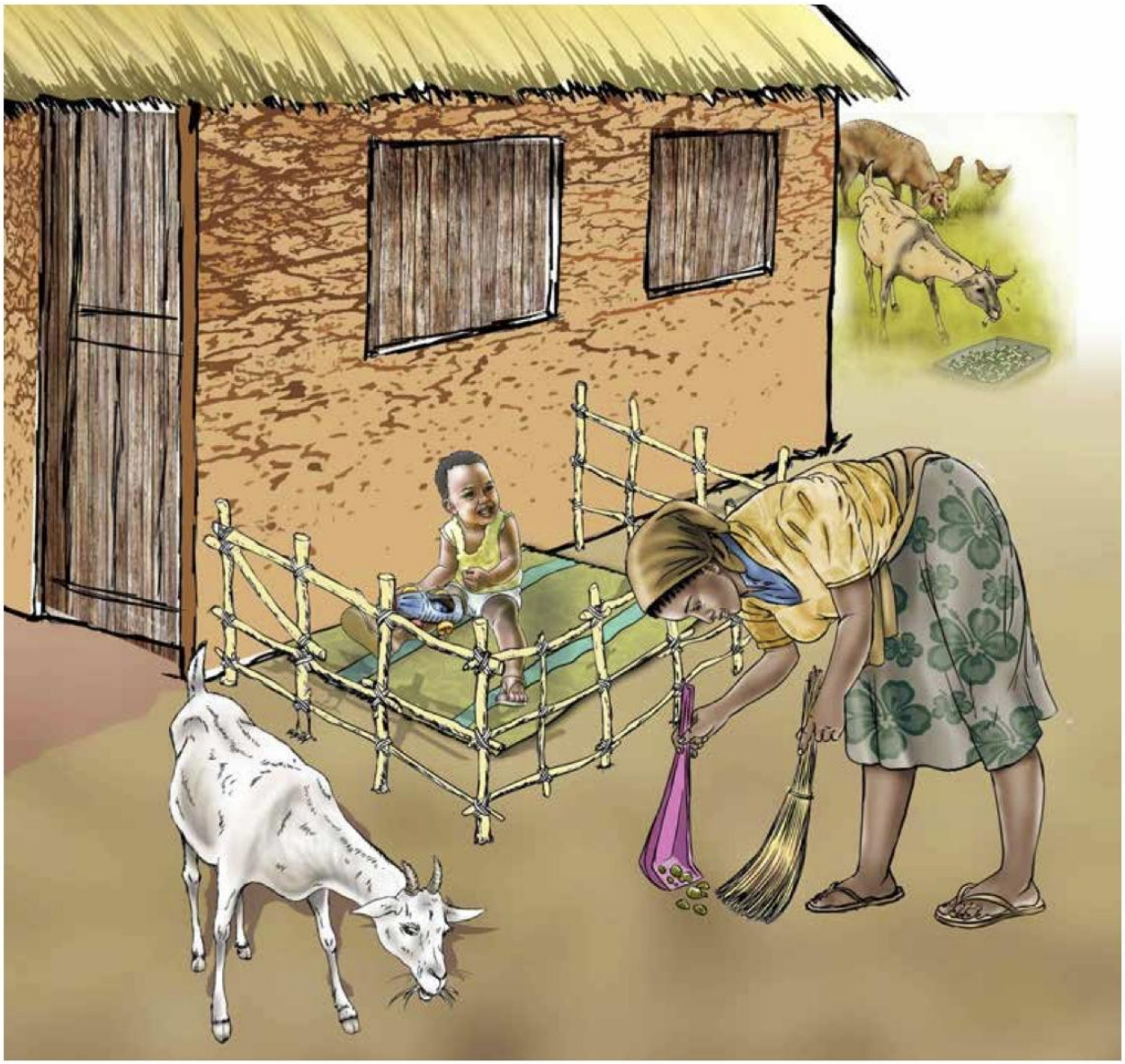

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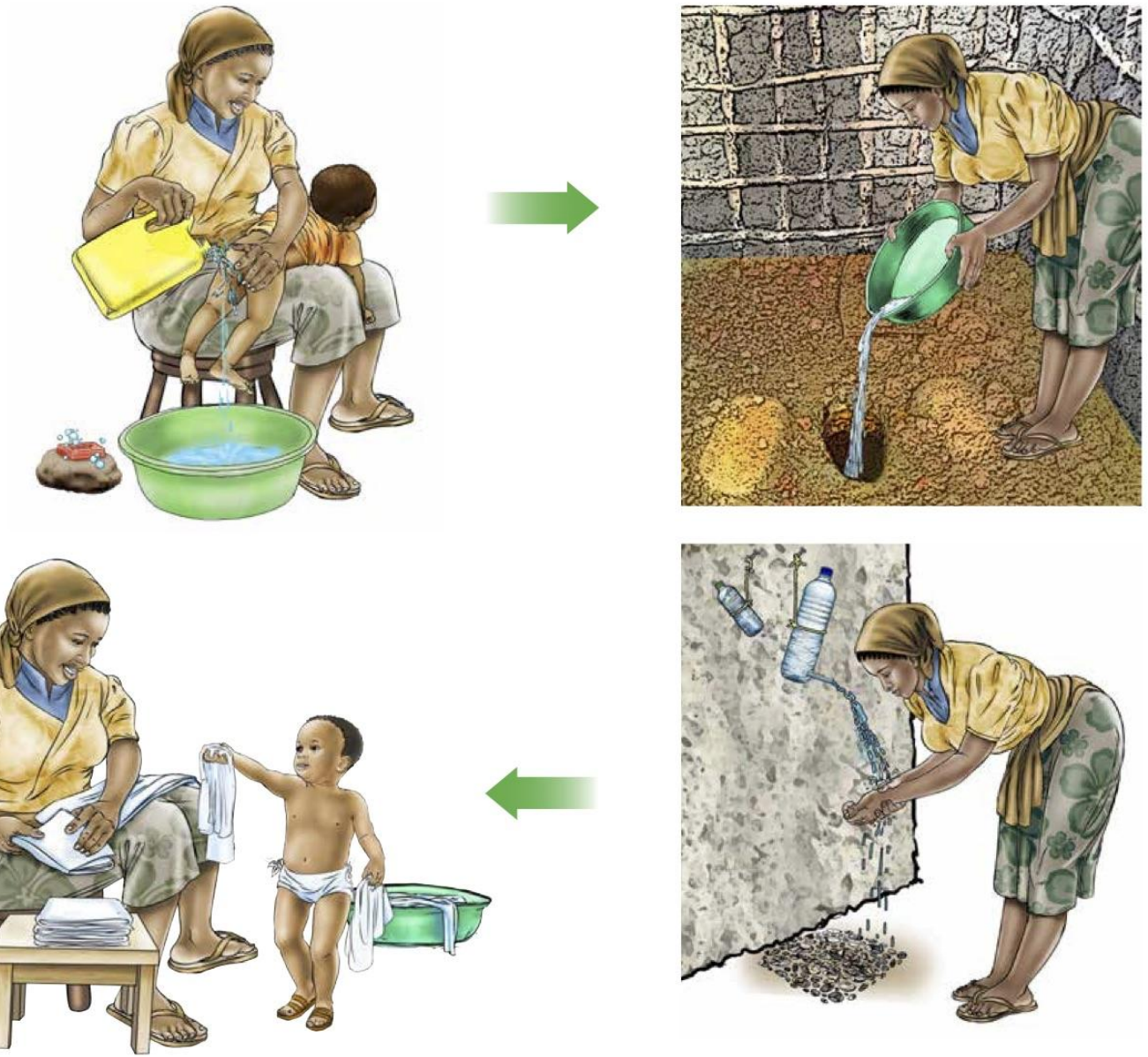

