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WATER, SANITATION, AND HYGIENE PARTNERSHIPS AND LEARNING FOR SUSTAINABILITY (WASHPaLS)

Year 3 Annual Report
October 1, 2018 – September 30, 2019

TETRA TECH

NOVEMBER 2019

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ACRONYMS AND ABBREVIATIONS

AJTHM	American Journal of Tropical Hygiene and Medicine
ANDE	Aspen Network of Development Entrepreneurs
BMGF	Bill & Melinda Gates Foundation
CFN	Clean, Fed & Nurtured
CKM	Communications and Knowledge Management (USAID)
CLTS	Community-Led Total Sanitation
COP	Chief of Party
COR	Contracting Officer's Representative
CRSHIP	Cambodia Rural Sanitation and Hygiene Improvement Program
cRCT	Cluster Randomized Controlled Trial

DEC	Development Experience Clearinghouse
DFAT	Australia Department of Foreign Affairs and Trade
DFID	United Kingdom Department for International Development
DPD	Deputy Project Director
DST	Decision Support Tool
E3	Bureau for Economic Growth, Education, and Environment
ECD	Early Child Development
EIS	Economic Impact Study
EOI	Expression of Interest
FGD	Focus Group Discussion
FSM	Fecal Sludge Management
GESI	Gender Equality and Social Inclusion
GEWE	Gender Equality and Women's Empowerment
GHP	Global Handwashing Partnership
GIP	Gender Integration Plan
GOG	Government of Ghana
GOU	Government of Uganda
GTIRB	Georgia Tech Institutional Review Board
GUC	Grants Under Contract
HBC	Hygiene Behavior Change
ICDDR,B	International Center for Diarrhoeal Disease Research, Bangladesh
ICT	Information and Communications Technology
iDE	International Development Enterprises
IDS	Institute of Development Studies
IE	Impact Evaluation
IP	Implementing Partner
IYC/IYCF	Infants and Young Children/ Infant and Young Child Feeding
KEA	Kenya and East Africa
KEMRI	Kenya Medical Research Institute
KII	Key Informant Interview
KIWASH	USAID Kenya Integrated Water Sanitation and Hygiene Project

LOP	Life of Project
M2W	Mobile-to-Web
M&E	Monitoring and Evaluation
MBS	Market-Based Sanitation
MEP	Monitoring and Evaluation Plan
MHM	Menstrual Hygiene Management
MSI	Management Systems International
MOU	Memorandum of Understanding
NACOSTI	National Commission for Science, Technology, and Innovation
NECHR	National Ethics Committee for Health Research
NOURISH	USAID/Cambodia Integrated Nutrition, Hygiene, and Sanitation Project
NSMS	National Sanitation Marketing Strategy
OD/ODF	Open Defecation/Open Defecation Free
ODI	Overseas Development Institute
P&L	Profit and Loss
PD	Project Director
PDR	People's Democratic Republic
PE	Performance Envelope
PI	Principal Investigator
PSI	Population Services International
Q	Quarter
RANO WASH	Rural Access to New Opportunities in Water, Sanitation, and Hygiene Project (USAID)
RAPID	Resilient Arid Lands Partnership for Integrated Development (USAID)
REC	Review and Evaluation Committee
REOI	Request for Expressions of Interest
RFA	Request for Approval
SBCS	Senior Behavior Change Specialist
SHARE	Sanitation and Hygiene Applied Research for Equity (DFID)
SOW	Statement of Work
SPS	Safe Play Spaces
STTA	Short-Term Technical Assistance
SWA	Sanitation and Water for All

SWWW	Stockholm World Water Week
SuSanA	Sustainable Sanitation Alliance
TAG	Technical Advisory Group
TBD	To be Determined
TIPS	Trials of Improved Practices
TOCOR	Task Order Contracting Officer's Representative
TOFM	WASHPaLS Technical Operations and Finance Manager
TVET	Amhara Technical Vocational College
UC	University of California
UCD	User-Centered Design
UK	United Kingdom
UNC	University of North Carolina
UNICEF	United Nations International Children's Emergency Funds
USAID	United States Agency for International Development
USG	United States Government
USHA	Uganda Sanitation for Health Activity (USAID)
W4H	Water Sanitation and Hygiene for Health Project (USAID)
WASH	Water, Sanitation and Hygiene
WASHPaLS	Water, Sanitation and Hygiene Partnerships and Learning for Sustainability
W-GDP	Women's Global Development and Prosperity
WHO	World Health Organization

PREFACE

The United States Agency for International Development's (USAID) Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) Project is a 5-year task order awarded to Tetra Tech on September 16, 2016, under USAID's Water and Development Indefinite Delivery Indefinite Quantity Contract (WADI). Tetra Tech implements the project in collaboration with several non-governmental organizations (NGOs) and small business partners—Aquaya Institute, FHI 360, FSG, and Iris Group—that contribute expertise in state-of-the-art WASH programming and research. Distinguished academics, practitioners, and policy makers from across the WASH sector regularly provide expert perspectives to the project through an internal research working group and an external Advisory Board.

WASHPaLS supports USAID's goal of reducing morbidity and mortality in children under five by ensuring USAID programming employs high-impact, evidence-based environmental health and WASH interventions. WASHPaLS identifies and shares best practices for achieving sustainability, scale, and impact by generating evidence to support the reduction of open defecation and the movement of communities up the sanitation ladder, while also focusing on novel approaches for reducing infants' and young children's (IYC) exposure to feces. Specifically, WASHPaLS:

1. Offers USAID Missions and technical bureaus ready access to thought leaders and analytical expertise across a wide range of WASH themes, in response to their needs (Component 1);

2. Generates evidence through implementation research to increase the sector's understanding of and approaches to sustainable WASH services; the effectiveness of behavioral and market-oriented approaches to sanitation; and measures to disrupt pathways of fecal exposure experienced by IYC (Component 2), specifically focusing on:

    - Examination and analysis of Community-Led Total Sanitation (CLTS), including a dedicated Information and Communications Technology (ICT) activity (Task 2.1);
    - Exploration of market-based sanitation (MBS) (Task 2.2); and
    - Testing approaches to improve hygienic environments for IYC (Task 2.3), also referred to as Safe Play Spaces (SPS);

3. Administers a small grants program on innovations in hygiene behavior change (Component 3); and

4. Engages and partners with national and global stakeholders to promote the use and application of project-generated evidence and global best practices by practitioners and policy makers, tapping into broad coalitions and dynamic partnerships (Component 4).

The WASHPaLS Year 3 Annual Report covers the period from October 1, 2018 to September 30, 2019. It presents the project's major achievements, notable challenges, and adherence to the schedule of activities outlined in the Year 3 Annual Work Plan.

Pursuant to Section F.5 of the WASHPaLS Task Order and with the consent of the WASHPaLS Task Order Contracting Officer's Representative (TOCOR), this report includes material that would otherwise be part of a separate Quarter (Q) 4 Report and Year 3 Annual Partnerships Report.

1.0 OVERVIEW OF YEAR 3

WASHPaLS activities in Year 3 focused on continuing the implementation of the field research agenda. Over the course of the year, WASHPaLS strengthened relationships with international and national sector stakeholders, who continued to recognize and appreciate the project's findings, recommendations, and activity planning. In Year 3, WASHPaLS also began or continued implementation of several Component 1 buy-in activities that directly respond to Mission and Operating Unit needs, and progressed the project's investigation of innovations in hygiene behavior change programming by managing eight small grants. Across the portfolio, WASHPaLS was active in 11 countries throughout the year, working in collaboration with local and national governments, non-governmental organizations (NGOs), civil society organizations (CSOs), and other donors.

Below is a summary of significant achievements in the third year of the WASHPaLS project, covering the period from October 1, 2018, to September 30, 2019. Details are provided in the following sections of the report.

1.1 COMPONENT 1: TECHNICAL ASSISTANCE TO USAID

In Year 3, WASHPaLS received $3.61 million in funding and six new requests for technical assistance, bringing the total amount obligated to date to $6.48 million for nine work orders. Under Component 1, WASHPaLS:

- Continued implementation of the USAID/Cambodia Integrated Nutrition, Hygiene, and Sanitation (NOURISH) Project impact evaluation (IE), including finalizing research design and securing ethical approvals; procuring and implementing endline data collection; and initiating analysis.
- Continued implementation of the Kenya Resilient Arid Lands Partnerships for Integrated Development (RAPID) IE, including completion of Round I data collection, installation of borehole sensors and reporting, and initiation of Round II data collection by downloading the year's data from borehole sensors installed in Round I.
- Successfully delivered findings from a mid-term performance evaluation of the Kenya Integrated Water Sanitation and Hygiene (KIWASH) Project.
- Received approval for an activity to research menstrual hygiene management (MHM) and its potential link to women's economic empowerment in the workplace. The activity is expected to expand significantly in Year 4, after the budget was significantly increased at the end of Year 3.
- Received approval for a new request to provide funding in support of the Global Handwashing Partnership (GHP) for advocacy, knowledge management, steering committee facilitation, and strategy development activities.
- Received approval for a new request to conduct a performance evaluation of the Water Sanitation and Hygiene for Health (W4H) Project on behalf of USAID/Ghana; the evaluation is underway.
- Received approval for a new request to conduct formative research on Gender and Hygiene Behaviors on behalf of USAID/Mozambique.
- Responded to a new request to apply the Taxes and Tariffs Module of the Decision Support Tool (DST) on the uptake of plastic sanitation products on behalf of USAID/Ethiopia; approval was issued in Year 4 Q1.

- Received a request from USAID/Madagascar to provide technical assistance on market-based sanitation to the Rural Access to New Opportunities in Water, Sanitation, and Hygiene (RANO WASH) Project and local stakeholders; WASHPaLS' response is on hold pending further consideration by the Mission.

1.2 COMPONENT 2: IMPLEMENTATION RESEARCH

In Year 3, WASHPaLS focused on field activities for the three streams of research under Component 2: Community-Led Total Sanitation (CLTS), Market-Based Sanitation (MBS), and Safe Play Spaces (SPS). In consultation with sector stakeholders and the WASHPaLS Advisory Board, WASHPaLS selected the research questions and research designs, as well as implementation partners, for the respective activities to address the evidence gaps identified in the desk reviews. The project developed an assortment of reports and interactive products and presented them to the WASHPaLS Advisory Board and various USAID and global audiences. WASHPaLS also engaged sector thought leaders and institutions with global reach to facilitate the uptake of the project's research findings, which were referenced in peer-reviewed publications and literature. Sector actors continue to report positively on the value and utility of WASHPaLS products.

1.2.1 COMMUNITY-LED TOTAL SANITATION (CLTS)

In Year 3, WASHPaLS:

- Published the manuscript titled *Policy Diffusion in the Rural Sanitation Sector: Lessons from Community-Led Total Sanitation (CLTS)* in the peer-reviewed journal *World Development*.
- For the performance envelope (PE), completed:
  - In-depth quantitative analysis on seven CLTS datasets from four countries (Cambodia, Ghana, Liberia, and Zambia). Conducted follow-up interviews and presented results to all primary partners.
  - Qualitative fieldwork in Cambodia (202 interviews, 14 focus group discussions [FGDs], 13 villages) and Ghana (162 interviews, 15 FGDs, 15 villages); analysis is underway.
- For the subsidy study:
  - Completed all study preparations, including finalizing the inception report, formalizing UNICEF Ghana as a partner, completing formative research, securing ethical approval, and launching the study in an official launch workshop with national WASH stakeholders;
  - Completed baseline data collection with 5,615 households in 98 communities;
  - Worked with UNICEF Ghana to develop and roll out a protocol for identifying the poor and vulnerable. In the first study district, the process identified 308 eligible households (15% of the study population); and
  - Coordinated with UNICEF to develop materials and protocols for the intervention, such as a voucher, marketing flyers, and systems for tracking beneficiaries.
- For the information and communications technology (ICT) study:
  - Received documentation from local partner Akros on implementation of the mobile-to-web (M2W) platform in Zambia, after a review by UNICEF; began drafting a summary of limited findings and monitored the status of ongoing external evaluations.

1.2.2 MARKET-BASED SANITATION (MBS)

In Year 3, WASHPaLS:

- Published the French translation of the MBS desk review, *Scaling Market-Based Sanitation*, and continued disseminating the findings through participation and presentation at the University of North Carolina (UNC) Water and Health Conference 2018 and AfricaSan5 2019. Contributed materials for USAID training workshops in Indonesia and Haiti and UNICEF training programs in Sub-Saharan Africa.
- Completed two of three case studies on sanitation enterprise viability and sustainability based on detailed financial and business analyses of 66 enterprises across three interventions in Cambodia, India, and Nigeria. Developed a board game and accompanying tool for practitioners based on the findings from the enterprise viability research.
- Developed a comprehensive enterprise viability and sustainability diagnostic toolkit for MBS programs to undertake assessments and support sanitation enterprises in improving their viability.
- Finalized decision-support tools for three policies, each applied to two national markets; potential revisions to the detailed guides to understand and adapt the models to other contexts have been deferred until the implementation of DST technical assistance.

1.2.3 HYGIENIC ENVIRONMENTS FOR INFANTS AND YOUNG CHILDREN (SPS)

In Year 3, WASHPaLS:

- As part of a user-centered design (UCD) process, engaged farmer families, design specialists, and local artisans in Ethiopia to design and produce two unique playpen models for behavioral testing through Trials of Improved Practices (TIPS).
- Obtained US and Ethiopia-based ethical review and approval of the playpen study.
- Completed the field testing of the behavioral feasibility and appeal of three playpen models for creating a "safe zone" for infants in Amhara, Ethiopia, and initiated analysis.
- Presented initial impressions from the field to a limited group of Ethiopia stakeholders (primarily FHI 360, Plan International, and USAID).

1.3 COMPONENT 3: SMALL GRANTS PROGRAM

In Year 3, WASHPaLS awarded one grant from the second Request for Expressions of Interest (REOI) for testing WASH behavior-change innovations to reduce IYC exposure to poultry excrement, and four grants from the third REOI for innovations in hygiene behavior change. WASHPaLS has thus far issued eight of the ten grants required, utilizing approximately $1.2 million of the $1.5 million allocated to grants under the contract. For Year 3:

- The single grant from REOI Round II is ICDDR,B (2): Household Problem-Solving to Reduce Children's Exposure to Chicken Feces in Bangladesh ($295,280).
- The four grantees from Round III are:

- The Water Trust: Improving Hygienic Management of Poultry in Rural Uganda ($99,956)
- Gram Vikas: Developing and testing an innovative behavior change program for safe child feces management in India ($128,086)
- Stanford University: Bringing it Home: Driving School-Based WASH Messaging into the Household Environment in India ($99,944)
- IDinsight: Testing Nudges to Increase Handwashing in Schools Among Pupils in the Philippines ($99,918)

1.4 COMPONENT 4: PARTNERSHIPS

In Year 3, WASHPaLS increased opportunities for actively engaging with key sector stakeholders to ensure that the project's proposed research questions are relevant, timely and of value to the sector, and also to bolster the channels and platforms necessary to maximize the potential for project findings and recommendations to be incorporated in sector learning and planning. Throughout the year, WASHPaLS:

- Presented findings at six conferences and participated in six workshops or targeted meetings across its research portfolio.
- Continued to provide technical support on hygiene behavior change through coordinating bodies such as the Global Handwashing Partnership and the Clean, Fed & Nurtured (CFN) Coalition.
- Finalized its support to the Sanitation and Water for All (SWA) partnership, providing technical input and facilitation in revising governance documents for SWA's Steering Committee.
- Initiated discussions with the UK Department for International Development (DFID)-funded Sanitation and Hygiene Applied Research for Equity (SHARE) Project to identify areas of commonality and leverage resources in disseminating evidence for WASH best practices.
- Continued to coordinate closely with UNICEF headquarters and selected country offices on areas of mutual interest, including on CLTS, MBS, and MHM.
- Co-funded, with the World Bank and the Department of Foreign Affairs and Trade (DFAT), the completion of endline research implemented by Thrive/East Meets West in Lao People's Democratic Republic (PDR) on the effectiveness of subsidies to increase sanitation access. This work informed the design of the WASHPaLS subsidy research in Ghana.

Additional details on Year 3 activities are provided in Section 2. Section 3 details how gender equity and social inclusion (GESI) considerations have been incorporated in project activities. Section 4 describes progress on the performance indicators included in the approved Monitoring and Evaluation (M&E) Plan. Project management issues are discussed in Section 5. Several appendices provide additional supporting information: Appendix 1 summarizes achievement of Year 3 activities versus what was initially planned; Appendix 2 lists the contract deliverables submitted during Year 3; and Appendix 3 provides detail on progress towards meeting indicator targets.

2.0 YEAR 3 ACHIEVEMENTS BY COMPONENT

This section presents Year 3 progress and achievements by project component, and begins with an update on the WASHPaLS Advisory Board (Board).

2.1 ADVISORY BOARD

The seven-member WASHPaLS Advisory Board continues to be an important element of the project, providing technical feedback on proposed project activities and findings and serving as a vital conduit to key national and international sector stakeholders. In Year 3:

- There were no changes in board member appointments. This stability has allowed the project to further develop relationships with Board members as individuals and as a cohort. The Board members are Clarissa Brocklehurst (Independent), Michael Gnilo (UNICEF), Antoinette Kome (SNV), Susanna Smets (World Bank), Eddy Perez (Global Communities), Jan Willem Rosenboom (Bill and Melinda Gates Foundation), and Carolien Van der Voorden (Water Supply and Sanitation Collaborative Council).
- Three Board meetings were held:
  - In October 2018, one meeting was held as a side session during the UNC Water and Health Conference. All Board members participated, and discussions centered on the MBS enterprise viability study results, options for Year 3 Round III grant solicitation, subsidy experiment planning, findings from the Lao subsidy study, and updates on CLTS, SPSs, and Component 1 Technical Assistance.
  - In August and September 2019, two meetings were held remotely to present (respectively) the CLTS PE quantitative findings and the results of the MBS Enterprise Viability Analysis, to provide background in preparation for the Board meeting at the October 2019 UNC Water and Health Conference.
- Over the course of the year, Board members have been kept abreast of project activities through periodic emails and individual communications with WASHPaLS team members.

2.2 COMPONENT 1: SHORT-TERM TECHNICAL ASSISTANCE TO USAID

WASHPaLS offers USAID Missions and technical bureaus access to international experts to provide short-term technical assistance (STTA) on a range of WASH themes. STTA provided under Component 1 is entirely demand driven and requires operating units to buy into the mechanism. The WASHPaLS task order can accommodate up to $15 million in buy-ins over the life of the project. To date, $6,475,218 has been obligated to the project for nine STTA requests (see Table 1). A tenth request was received from USAID/Madagascar to provide technical assistance on MBS, but is currently on hold.

TABLE 1: COMPONENT 1 WORK ORDERS ISSUED TO DATE

Work Order Name	Requesting Operating Unit	Implementation Dates	Status
1. NOURISH IE	Bureau for Economic Growth, Education, and Environment (E3)	August 2018–August 2020	Ongoing
2. RAPID IE	Kenya and East Africa (KEA)	June 2018–February 2021	Ongoing
3. KIWASH PE	KEA	September 2018 – January 2019	Complete
4. MHM	E3/Gender Equality and Women Empowerment (GEWE)	February 2019 – September 2020	Ongoing, adjustments pending expanded statement of work (SOW)
5. GHP	Bureau for Global Health (GH)	April 2019–April 2020	Ongoing
6. W4H PE	Ghana	June 2019–November 2019	Ongoing
7. Formative Research for Gender and Hygiene Behaviors	Mozambique	October 2019–June 2020 (est.)	Approved, developing revised timeline
8. MBS DST Ethiopia	Africa Bureau	October 2019–to be determined (TBD)	Approved Q1 Year 4
9. MHM Supplement	E3/GEWE E3/Women's Global Development and Prosperity (WGDP)	TBD	SOW received, pending response

2.2.1 NOURISH IMPACT EVALUATION

WASHPaLS assumed management of the NOURISH IE at the start of Year 3. The evaluation team includes Georgia Institute of Technology (Georgia Tech) and MSI, a Tetra Tech company. The team held a conference call with the NOURISH project team to discuss the management transition, and held a separate call with USAID/Cambodia and the NOURISH project team to coordinate further in light of an anticipated change in the NOURISH Chief of Party (COP), and to coordinate timelines for a separate endline study planned by the NOURISH team. USAID/Cambodia determined that NOURISH would move ahead with conducting their endline in December 2018, while the IE endline would keep to its timeline for July 2019. The annual implementation fidelity monitoring report was submitted and

approved in February after delays in receiving the data from the NOURISH implementing partner. Quarterly fidelity monitoring reports were submitted and approved through the end of June, when the original SOW (as will be measured by the IE) was fully implemented. Although NOURISH received an extension and will continue delivering WASH and nutrition programming, they agreed to coordinate this work so as not to interfere with the IE.

In April, the team and USAID's Senior Nutrition Advisor discussed the potential addition of anemia testing as a secondary outcome measure; however, they decided not to include that measure in the endline data collection efforts due to concerns over the reliability and cost effectiveness of the proposed testing method. The evaluation team submitted detailed research protocols for review by the Cambodian National Ethics Committee for Health Research (NECHR) within the Ministry of Health, which were reviewed and approved within the same month. The team also prepared and applied for US ethics approval from the Georgia Tech Institutional Review Board (GTIRB) in early May; however, protocol adjustments were required to assure GTIRB that Georgia Tech's Principal Investigator (PI) would have sufficient oversight over data collection and analysis (work subcontracted by Tetra Tech to different entities). To this end, the data collection firm shared data from the household surveys and anthropometry measurements directly and only with the PI via a secure server, after which the PI removed any personally identifiable information, before sharing the data with the broader team for quality assurance/quality control and analysis. In addition, Tetra Tech submitted a separate application for ethics approval to the New England Institutional Review Board (NEIRB) to ensure that data analysis and staff not covered by the GTIRB process were also held to ethical research standards, as outlined in the Common Rule for protection of human subjects in research.