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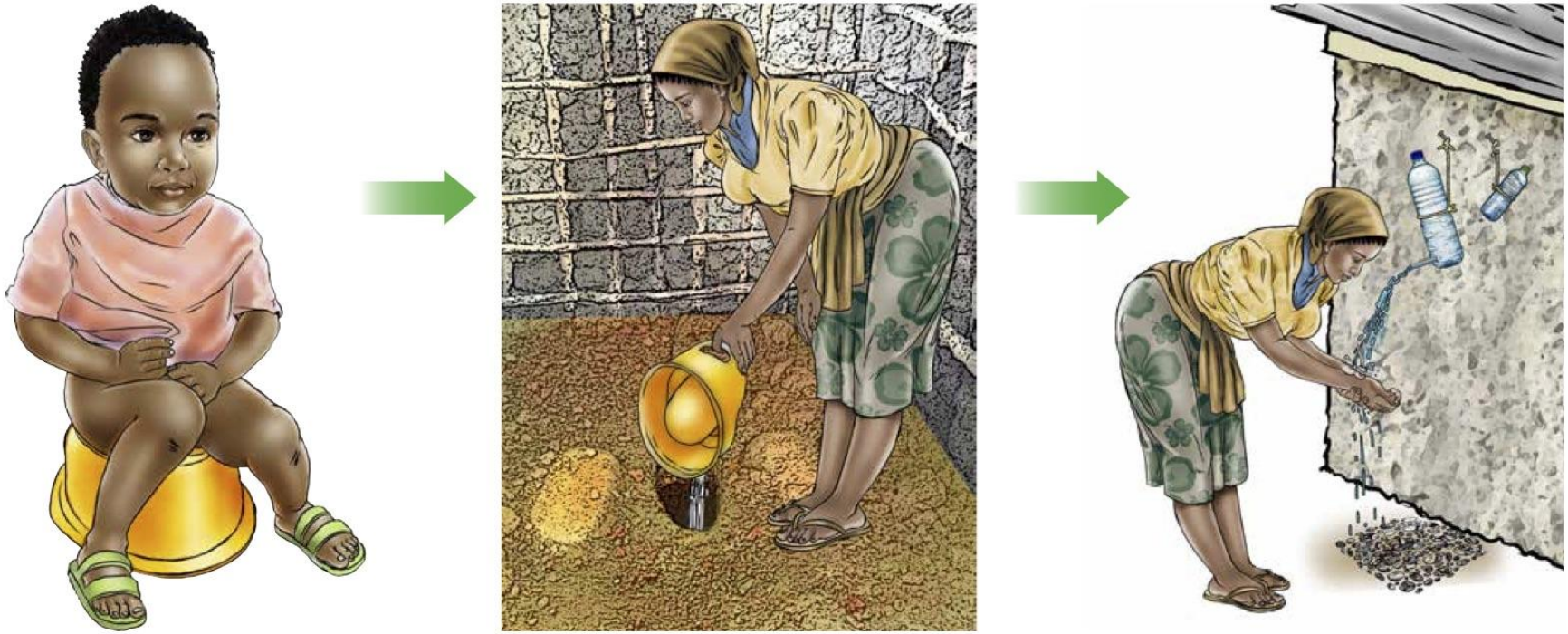

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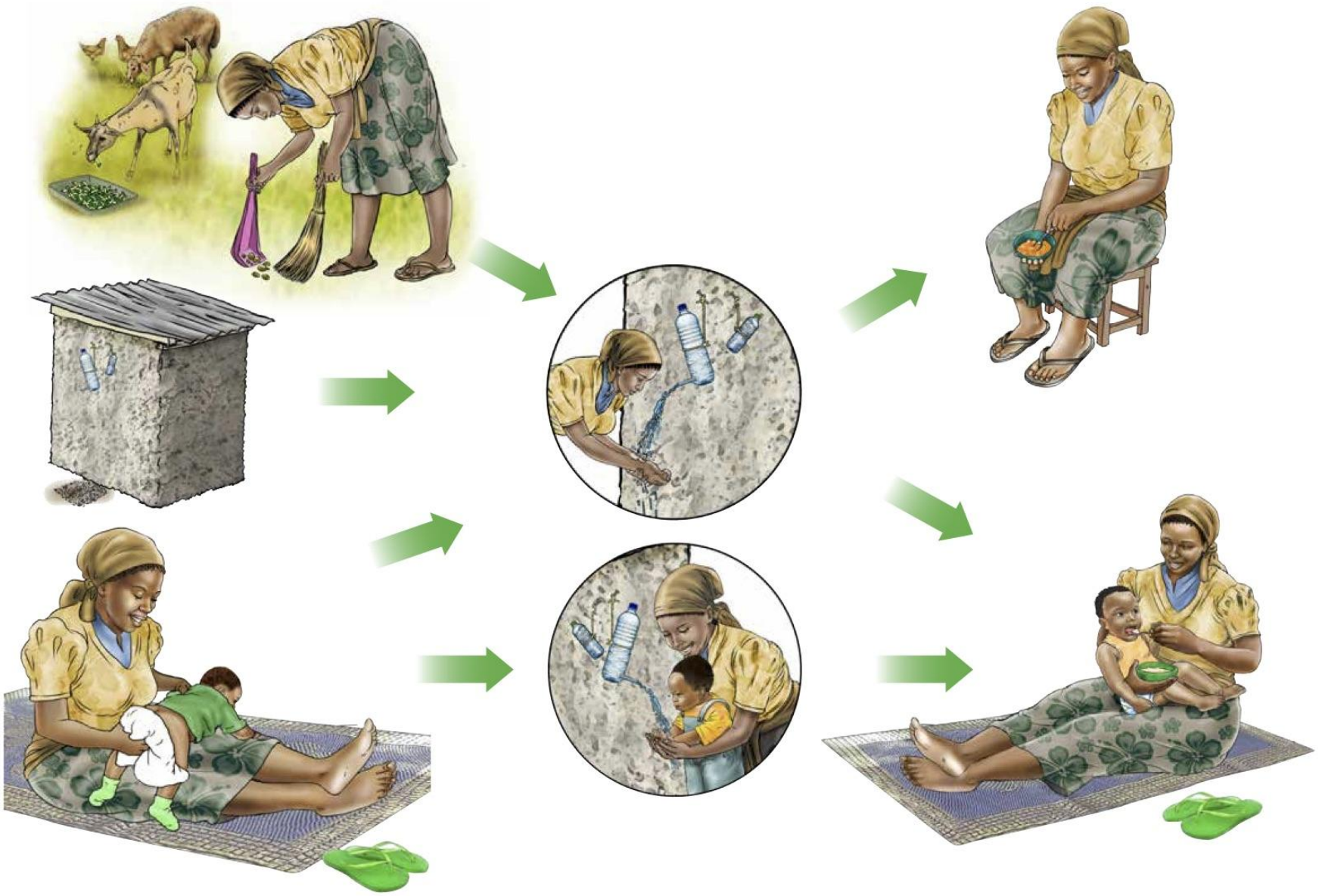

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The International Food Policy Research Institute ○ Save the Children ○ The Manoff Group