With the above structuring in place for oversight by the three IRBs (i.e., NECHR, GTIRB, and NEIRB), the team prepared amended protocols and full applications to ensure that the research plan was consistent between them, and to include letters of support from three Provincial Health Departments covering the geographic scope of the research. All IRB approvals were in place by the end of July 2019 and the trial was registered as a clinical trial in the ISRCTN clinical trials registry (https://doi.org/10.1186/ ISRCTN77820875). This World Health Organization trials registry serves to record the study design, methods, measures including primary and secondary outcomes, and other trial details for transparency in the scientific community.

In April, WASHPaLS issued a public call for a local research firm to conduct the endline data collection in parallel with the IRB review, including administering a household questionnaire, taking anthropometric measurements, and collecting stool samples. The team reviewed the seven proposals received and awarded the subcontract to KHANA Center for Population Health Research in May.

In July, the Evaluation Coordinator traveled to Cambodia to train enumerators and oversee the startup of data collection by the contracted firm; the Evaluation Coordinator further assisted in the first two weeks of data collection to oversee and course-correct logistics and methods. WASHPaLS modified the MSI subcontract to provide additional time in country so that the Evaluation Coordinator could support proper handling of stool samples for international shipping and provide additional support to the IRB process. WASHPaLS also

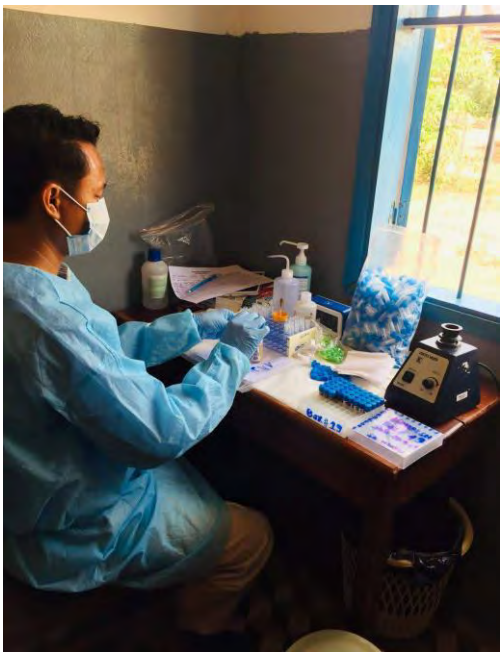

Photo 1: Aliquot of stool samples for the Cambodia NOURISH IE.

procured a quantity of lysis buffer, a solution to preserve stool samples during shipping, and sent it with the Evaluation Coordinator, since it was not available for purchase in Cambodia. All logistical details for collecting, handling, storing, processing, and archiving stool samples were finalized, with data collection commencing on August 1 for four weeks.

By the conclusion of Q4, the evaluation team successfully completed data collection for the IE, including all stool sample collection and processing in country, according to the protocols approved by all IRBs. This included conducting 4,015 household surveys in the main survey (covering 4,124 eligible children) and collecting 3,155 stool samples. Stool samples await shipment for further molecular analysis at the Georgia Institute of Technology under the direction of the study PI, Joe Brown. Anthropometry data analysis is in progress, and a draft report on primary outcomes (survey data and anthropometry) is expected at the end of Year 4 Q1, followed by completion of laboratory analysis and final reporting.

2.2.2 KENYA RAPID IMPACT EVALUATION

At the start of Year 3, local subcontractor Ipsos provided a final report on the borehole asset survey and installation of sensors that was completed late in Year 2 to initiate Round I data collection. From this data, the evaluation team matched evaluation boreholes with boreholes in the Kenya RAPID project implementation counties, to create a comparison group and to select counties for the qualitative portion of the research.

Ethical approval required for the qualitative aspect of the evaluation was received from the Kenya Medical Research Institute (KEMRI) in October. The evaluation met the requirements of the National Commission for Science, Technology and Innovation (NACOSTI) by expanding the involvement of Ipsos, a NACOSTI-registered organization, into the qualitative arm. Led by WASHPaLS institutional partner Aquaya, the evaluation team visited four counties (Turkana, Baringo, Tana River, and Garissa) from November 5 through November 30 to collect data, conducting nine FGDs and 19 key informant interviews (KIIs). The team coded and analyzed the qualitative data by theme using NVivo software. The WASHPaLS Technical Operations and Finance Manager (TOFM) traveled to Kenya in early December to assist with data collection for the KIWASH evaluation (described below) and was able to meet with RAPID partners, including USAID/KEA, to discuss progress with the study and establish a timeline for completion of Round I.

In January, WASHPaLS submitted the draft Round I evaluation report to USAID, followed by a remote presentation to USAID staff in Washington and Kenya. Based on USAID feedback, WASHPaLS adjusted the evaluation questions to more accurately reflect the focus of the evaluation on borehole functionality, rather than on the broader issue of drought risk management. The evaluation team committed to engaging the RAPID team to monitor the fidelity of implementation to the project design. After the evaluation report was finalized, the PI presented preliminary baseline findings at the University of Colorado Boulder WASH Symposium in March.

In Q3, the team continued planning for the next round of data collection (which would entail revisiting all 132 comparison boreholes where sensors had been installed in the previous round, to download the year's data on functionality). WASHPaLS issued new subcontracts to MSI and Ipsos for continued engagement with the Evaluation Coordinator and the field teams through Rounds II and III. This detailed planning brought to light that the original amount budgeted for the activity was insufficient to cover actual costs, due to an underestimate of travel costs to reach the numerous, isolated boreholes. WASHPaLS confirmed with USAID that additional funds would be made available as necessary to complete the activity as designed.

In the interim, the team performed a check on sensors, extended ethical approval, and pursued fidelity monitoring. The local consultant conducted phone calls with a limited number of borehole managers in

non-RAPID counties to establish that the majority of sensors remained in place and were functional, with encouraging results. Ethical approval for the qualitative data collection through KEMRI requires annual renewal, despite there being no qualitative research planned for this year, so the team obtained an extension through October 2020 to cover Round III. Lastly, the evaluation team held quarterly conference calls in June and September with the RAPID implementation team to receive updates on project activities relevant to the evaluation. Although RAPID and its partners agreed that the most efficient and reliable way to communicate detailed project updates would be to share quarterly reports, the Kenya RAPID Agreement Officer's Representative (AOR) declined to release that information. The evaluation team will continue to hold regular check-ins with the RAPID team and plans to revisit the request early in Y4 Q1.

The Evaluation Coordinator did not travel to the field to oversee this round of data collection, resulting in some cost savings, and was able to manage the preparations and field work remotely. He developed a detailed guide for field teams on how to access the sensor data, and reviewed the steps with the subcontractor in advance of enumerator training. Through this process, it was determined that a special cable was needed to download sensor data, a set of which were procured by Tetra Tech and shipped to Kenya.

Ipsos initiated Round II data collection with enumerator training on September 23, followed by a pilot and debrief. Teams traveled to the field on September 27 for two weeks of data collection. Eight teams of three people were sent to eight counties, where 132 sensors had been installed in Round I, to coordinate with local borehole representatives, download sensor data to laptops using specialized software, and conduct a short borehole characteristics survey. The borehole survey was a truncated version of the survey implemented during Round I, and provides context for any changes that occurred to the borehole, the pump, or broader borehole usage since Round I. Ipsos uploaded data on a daily basis to be checked by the Evaluation Coordinator for data quality assurance. Data cleaning analysis and reporting will follow in Y4 Q1, dependent on the timeliness of data sharing by RAPID partner SweetSense to compare the intervention and control boreholes.

The team faced severe rains in some counties, as well as technology challenges. Ipsos identified 17 sensors that were not available for download (due to breakage, theft, or tampering) and installed 11 replacement sensors. WASHPaLS identified a key challenge, also reported by SweetSense, that borehole pumps are occasionally replaced or moved. When this happens, the installed sensor is often discarded or improperly reinstalled. A key lesson from Round II data downloading is to include a contact phone number with clear instructions, should this occur in the future.

2.2.3 KIWASH MIDTERM PERFORMANCE EVALUATION

After receiving approval late in Year 2, WASHPaLS rapidly initiated work on the KIWASH mid-term performance evaluation with a call with the USAID/KEA M&E Specialist on October 1, 2018. The evaluation Team Leader mobilized to Kenya the following week to meet members of the local evaluation team (the Nutrition Specialist, Gender Specialist/Local Coordinator, and Governance Specialist) and participate in entry meetings with USAID and the KIWASH Implementing Partner (IP). The team reviewed project documentation provided by USAID and the IP, and submitted a draft Inception Report. The team revised the report with minor feedback from USAID and the IP, and the report was approved by November 1.

Primary data collection consisting of KIIs and FGDs with national, county, and local stakeholders began on November 5 and continued for five weeks. During this time, the evaluation team conducted over 90 KIIs and FGDs in five KIWASH counties, including Nairobi. The project's Evaluation Team Leader, WASH Specialist, and TOFM each joined the local team at various times during the data collection effort. To maintain the accelerated pace of the evaluation, data analysis and report writing proceeded

concurrently during November. The team submitted a draft report to USAID/KEA on December 14 and the Team Leader returned to Nairobi the following week to lead an in-person debrief on the initial evaluation findings for USAID staff, which coincided with a visit by the USAID WASH Technical Advisor for Africa. This early presentation of findings allowed the Mission to immediately utilize learnings and insights for decision making.

The evaluation team submitted a second draft of the report to USAID on February 10, incorporating USAID and KIWASH IP feedback (received in January), insights from three additional KIIs with government stakeholders in Nairobi, and more nuanced findings from the data review. After another round of comments, final deliverables were submitted and approved in March, including the final evaluation report and annexes, a 15-page summary of findings and recommendations, and a 2-page brief.

Following completion of this activity, WASHPaLS conducted its first client satisfaction survey, eliciting feedback from the Mission on the delivery of this first completed Component 1 buy-in activity. The Mission expressed particular satisfaction with the technical quality of the evaluation and the team members' sensitivity to the local context. WASHPaLS continued to receive positive feedback on the evaluation through various channels. At the request of USAID/Washington, DC, the WASH Specialist presented the results to USAID/DC at a brown bag event hosted by the Water Office in June. Lessons learned from this activity were applied to the W4H performance evaluation in Ghana (discussed below).

2.2.4 MENSTRUAL HYGIENE MANAGEMENT ACTIVITY

In November 2018, the TOCOR shared the SOW for a Component 1 buy-in from USAID's E3 Bureau for an MHM action research task to direct funding that had been obligated late in Year 2. The proposed work focuses on the productive economic phase of women's lives and how adequate MHM in the formal and informal workplace could potentially catalyze women's economic empowerment. The research seeks to: 1) better understand the gap in the literature through a systematic review and comprehensive search of the grey literature, 2) investigate the potential gendered economic empowerment impacts of MHM in the workplace through an economic impact study, and 3) design and pilot an MHM workplace intervention activity to increase women's economic empowerment.

WASHPaLS submitted a technical response to the SOW in December, outlining that WASHPaLS partner Iris Group would lead this research. The project subsequently revised this plan based on USAID comments and approvals received in mid-February. USAID then hosted a kickoff meeting with the project team and key USAID stakeholders in early March to discuss the technical scope and timeline for the study, as well as potential countries for implementing the MHM workplace intervention activity. Attendees also discussed potential members for a technical advisory group (TAG) and key informants to consult as part of the desk review.

Following the kickoff meeting, Iris Group staff began the desk review, conducting a systematic review of peer-reviewed literature in March and April. Staff developed a set of search terms and screening criteria and conducted title/abstract and full-text screening and data abstraction. The team also compiled and reviewed the grey literature and spoke with key informants using a pre-defined interview guide. The KIIs included a virtual interview with USAID/WASHPaLS Advisory Board member, Jan Willem Rosenboom, in April 2019.

In May, the team hosted an in-person meeting with contracted technical experts to present the literature review findings and kick off the economic impact study. Due to the data limitations identified in the desk review relating to MHM and workplace MHM programs, it was not possible to conduct the Economic Impact Study (EIS) as part of Task 1 as originally planned. Instead, the team developed a conceptual model as a foundation for the EIS and compiled available quantitative and qualitative evidence regarding the costs and benefits of workplace MHM, and will conduct a cost-benefit analysis as part of

the learning and action research activity in Tasks 2 and 3. The team integrated the conceptual model and table of costs and benefits into the desk review report, which has been reviewed internally and by USAID and will be finalized early in Year 4.

The desk review found a lack of evidence on how women manage their periods in the workplace and on workplace approaches to improving MHM conditions. To build a greater body of evidence and inform future programming, the review suggested the following recommendations for the sector:

1. Shift focus from hardware interventions that target toilets, facilities, and MHM products to those that address social norms and workplace culture relating to menstruation;
2. Integrate MHM programming with sexual and reproductive health initiatives;
3. Increase government attention to and investment in MHM research and programming;
4. Gather more information on the menstrual experiences of working women (e.g., what are their needs, how do they manage their periods, what are the limitations they experience, etc.);
5. Generate better data through the creation of MHM-specific indicators; and
6. Evaluate interventions in both formal and informal work settings.

The team presented the findings from the desk review report during two sessions at the Stockholm World Water Week (SWWW): one titled "Women and Youth: Living Apart Together" convened by the DFAT Water for Women Fund, UN Women, World Bank, Water for Youth Network, and the Women for Water Partnership, and another titled "MHM: Health and Dignity for All" co-convened by UNICEF. The desk review was also submitted to the 2019 UNC Water and Health conference and accepted as a poster presentation (presented in Y4 Q1, as pictured in Photo 2).

Upon completion of the desk review, the team initiated a strategic search for potential corporate partnerships as part of Tasks 2 and 3. Findings from the desk review informed the design of partnership selection criteria, along with an overview of the learning activity, which the team drafted and finalized in a one-page Workplace MHM Briefing Sheet to assist in partnership identification. Additionally, the team suggested a shortlist of countries on which to focus the partnership search, based on recommendations from the desk review and further research on corporate profiles in sub-Saharan Africa. USAID shared the one-page Workplace MHM Briefing Sheet and a brief summary email with select Missions for review and consideration. The team expects to narrow this search early in Year 4 through further landscaping and outreach. In parallel, WASHPaLS has been developing the learning activity and expects to consult members of the TAG following the scoping trips at the end of Y4 Q1.

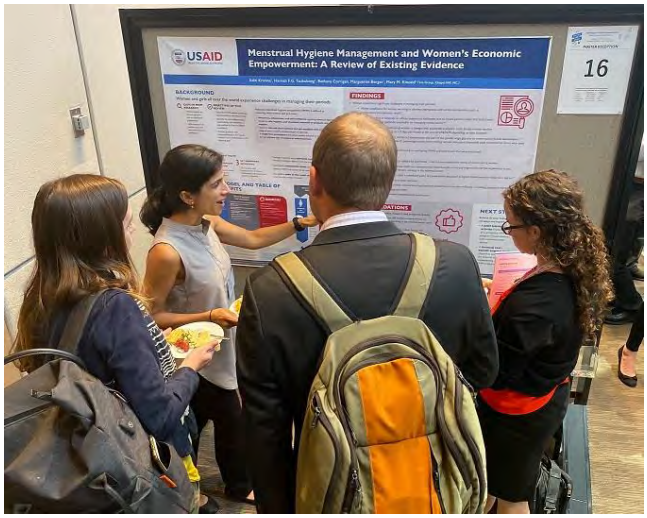

Photo 2: Presentation of results at the 2019 UNC Water and Health Conference.

On September 30, the TOCOR shared a SOW for an MHM action research task to expand the scope of the existing buy-in activity, matched by a funding obligation from the GenDev office and the WGDP office (both housed under E3/GEWE) that would significantly increase the activity budget. WASHPaLS will develop a technical response for the expanded MHM scope for USAID's review early in Y4 Q1.

2.2.5 SUPPORT TO THE GLOBAL HANDWASHING PARTNERSHIP (GHP)

On February 27, WASHPaLS received a buy-in request to channel USAID's annual commitment of financial support to the GHP. WASHPaLS partner FHI 360 currently hosts the GHP Secretariat, and WASHPaLS' technical response proposed to fund FHI 360's ongoing support to the GHP. WASHPaLS received technical approval to increase FHI 360's subcontract ceiling on March 28. This work supplements and is distinct from the ongoing technical support to the GHP provided by WASHPaLS as described under Component 4. Major work streams under the Component 1 buy-in include: facilitation of the GHP Steering Committee and development of the Strategic Plan; handwashing advocacy (in priority countries, around Global Handwashing Day, and around SWWW); and an update to the Handwashing Handbook.

After careful assessment, FHI 360 provided overall program management as the host of the GHP Secretariat. The GHP Secretariat convened a Steering Committee meeting at SWWW on August 28 to provide a brief report on the progress of the 2019 Business Plan and receive input from the Steering Committee on high-level questions for the GHP strategic plan update. Development of the strategic plan continued for the rest of Year 3, through individual interviews with steering committee members, GHP members, and other stakeholders. The GHP Secretariat is planning to hold a strategy workshop at the UNC Water and Health Conference early in Year 4, after which the strategy update will be completed. The Secretariat also processed a new member application from MSR Global Health.

The GHP supported hygiene advocacy in select countries, identified through a previous round of prioritization. Notably, the GHP is coordinating with the Government of Nigeria and partners to ensure handwashing has a prominent place in the upcoming Clean Nigeria Campaign, by planning for a Nigeria Handwashing Roundtable to be held in early Year 4.

The GHP plays a key role in facilitating the ongoing celebration of Global Handwashing Day on October 15 and the promotion of handwashing. In Year 3, the Secretariat produced materials to promote inclusive handwashing promotion around Global Handwashing Day 2019, and support Global Handwashing Day celebrants. The materials included updates to the Global Handwashing Day website, the campaign's main calls to action, a theme infographic, a social media toolkit, and an inclusion fact sheet. The Secretariat also promoted handwashing and Global Handwashing Day at SWWW, including co-convening a session on handwashing in emergencies and co-convening and serving on panels on the needs of frontline health workers and integration of WASH and nutrition.

Lastly, the GHP initiated an update of the Handwashing Handbook, published in 2005, to reflect most recent best and promising practices, and convened a Task Force to oversee the update process. The handbook is a comprehensive guide to designing and implementing handwashing behavior change programs.

2.2.6 W4H PERFORMANCE EVALUATION

On April 18, the TOCOR shared a draft SOW for a Component 1 buy-in from USAID/Ghana for a performance evaluation of the W4H activity implemented by Global Communities. WASHPaLS submitted the technical response on May 10. Final approvals for the activity—including USAID/Ghana approval for the funding obligation, a final SOW, and approval to exceed the Local Compensation Plan for three of the local consultants—were received in the third week of June, at which time Global Communities shared background documents. An initial call to discuss a revised timeline took place on July 1, and the Team Leader travelled to Ghana on July 8 to initiate activities.

The Team Leader for this evaluation is the same individual who led the KIWASH evaluation with noted success. WASHPaLS recruited a team of local subject matter experts to support the evaluation, including a WASH Specialist/Deputy Team Leader, a WASH Governance Specialist, a CLTS/Behavior Change Specialist, a Research Specialist, and a Local Coordinator.

Primary data collection consisting of KIIs and FGDs with national, district, and local stakeholders began on July 23 and went for five weeks. During this time, the evaluation team conducted 90 KIIs and FGDs in ten W4H districts. The Evaluation Team Leader and the TOFM each joined the local team at various times during the data collection effort. To maintain the accelerated pace of the evaluation, data analysis and report writing proceeded concurrently during September. The Team Leader returned to Ghana in the second week of September to deliver a debriefing and presentation of initial findings and draft recommendations, enabling the Mission to apply these insights for ongoing business and decision making. Drafting the evaluation report continued through the end of the year; the draft will be submitted for USAID's comment early in Year 4, followed by the final report, a 2-page brief, and a 15-page summary.

Photo 3: Handwashing infrastructure in a W4H community.

2.2.7 FORMATIVE RESEARCH FOR GENDER AND HYGIENE BEHAVIORS IN MOZAMBIQUE

On May 30, USAID provided a draft SOW on behalf of USAID/Mozambique to conduct formative research on Gender and Hygiene Behaviors. WASHPaLS questioned whether certain details on USAID project design contained within the SOW represented a potential institutional conflict of interest. USAID assured WASHPaLS that any products of the activity would be disseminated publicly to reduce any chance of preclusion from future awards for follow-on work. WASHPaLS submitted the Technical Response Package on July 1, and resubmitted it following USAID comments, with technical approval received on July 31. Administrative approval and the associated funding obligation were not received until September 27.

The original timeline proposed initial scoping trips in September; however, due to the delayed approval to begin the activity, concerns over post-election unrest in October, and staff availability in November, WASHPaLS has shifted the timeline for scoping to December, pending USAID approval for international travel.

2.2.8 ETHIOPIA DECISION SUPPORT TOOLS

On August 2, the TOCOR shared a SOW to apply the Taxes and Tariffs Module of the DST in Ethiopia. WASHPaLS was asked to model the potential impact on the uptake of plastic sanitation products and on the cost to the government (e.g., loss in fiscal revenue) from a reduction of import tariffs and domestic taxes, among other possible price reduction mechanisms. The project will present recommendations from the activity to USAID Ethiopia and the Government of Ethiopia with the aim to increase sanitation coverage and influence participants in the value chain for plastic sanitation products.

WASHPaLS submitted a technical response on September 9, proposing to subcontract the bulk of the work to FSG, and technical approval was received on September 27. WASHPaLS submitted an

accompanying request for consent to increase the ceiling of FSG's subcontract on September 27; approval was received early in Year 4, with a scoping trip planned for Y4 Q1.

2.2.9 TECHNICAL ASSISTANCE ON MARKET-BASED SANITATION IN MADAGASCAR

On September 11, the TOCOR shared a SOW to support the USAID/RANO WASH Project in Madagascar to improve the quality of their MBS interventions and subsequent USAID/Madagascar MBS interventions. WASHPaLS was asked to conduct targeted sanitation market assessments to facilitate the development of an MBS strategy for RANO WASH focus districts, in consultation with key sector stakeholders. WASHPaLS was also asked to provide specialized technical assistance to RANO WASH to improve the quality of its interventions to deliver on the MBS strategy. WASHPaLS planned to develop and submit the technical response in early Year 4, but USAID/Madagascar has placed the process on hold pending further consideration due to a potential duplicative effort by RANO WASH and UNICEF/Madagascar.

2.3 COMPONENT 2: IMPLEMENTATION RESEARCH

Component 2 is divided into three research streams:

- In-depth examination and analysis of CLTS (Task 2.1) led by the Aquaya Institute, including a dedicated ICT solution activity led by Tetra Tech (Task 2.1.3);
- Exploration of MBS led by FSG (Task 2.2); and
- Design and implementation of field research to improve hygienic environments (SPS) for IYC, led by FHI 360 (Task 2.3).

Each of the research streams consists of two sequential phases: 1) an initial literature review or desk review to identify current gaps in the evidence base, which was a major focus of Year 1 activities, and 2) a field-based implementation research phase that seeks to fill some of the identified gaps.

The WASHPaLS Research Working Group, comprised of two external Research Advisors and Technical Leads from the various research streams, did not meet formally during the year. However, the Research Advisors were significantly involved in discussions with individual WASHPaLS research teams on design and implementation of the field research, including participation at the UNC Water and Health Conference.

Year 3 progress under each of the tasks is presented in the following sections.

2.3.1 TASK 2.1. COMMUNITY-LED TOTAL SANITATION

Task 2.1.1. WASHPaLS published the manuscript titled *Policy Diffusion in the Rural Sanitation Sector: Lessons from Community-Led Total Sanitation (CLTS)* in the peer-reviewed journal *World Development*. This paper evaluates the evidence of CLTS effectiveness and documents the global diffusion of CLTS since its inception. Building on experiences from the health sector, the manuscript concludes by making recommendations to improve the use of evidence in sanitation policymaking. The manuscript was submitted to *World Development* in December 2018; *World Development* responded with comments in March 2019, and we re-submitted a revised manuscript in June 2019. The manuscript was accepted for publication in August 2019 and published in September 2019.

The CLTS desk review was referenced in a study report and peer-reviewed journal article published by Eawag[1] in Q1, cited in a cost-benefit analysis of CLTS programs funded by the Bill & Melinda Gates Foundation (BMGF) in Q2 and referenced in a World Bank report on smarter subsidies for water supply and sanitation in Q4.

Task 2.1.2. The WASHPaLS CLTS research is focused on two areas: 1) testing the potential of targeted subsidies for improving CLTS program effectiveness, equity, and sustainability, and 2) understanding the factors affecting CLTS performance in terms of open defecation free (ODF) achievement and sustainability.

The central research questions are:

1. ***Targeted Subsidies:*** To what extent do targeted subsidies in post-ODF communities result in sustained latrine coverage, quality, and use among the poor and the rest of the community? What are the costs and challenges of implementing a post-ODF targeted subsidy program?

2. ***The CLTS "Performance Envelope":*** What is the relative importance of contextual characteristics compared to program implementation for ODF achievement? What are the most successful implementation strategies to achieve and sustain ODF and promote the construction of durable latrines?

3. ***Targeted Subsidies.*** For the Targeted Subsidies study, WASHPaLS is implementing a cluster randomized controlled trial (cRCT) in which subsidies are offered to the most vulnerable households in communities that have achieved ODF status in Ghana. This research is being conducted in partnership with UNICEF Ghana; this partnership was formalized with a memorandum of understanding (MOU) signed in October 2018. In alignment with the "Pro-Poor Guidelines" issued by the Ministry of Sanitation and Water Resources in June 2018, the UNICEF/Government of Ghana (GOG) program offers a subsidy to vulnerable households within ODF communities in select districts of the Northern Region to construct durable toilets acquired through the local sanitation market. This provides WASHPaLS the opportunity to layer a cRCT experiment.

In Q1, WASHPaLS submitted the draft inception report for the subsidy study, including the study protocol, to USAID. Also in Q1, WASHPaLS completed formative research to inform the design of the subsidy study in Northern Ghana, which included:

- 8 case studies;
- 143 household surveys;
- 6 supplier interviews;
- 3 FGDs with trained artisans;
- Preparing a trip report summarizing findings; and
- Finalizing study areas and other implementation details with UNICEF Ghana (additional details provided in the trip report).

In Q2, WASHPaLS focused on finalizing the study design, and preparing for and initiating baseline data collection. Specifically, the research team finalized the inception report, developed a 2-page briefing note

[1] Harter, Miriam, Jonathan Lilje, and Hans-Joachim Mosler. 2019. "Role of Implementation Factors for the Success of Community-Led Total Sanitation on Latrine Coverage. A Case Study from Rural Ghana." *Environmental Science & Technology* 53 (9). American Chemical Society: 5466–72. https://doi.org/10.1021/acs.est.9b01055.

to communicate the study objectives to local audiences, and secured ethical approval from the international Western IRB and the Ghana Council for Scientific and Industrial Research. The latter required that WASHPaLS hire a Ghanaian researcher as co-PI. Additionally, WASHPaLS identified the two study districts (Kpandai and Tatale) in consultation with UNICEF to accommodate their programmatic priorities. By late Q2, ODF communities in the two study districts were randomized and assigned to intervention and control groups in the presence of the District Assembly staff to ensure transparency and local engagement. The research team recruited local enumerators, programmed digital questionnaires using the electronic data collection platform CommCare, and piloted the data collection tools during the training of 11 enumerators and three supervisors in February 2019. Data collection commenced in March 2019. The technical lead resided in Ghana through baseline data collection to coordinate the three enumerator teams. The July issue of CLTS Knowledge Hub's "Frontiers of CLTS" has since referenced the subsidy study inception report while adapting multiple tables and figures to provide guidance on when and how to use support mechanisms to strengthen equality and non-discrimination in rural sanitation.

WASHPaLS officially launched the subsidy study during a meeting of national WASH stakeholders, called a National-Level Learning Alliance Platform (NLLAP), in Accra on March 19, 2019. The half-day event allowed WASHPaLS to present the study objectives and timelines and respond to audience questions, followed by a panel debate featuring WASHPaLS, USAID, Global Communities, UNICEF, and the Coalition of NGOs in Water and Sanitation in Ghana (CONIWAS). Forty-five participants (16 female, 29 male) attended the event, including a representative from the Ministry of Sanitation and Water Resources. The event received positive media coverage (i.e., in the newspaper and online press). Following the event, the WASHPaLS Deputy Project Director met with the Director of Sanitation to describe the purpose, design, and expected outcomes of the study. The launch revealed significant interest from Ghanaian stakeholders in post-ODF targeted subsidies.

Photo 4: Electronic data collection in Ghana.

In Q3, WASHPaLS completed baseline data collection in the two study districts (Kpandai and Tatale) and refined the subsidy implementation protocol in collaboration with UNICEF Ghana. WASHPaLS completed data collection in June 2019, surveying 5,615 households in 98 communities. In parallel with baseline data collection, WASHPaLS worked with UNICEF and District Assembly officials to refine the subsidy implementation approach. Specifically, WASHPaLS developed a protocol and data collection tools for District Assembly staff to identify the poorest and most vulnerable households via community consultation, followed by visits to identified households to verify eligibility criteria. In addition, WASHPaLS piloted this protocol, designed materials for the subsidy implementation (i.e., vouchers and study fliers), and developed a process for tracking voucher redemption. At the end of June, WASHPaLS helped train 36 District Assembly staff on the subsidy implementation protocol. However, UNICEF postponed rollout of the subsidy intervention due to delays in transferring funds to their IPs in the field, and prioritized a revolving fund intervention that provides sanitation loans in the Northern Region. In May 2019, WASHPaLS presented the study objectives and design to the Northern Region Sanitation Coordinating Committee.

In Q4, WASHPaLS assisted the Tatale District Assembly to identify the most vulnerable households in 35 "treatment" communities. The technical lead travelled to Ghana for a period of seven weeks. While

in Ghana, she presented the subsidy study to all WASH stakeholders in the Northern Region and met UNICEF's implementing partners, Rufinlit and two financial institutions (Baobab and Vision Fund). She ensured that all partners are up to date with the research protocol and co-designed an electronic tool for tracking voucher redemptions. Additionally, the technical lead and six former enumerators delivered refresher trainings to District Assembly facilitators. Enumerators attended and monitored beneficiary identification activities in 32 out of 35 communities, recording observations on challenges and facilitation quality. The process identified that roughly 15% of households are eligible for the targeted subsidy, which is a substantially lower proportion than anticipated from the GOG's Livelihood Empowerment against Poverty (LEAP) program (~30% in the study area). UNICEF plans to begin voucher distribution in Tatale District in November 2019. The timeline for implementation activities in the second study district, Kpandai, is unclear; it is likely that UNICEF will want to wait until early 2020 to accommodate other programmatic priorities in this district.

Also in Q4, WASHPaLS cleaned and began analyzing baseline data. The results revealed that the majority of the 98 study communities no longer met the requirements for ODF status. Seventy-two (73%) had a community-wide latrine coverage below 80%, and 65 (66%) had more than 10% of households reporting open defecation. At the household level, WASHPaLS found that 61% of households possessed a functional latrine and 72% reported always using a latrine to defecate when at home. Both latrine ownership and latrine usage increased with wealth quintile. The project found minimal differences between treatment and control households in terms of demographics and sanitation indicators. In Y4 Q2, WASHPaLS will prepare a manuscript on the drivers of slippage for submittal to a peer-reviewed publication.

Over the course of Year 3, WASHPaLS developed strong collaboration with UNICEF Ghana. Despite several UNICEF staff transitions in Q3 and delayed timelines that led to the expiration of the funds originally earmarked for the targeted subsidy, the study has moved forward with only minor adjustments to the study districts, which demonstrates UNICEF's commitment. It is also important to note that WASHPaLS has played a much bigger role than expected in designing protocols and tools for the targeted subsidy intervention. Overall, UNICEF has been very receptive to WASHPaLS' inputs, and WASHPaLS has taken the lead on several aspects of the intervention, particularly around data management.

Finally, in addition to the Ghana field trial, WASHPaLS co-funded the endline data collection for a CLTS subsidy experiment conducted in Lao PDR by Thrive/East Meets West with funding and support from World Bank Water and Sanitation Program (WSP). The final report on that work was submitted in May; WASHPaLS is working with counterparts at Georgetown University and the University of Melbourne to complete and submit an academic manuscript capturing study results. Submission of the manuscript is planned for Y4 Q1.

Performance Envelope. For the Performance Envelope study, WASHPaLS is employing a mixed quantitative/qualitative, non-experimental approach examining the relative importance of contextual factors (such as population size/density, social cohesion, cultural and gender norms, remoteness, baseline levels of OD, or toilet coverage) and program implementation factors (such as follow-up, engagement of local leaders, and pro-poor support) to better understand the diversity of strategies that have been used at the community level and gauge their relative effectiveness. The following research questions guided WASHPaLS' work:

1. What is the relative importance of contextual characteristics compared to program implementation for ODF achievement?
2. What are the most successful implementation strategies to achieve and sustain ODF and promote the construction of durable latrines?

WASHPaLS is investigating these questions through quantitative analysis of secondary data sets submitted by CLTS implementers (Question 1), and primary qualitative data collection to investigate performance factors that cannot easily be quantified (Question 2).

Performance Envelope quantitative research. For the quantitative analysis of performance envelope, WASHPaLS is analyzing seven CLTS datasets from four countries: Zambia (Akros/Zambia Ministry of Water, Development, Sanitation and Environmental Protection; 20,398 communities), Cambodia (Plan International; 2,273 communities), Ghana (UNICEF/GOG and Global Communities; 5,059 communities), and Liberia (Global Communities; 2,026 communities). In Q1, WASHPaLS secured all but the Ghanaian datasets, cleaned the Zambia and Cambodia datasets, and merged the Zambia dataset with other existing datasets on contextual and implementation factors.

In Q2, WASHPaLS secured the Ghana datasets and completed the cleaning and preliminary analysis of all datasets. The research team examined relationships between contextual factors (village size, remoteness, water supply, education level, poverty rate, flooding frequency, proximity to water bodies, and burden of waterborne diseases) and three measures of CLTS performance: achievement of ODF status (all countries), increase in latrine coverage over time (Cambodia, Ghana, and Liberia), and post-ODF slippage (i.e., reverting to OD) (Zambia). Drawing on the literature, WASHPaLS developed a directed acyclic diagram for CLTS performance to guide the selection of multivariate models for the analysis. The research team also conducted follow-up interviews with implementers to discuss information gaps and preliminary findings, activities that extended into Q3.

In Q3, WASHPaLS worked on refining and synthesizing findings from the quantitative analysis and from qualitative follow-up interviews with IPs. WASHPaLS prepared a slide-deck of preliminary findings that was presented to USAID in June 2019.

In Q4, WASHPaLS presented the overall results to the WASHPaLS Advisory Board and also presented in-depth country-specific results to all primary partners in each of the four countries. The partners responded very positively, and their feedback is being incorporated into revised PowerPoint summaries and country briefs, which will be finalized in Y4 Q1. Some partners requested practical guidance to conduct situational analyses for future implementation, or to improve data collection and management. WASHPaLS also developed an electronic interactive dashboard that was showcased in a side session at the UNC Water & Health Conference in October 2019.

The Performance Envelope quantitative study has highlighted that a number of contextual factors greatly affect the outcome of CLTS interventions. Some of the drivers of performance appeared to apply globally, such as small community size. Other factors had opposite effects in different countries; for example, population density, proximity to cities, and education level all positively affected CLTS performance in Cambodia, but had a negative effect in Ghana. WASHPaLS also showed that practical thresholds of these variables can be identified to guide future implementation. Overall, the findings showed that implementers can use existing data on contextual factors to anticipate program outcomes and plan accordingly. WASHPaLS will develop a scientific publication on the performance envelope quantitative work, with a draft planned for February 2020.

Performance Envelope qualitative research. WASHPaLS's approach to the second research question is qualitative, employing a comparative case study design. This research examines communities that 1) never achieved ODF status, 2) achieved but did not sustain ODF status, or 3) sustained ODF status. The work is being conducted in Cambodia in partnership with the Cambodia Rural Sanitation and Hygiene Improvement Program (CRSHIP)/Plan and in Ghana in partnership with Global Communities.

In Cambodia, WASHPaLS initiated field work in Q1 by subcontracting and training a local research team (iDE [International Development Enterprises]), piloting data collection instruments, securing ethical approval, and starting data collection in November 2018. The team completed data collection in March 2019, including 202 KIIs and 14 FGDs across 13 villages. The research design initially planned for a sample size of 15 villages, or until the research team felt they had reached saturation of information. After completing 13 communities, the research team decided to return to some villages to investigate the emerging themes, rather than continue on to new villages. Overall, the research encountered challenges isolating CLTS activities from other sanitation programs that have taken place in Cambodia, but also collected substantial qualitative data on the drivers for household latrine construction and challenges for sustaining ODF.

Photo 5: PE Qualitative data collection in Cambodia.

In Ghana, WASHPaLS completed a scoping mission at the end of Q2 to begin setting up logistics for qualitative data collection, and to meet with key stakeholders in Ghana's Northern Region. WASHPaLS received local IRB approval for the qualitative study and launched data collection activities in May 2019. After consultation with local partners, WASHPaLS decided to include two CLTS programs in the research: the USAID/W4H project and the USAID/Resiliency in Northern Ghana (RING) program. Global Communities implemented both CLTS programs but the geographies are distinct, operating in different districts in Ghana's Northern region. WASHPaLS held a launch meeting in May 2019 with District and Regional Environmental Health officials in Tamale, Ghana. WASHPaLS subcontracted a local partner organization, NHance Development Partners, to support the management of the qualitative research team. The qualitative research team was trained and piloted the data collection tools in May with the support of WASHPaLS staff, and began collecting data at the end of May. The research team completed data collection in July 2019, including 162 KIIs and 15 FGDs in 15 villages. In addition to the implementation factors of interest (leadership, follow-up, and pro-poor support), the research team collected qualitative data on the role of sanctions, community incentives, and OD behaviors.

WASHPaLS is utilizing fuzzy-set Qualitative Comparative Analysis to analyze the Cambodia and Ghana data. This methodology allows for a rigorous semi-quantitative approach to analyzing case studies that include both qualitative and quantitative data, with the goal of identifying key factors that influence a predetermined outcome. The final output of the analysis will include an analysis of which factors lead to sustained ODF status. WASHPaLS completed qualitative coding of all interview and focus group transcripts for the Cambodia data in September 2019, and will complete coding of Ghana data in Y4 Q1. The analysis for both countries is ongoing, and WASHPaLS will share country-specific results with partners as they become available through video conference presentations in order to gather their feedback. In Y4 Q2, the project will prepare a manuscript for submittal to a peer-reviewed publication.

Zambia is a potential third country for conducting the PE qualitative work, and WASHPaLS established a partnership with Akros in Year 2. During a scoping mission to Zambia in December 2018, WASHPaLS conducted in-person interviews for the local researcher position, submitted documents for local IRB approval, and met with key stakeholders in Zambia including the Ministry of Water, Development,

Sanitation and Environmental Protection and UNICEF Zambia to align on study goals and project timelines. Though qualitative data collection in Zambia was scheduled to begin early in Q2, this was placed on hold to allow WASHPaLS to better coordinate with UNICEF Zambia's planned end-of-program evaluation. A decision on whether to proceed with qualitative research in Zambia will be made early in Y4 Q1.

WASHPaLS presented on the study design of the CLTS PE quantitative and qualitative research at the Bay Area WASH Symposium at University of California (UC) Berkeley in May 2019. The session was attended by approximately 60 academic researchers, primarily from UC Berkeley, Stanford, and UC Davis.

Information and Communications Technology. This aspect of the research examines the effectiveness of deploying an ICT tool to aid at-scale CLTS implementation and reporting through a case study analysis of the M2W platform developed by Akros, in collaboration with the Ministry of Housing and Local Government in Zambia. Specifically, this research examines the following questions:

1. To what extent is the M2W platform used for decision-making?
2. What did it take to successfully implement the M2W platform at scale? What factors contribute to the sustainability of M2W?

At the end of Y2, UNICEF Zambia accepted WASHPaLS' research design and agreed to review documentation prepared by local partner Akros under their subcontract with WASHPaLS. The first documents were released by UNICEF in December, with the remaining documents following in Q2. In Q3, WASHPaLS worked with Akros to clarify details contained in the documents, including methods, a process for how Akros implemented M2W under their agreement with UNICEF, and some cost data.

While waiting for the release of documents, WASHPaLS missed windows of opportunity for staff to travel to Zambia to conduct field research as originally proposed. In addition, due to changes in the local context during that period, the team determined that any future work with Akros would require adjustments to the research design; therefore, the subcontract was closed.

In Q3 and Q4, WASHPaLS analyzed the documentation to draft a summary of findings on Research Question 2 and to make recommendations on next steps for this research. WASHPaLS circulated a draft report for internal review in August. At the close of the year, field work to answer research Question 1 remains on hold, pending completion of UNICEF's endline evaluation and decisions on the merits of conducting addition research in this area. WASHPaLS also reviewed a draft case study on M2W in Zambia that had been prepared as a Collaborating, Learning and Adapting (CLA) deep dive by the USAID/LEARN program.

2.3.2 TASK 2.2. MARKET-BASED SANITATION

Task 2.2.1. WASHPaLS co-hosted a workshop on "Designing Effective Sanitation Enterprises" with four partners at the 2018 UNC Water and Health Conference. WASHPaLS also presented at the AfricaSan 2019 conference, and presented the top-level findings to social entrepreneurs at the Aspen Network of Development Entrepreneurs (ANDE) 2019 Annual Member Meeting.

Photo 6: Thematic discussion on designing effective sanitation enterprises facilitated by WASHPaLS and partners.

Stakeholders and platforms in the sector have complemented WASHPaLS' efforts to socialize the MBS desk review findings, concepts, recommendations, and terminology. Such initiatives include application in programs and training, and referencing by organizations of repute. Highlights over the year include the following:

- **Application of MBS:**
  - The USAID/Uganda Sanitation for Health activity (USHA) organized the drivers and barriers to scaling sanitation markets using the MBS framework. Furthermore, the project detailed intervention themes for Uganda's National Sanitation Marketing Strategy (NSMS), citing concepts from the MBS desk review. The findings and interventions, yet to be published in the NSMS, were ratified by the MBS sub-committee of the National Sanitation Working Group in Uganda.
  - The USAID/Indonesia Mission incorporated a modified version of the framework in its yet-to-be-published Indonesia sanitation marketing strategy.
  - Teams in USAID/Indonesia and USAID/Haiti participated in workshops conducted by the TOCOR and the Alternate TOCOR to design sanitation enterprises using a game based on the WASHPaLS MBS framework.
  - UNICEF, a strategic partner for USAID and WASHPaLS, continues to play a significant role in embedding WASHPaLS research in its approaches. The contents of the forthcoming guidance on MBS for UNICEF staff align with the WASHPaLS desk review, which is prominently featured as a reference for readers. UNICEF drew upon WASHPaLS's webinar materials for training

practitioners from East and southern African countries. Separately, UNICEF authored a blog on opportunities for market-shaping in West and Central Africa that explained the concept of the business environment, the importance of intervening in this domain, and other concepts and terms related to the sanitation market system from the WASHPaLS desk review.

- **Referencing terminology and concepts:**
  - The World Health Organization (WHO) cited the desk review in its "*WHO Guidelines on Sanitation and Health,*" which has the potential to influence policies and actions.
  - The Sustainable Sanitation Alliance (SuSanA) Working Group #2: Market Development listed the desk review as recommended reading for its members.
  - A paper for the IRCWASH Systems Symposium in March 2019 (co-authored by Mimi Jenkins, Research Advisor, and WaterSHED, research partner for MBS) reinforced a range of concepts and terms established in the WASHPaLS MBS desk review.
  - In Y3 Q2, the Overseas Development Institute (ODI) requested permission to reference select figures, including the framework, from the desk review in a briefing paper on market-based approaches to WASH prepared for Oxfam United Kingdom (UK). Both ODI and Oxfam planned on featuring the briefing paper on their respective websites; at the end of Year 3, the briefing paper was not published.
  - In Y3 Q4, the World Bank cited the desk review to support research in the report "Doing More with Less: Smarter Subsidies for Water Supply and Sanitation."

WASHPaLS released a French translation of the MBS desk review to improve its accessibility in Francophone countries, especially in West and Central Africa. Although the task was approved early in Year 3, WASHPaLS encountered significant difficulties in identifying vendors with the capability to understand and translate the technical content. Following an unsuccessful attempt with a Madagascar-based translator in Y3 Q2, WASHPaLS engaged a France-based translator who came highly recommended. The experience provides two lessons for future reference: a) the value of commissioning vendors based on sample translations such as an Executive Summary, which sets a high bar; and b) investing upfront in co-creating a "dictionary" for the glossary, terminology, and phrases with the translator and testing it with native French speakers, to improve the translator's understanding and reduce revisions.

The top-level findings from the systematic MBS intervention selection process for the desk review were deemed significant for donor funding and approach selection policy. Building on the longlist of sanitation grants collated for the desk review, WASHPaLS systematically analyzed their features and scale performance, drafting the findings of this analysis in a manuscript titled "Global assessment of grant-funded market-based sanitation development projects." The manuscript was submitted to two peer-reviewed journals, PLOSOne and the American Journal of Tropical Hygiene and Medicine (AJTHM), which both declined the manuscript at the editorial review stage. PLOSOne cited its "prior publication" policy and referred to two specific findings that also appeared in the desk review; AJTHM stated that the manuscript was out of scope for the journal. WASHPaLS will resubmit the manuscript to Waterlines in Y4 Q1.

Top-Level Findings: Global Assessment of Grant-Funded MBS Development Projects

- 48% of sanitation supply projects (49/103) qualified as MBS and occurred in 22 countries across the global south.
- Cumulatively, 27.6 million people, nearly all rural, gained access to basic sanitation via markets across these projects. MBS and non-MBS projects have reached similar scale but differ in long-term sustainability.
- Large-scale MBS projects (>50,000 people gaining basic sanitation) were longer and more likely to address the three core elements in sanitation markets—but, on average, used only 6 of 9 good practice strategies.
- Outcomes and program leverage were higher in South/Southeast Asia than in Sub-Saharan Africa. African projects had shorter durations, fewer reached large scale, and more were potentially impacted by adverse broader contextual factors.
- Availability and quality of public documentation on sanitation projects are problematic.

Task 2.2.2. WASHPaLS designed the MBS research activities to respond to evidence gaps identified in the MBS desk review that revealed that, despite the importance of enterprise viability, very little evidence exists on its underlying factors or successful strategies for improving the viability of sanitation enterprises. The desk review also highlighted the critical role of market rules in improving the functioning of sanitation markets. However, evidence gaps remain on how governments can shape market rules to support MBS, and particularly on what specific regulations and policies are necessary to do so. WASHPaLS examined the evidence gaps on two central research questions:

1. How can sanitation enterprises be made viable and sustainable?
2. To what extent can changes in market rules (e.g., legal or regulatory) improve the environment for sanitation markets?

Viability and sustainability of sanitation enterprise. This question relates to understanding the factors that impact the viability of sanitation enterprises, the profile of entrepreneurs who are best suited to act as focal points of sales for the customers, and the types of enterprise capital that are required to improve viability. To answer this question, WASHPaLS undertook retrospective analyses of sanitation enterprises across a range of viability levels and country contexts, interviewing scores of entrepreneurs in three countries. The research was conducted in partnership with three MBS program implementers—Population Services International (PSI) India, WaterAid Nigeria, and WaterSHED Cambodia.

WASHPaLS had initially proposed a prospective research phase for the viability of sanitation enterprises. However, the project deferred their decision to proceed with this phase until the findings from the retrospective research were ready and alternative activities to maximize the impact of the MBS research through increased partner engagement and uptake were discussed. The decision to forgo the prospective research phase was made following the Advisory Board Meeting in October 2018 and subsequent technical working sessions with USAID, because other activities were deemed potentially more impactful (e.g., toolkits).

At the beginning of Year 3, WASHPaLS presented the country-level retrospective research findings to its partners, whose feedback was positive. The findings resonated with their experiences, and they appreciated the breadth and depth of the analysis in particular. Encouraged by the response, WASHPaLS drafted the primary deliverable—a report with guidance on creating viable and sustainable sanitation enterprises—building on cross-country findings. WASHPaLS presented the top-level guidance to the Advisory Board in a side meeting at the UNC Water and Health Conference 2018.

There is a plausible gap in the knowledge of financial and business analyses among the majority of MBS practitioners, which has implications on their capacity to absorb the findings and recommendations. WASHPaLS deliberated at length on the numerous ways to simplify and communicate the concepts and methodologies and arrived at a consensus to adopt a story-based format for communicating the findings and simplify the methodology section. Two of three revised case studies were finalized by the end of Year 3, with the third planned for Y4 Q1. WASHPaLS plans to release a revised guidance report in Y4 Q1, along with a complementary toolkit for practitioners.

Top-Level Findings: Creating Viable and Sustainable Sanitation Enterprises

- Few MBS programs track financial performance of sanitation enterprises other than toilet sales, if at all.
- Sanitation enterprises are financially attractive as a supplementary business for entrepreneurs with existing businesses but not as standalone businesses.
- Five drivers—number of customers, price, cost, product mix, and additional sanitation-related products—explain enterprise performance.
- High performance enterprises make strategic choices and trade-offs to leverage one or more profit drivers to their advantage.
- Direct participation and indirect subsidies by MBS programs impact the sustainability of sanitation enterprises.

Enterprise viability and sustainability diagnostic toolkit. Recognizing that many MBS practitioners may lack a thorough understanding of markets and businesses to apply WASHPaLS research and guidance, WASHPaLS proposed two toolkits. The proposed toolkits would help MBS programs conduct a diagnostic on a) the state of sanitation markets and b) the viability and sustainability of sanitation enterprises. Following a review of select existing and upcoming resources from USAID, UNICEF, and the World Bank, WASHPaLS (in consultation with USAID) decided to pursue the development of the enterprise viability and sustainability toolkit only.

By the end of Year 3, WASHPaLS had completed the development of the toolkit comprising four modules with ten activities that detail the concepts, recommendations for research, and analyses. Supporting materials include templates, interview guides, and lists of data requirements and potential sources. The primary deliverable is an introductory document that provides the objectives, components of the toolkit, and guidance on how to use the toolkit. The toolkit is aimed at MBS programs with existing operational sanitation enterprises on the ground. A USAID team in Jakarta, Indonesia received the toolkit to beta test its self-learning utility. WASHPaLS intends to distribute the toolkit to other beta testers (e.g., USAID programs, WaterAid, and UNICEF) in Y4 Q1.

WASHPaLS will develop a complementary module to help MBS programs pitch and recruit potential entrepreneurs to start sanitation enterprises. The core output would be a tool to project the revenue and profit for a given sanitation enterprise design to facilitate discussions with potential entrepreneurs.

Decision support tools (DST). This research relates to understanding how changes in market rules (e.g., legislation, government policy, and regulation) can potentially improve the viability of sanitation enterprises or increase toilet sales. To address this issue, WASHPaLS developed several Microsoft (MS) Excel-based decision support modeling tools for sanitation-related policymaking. The tools enable cost-benefit analyses of changes in market rules in three categories: 1) penalties such as denial of service or imposition of surcharge on higher-income households that do not own toilets; 2) reduction in taxes or tariffs on inputs; and 3) policies that support entrepreneurs in the sanitation market directly, such as limited demand activation financial support.

In Year 3, WASHPaLS completed the development of DSTs for three policies (each applied to two markets) and companion guides, which help technical users adapt the DSTs for their contexts. The tools and guides were reviewed internally. Also, WASHPaLS presented two of the three DSTs to Water and Sanitation for the Urban Poor (WSUP) Ghana and PSI India, whose interventions provided a foundation for developing these DSTs. Feedback on the logic, level of detail, and the functionality of the tools was unanimously positive. While reviewers found the technical user guides were appropriate for the intended audience, they felt that incorporating lessons from implementation experience is warranted. Considering the multiple DST STTA opportunities, WASHPaLS deferred revisions to the guides until at least one of these assignments has been completed.

To market the DST approach, WASHPaLS prepared a whitepaper, "The Case for Using Decision Support Tools (DST) for Sanitation-Related Policymaking." An internal review concluded that while the document was apt for a technical audience, a substantially concise "marketing" brief was required to target government officials. Similar to the abovementioned guides, incorporating implementation cases in the brief will significantly enhance the appeal of the DST approach to government officials and donors supporting policymaking initiatives.

DST Implementation in Practice. Since Y3 Q1, WASHPaLS has been actively seeking partners with whom the project can collaborate to support decision-making by governments, in part to generate evidence on the utility of the DSTs. Towards this end in Q1, WASHPaLS, in coordination with USAID USHA, implemented by Tetra Tech in partnership with FSG, met with three senior officials from the Government of Uganda (GOU) who expressed willingness to support a pilot DST implementation at the district level. Subsequently, WASHPaLS secured the support of the USHA COP in Uganda to offer technical assistance to the GOU. A proposal to implement a "penalties on landlords who do not provide toilets" policy in two districts of interest to the GOU and USHA received approval from the TOCOR. The Mission, while concurring with the proposal, did not agree to move forward with it. The second opportunity in Ethiopia is presented under the Component 1 section of this report.

As a part of WASHPaLS' broader engagement strategy, the project is also pursuing other opportunities to train and provide technical assistance to MBS programs on using tools discussed above, and will prepare an engagement plan building upon the three core outputs—the MBS desk review, enterprise viability and sustainability studies and toolkit, and the DSTs—in Q3.

2.3.3 TASK 2.3. HYGIENIC ENVIRONMENTS FOR INFANTS AND YOUNG CHILDREN

The focus of the SPSs/hygienic environments task gained prominence in the global research and implementation arenas, with mounting evidence underscoring the need to identify ways to address animal sources of IYC infections and exploratory mouthing as a significant pathway of exposure. WASHPaLS surmounted major challenges this year, achieving ethical approvals, forging key partnerships, locally producing playpens, and completing a mixed-methods field study in a turbulent political environment.

Refining the research question. After careful assessment, consultation, and several iterations of possible research designs, USAID approved refining the WASHPaLS SPS research to focus primarily on the *behavioral* plausibility of rural agrarian households using and cleaning a child play space. The study documented use, feasibility, and appeal, as well as perceived affordability. This was a significant recasting of the research originally planned and presented in the Inception Report. A revised research protocol was approved in Q2 and included a suite of non-experimental methods, including household trials over time (using the Trials of Improved Practice [TIPS] methodology); household observations; microbial sampling of household floors, play-mats, and playpens for *E. coli* contamination; and a willingness to pay exercise and FGDs with household trial participants.

Obtaining scientific and ethical approval of research. Due to the modified scope of the proposed research, the protocol previously submitted for US scientific and ethical review required resubmission and multiple rounds of review and revision over the course of Y3. The protocol encountered a high level of ethical scrutiny given that WASHPaLS was proposing to test what was viewed as an "uncertified device" with infants. As a mitigation measure, the US IRB required that each locally produced playpen be examined by local experts to ensure the products met child safety requirements to protect against toxics, strangulation, choking, and suffocation. To meet this requirement, FHI 360 competitively selected two local experts who accompanied the production process and inspected and approved all playpen models for household use in May 2019. The US IRB, with documentation of playpen safety, gave full approval to the study on May 20. The Ethiopia ethics (IRB) review by the Amhara Regional Public Health Institute (APHI) also was initiated in Q1, with revisions requested late in Q2 and final approval received in Q3.

Identifying a local implementation partner. In Q2, WASHPaLS signed an MOU with Plan International/Ethiopia to collaborate on the SPS research in Amhara, Ethiopia. Under this agreement, Plan International/Ethiopia facilitated community and government buy-in to participate in the research activities, assisted with site and household selection, and reviewed and delivered the behavior change promotional messaging to encourage use of play spaces.

Producing playpens for testing. The playpen models tested during TIPS included two locally designed play spaces emerging from the user-centered design (UCD) workshop organized by FHI 360 and PSI (through a subcontract in late Y2), as well as one commercially procured and imported model. Each model featured different product attributes to assess appeal and feasibility. In Y3 Q1, the project put extensive work into refining and finalizing the two designs to meet design and early child development (ECD) considerations. Four professionals reviewed the designs for safety and for early ECD concerns, and provided input to assure that the designs met safety standards. A PSI consultant finalized the designs and prepared a materials list and detailed construction drawings with instructions to guide the local manufacture of one dozen of each of the two designs.

Photo 7: Locally designed UCD playpen, Model C.

Guided by PSI, the playpens were produced at the Amhara Technical Vocational College (TVET), where the UCD workshop was held. Late in Q1, WASHPaLS issued a call for bids for materials required to produce the playpens, and expended intensive effort in Q2 in clarifying queries from the potential vendors about the materials for the competitive procurement. All materials were procured and shipped to the TVET facility late in Q2. Production of 24 playpens (12 of each design) was completed in May 2019, at which time the experts examined each of the products to ensure they met US child safety requirements. This confirmation was documented with photos and a memo-style report submitted to the US IRB.

Production of the playpens proved more challenging than anticipated, due to procurement and production challenges. In retrospect, producing through TVET, as recommended by USAID Transform WASH (led by PSI), slowed the process considerably due to conflicting demands and the motivation of the TVET staff and students. Nonetheless, PSI strengthened their relationship with the vocational college, which may prove useful in future activities.

Developing a behavior change module to support consistent use and cleaning of an infant playpen. In Q2 and Q3, WASHPaLS refined the behavior change approach to encourage consistent and correct use and cleaning of the playpens being tested. WASHPaLS engaged a veteran FHI 360 materials development specialist to help finalize the approach and develop specific support materials, including an outreach module, a certificate of commitment, and a safety poster for households. The module was built around a clearly defined hypothesis of change, and serves as a resource to the broader implementation community *if* playpens are found to be protective.

Conducting the study. WASHPaLS made final preparations for the study in late May 2019, including hiring field staff and pretesting instruments. Three interviewers and a field supervisor were hired through a competitive search process, and all took part in a weeklong study training and instrument pretest in early June. Responding to findings of the pretest, FHI 360 requested a revision and expedited ethical review of the protocol to change the age cohort of the study from 6-10 months old to 7-12 months old, to address child development considerations. Following the pretest, revisions were also made to the behavior change/safety session, primarily adding additional instructions for the promoter and shortening of the session.

The field research team traveled to the Amhara Region to prepare for a local stakeholder meeting and the initiation of data collection. In early June, approximately 25 regional and local stakeholders attended an orientation session that culminated with a commitment to support the study implementation to find local solutions to the problem of IYC exposure to animals, dirt, and feces. The Regional Bureau of Health and study *woreda* (district administration) agreed to participate in the study, allowing the health extension workers and local officials to assist in sample selection and data collection in the study *gotts* (villages). The Amhara Regional Health Institute (which had previously reviewed and approved the study) agreed to have their regional laboratory conduct analysis on *E. coli* samples collected in study households, and donated test kits transferred to them from Emory University. The Emory University Center for Global Safe Water, Sanitation, and Hygiene actively collaborated with WASHPaLS to facilitate *E. coli* sampling, donating extra sampling supplies and connecting the project with a field worker/microbiologist at Bahir Dar University who was recruited to take samples from 23 study households.

Data collection began in mid-June. However, due to political instability following the regional coup attempt on June 22, the field research team was unable to reach the research sites for one week, resulting in minor budget and scheduling delays. Internet service was severed for over two weeks during the data collection field period, affecting the project's ability to revise study instruments, upload data, and monitoring incoming SurveyCTO data from the field. The team returned to the field at the close of Q3 and successfully carried out a modified field schedule, completing all field work early in Q4.

Analysis and reporting. WASHPaLS completed analysis of the field data in Q4 and will complete a draft report in Y4 Q1.

Dissemination. In Q1, the WASHPaLS/Transform WASH UCD process to develop local playpens was presented as part of a side session at the 2018 UNC Water and Health Conference. Key findings of the USAID literature review on "Hygienic Environments for Infants and Young Children" were presented by the Senior Behavior Change Specialist (SBCS) at the Global Handwashing Partnership Behavior Change Think Tank in Manila, Philippines. The literature review was also prominently featured in a recent

publication on environmental enteric dysfunction and child stunting.[2] Late in Q3, the UCD process to develop and test playpen designs, as well as initial study impressions, were presented by iDE to about 16 PRO-WASH UCD workshop participants in Washington, DC.

In Y4 Q2, WASHPaLS will draft and submit a manuscript of playpen findings for peer review publication.

2.4 COMPONENT 3: SMALL GRANTS PROGRAM ON HYGIENE BEHAVIOR CHANGE

In Year 3, WASHPaLS issued five grants, as described below, bringing the total number of grants issued to eight. Two grants ended in Year 3. Table 2 summarizes the status of active grants in Year 3. The five new grants are as follows:

Photo 8, ICDDR,B: Testing improved sheds for nighttime storage of chickens.

- ***International Center for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)*** was awarded a grant to study the effectiveness of neighborhood-based problem-solving sessions to reduce children's exposure to chicken feces through risk perceptions, pathways of poultry feces exposure, and local solutions for separation. ICDDR,B has generated an impressive inventory of poultry management practices and risk perceptions of caregivers, an approach that WASHPaLS is seeking to incorporate into another grant.
- ***Water Trust*** will complement the grant to ICDDR,B and build out learning around poultry feces management by testing behavior change of rural poultry farmers in Uganda to hygienically separate chickens from children by conducting participatory trainings to increase awareness of health risks and lost livelihood benefits of current poultry management practices, build practical skills for poultry management that increase health and livelihood gains, and build supportive community norms around hygienic poultry management practices.
- ***Stanford University,*** in partnership with World Vision and Sesame Workshop, is testing the use of learning communication objects in India to enhance the sharing of WASH promotion to peers and families that is being delivered through their global WASH UP![3] program to students.

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2 Sophie Budge, Alison H. Parker, Paul T. Hutchings, Camila Garbutt, Environmental enteric dysfunction and child stunting, *Nutrition Reviews*, Volume 77, Issue 4, April 2019, Pages 240–253, https://doi.org/10.1093/nutrit/nuy068.

3 WASH UP! was created by Stanford University, World Vision and Sesame Workshop in 2012 that has been implemented in 11 countries to date. WASH UP! includes a school-based curricular program developed by Sesame Workshop that targets 6- to 9-year-old primary school students with messaging about germ theory and healthy behaviors such as handwashing and consistent latrine use. One of the WASH UP! curriculum's key learning objective is that students should share their learning with peers and family members, *i.e.*, they should act as agents of change to promote healthy WASH behaviors at school and home.

- ***Gram Vikas, in partnership with Emory University*,** is taking a user-centered design approach in India to identifying safe child feces management and disposal practices and hardware that are piloted and improved through TIPs and then implemented to test the effectiveness on improved feces disposal practices.
- ***IDinsight Philippines,*** in collaboration with UNICEF, is testing the use of nudges and curriculum to increase handwashing among students.

Photo 8, IDinsight: Testing footprints from latrines to handwashing stations.

In Year 3, WASHPaLS closed two grants from the first grant cycle, iDE and Splash International, who (respectively) sought to expand women's role in Nepal's sanitation value chain, and nudge handwashing behavior in schools and households in Ethiopia. In their formative research and proposed intervention, iDE diverged from the original objectives of their grant. Initial formative research yielded unanticipated findings that required iDE and WASHPaLS to formulate a revised research agenda to test how the gender of a Community Business Facilitator influences end-user hygiene and sanitation behavior related to purchase, installation, and use. Some key findings include:

- Female sales agents perform better with marginalized (poorer) households compared to men, generating faster sales and more consistent latrine use. Female sales agents place more importance on follow-up visits, potentially explaining why households purchasing from women have higher latrine use. They take a more problem-led sales approach, situated in the local context, and highlighting potential social sanctions.
- Male sales agents, on the other hand, perform better in promoting latrine use among non-marginalized households, where men have the exclusive financing to make purchasing decisions. They leverage connections with other households and community members to "close the sale."

The grant to Splash closed without successfully answering the proposed research agenda, as baseline handwashing rates among schools and homes were much higher than anticipated, leaving the study underpowered to document significant impact from their proposed intervention of nudges and lessons. Splash provided a final report detailing their study approach and results, and observations on the nudges with the most promise to improve handwashing behaviors (mirrors and barrels with messaging). They validate the role of enabling technologies such as handwashing stations in nudging handwashing, using bright colors and angled designs to allow washers to nudge interactive group washing.

Given that WASHPaLS must issue two additional grants to meet task order targets, in Year 3, WASHPaLS began a search for organizations that could potentially be recipients of sole source awards. The notion of proceeding with non-competed awards was discussed with USAID, and given the long lead times required for open calls, it was agreed that this would be the most expeditious route.

TABLE 2: STATUS OF ACTIVE GRANTS

Grantee & Activity Title	Year 3 Highlights and Challenges
ICDDR,B (1) *mHealth Messaging: An Innovative Approach to Promote Improved Caregiver and Child Hygiene Practices in Bangladesh*	• Training of Community Health Promoters on the program completed. • Draft manuscript on the 'Formative Research for the Design of a Baby Water, Sanitation and Hygiene Mobile Health Program in Bangladesh' submitted. • Preparation for sharing of findings at upcoming 2019 UNC Water and Health Conference. • Anticipated time required for formative research to design and develop BabyWASH modules much lengthier than anticipated. Extensive inter-personal communication required to promote new, complex BabyWASH behaviors along with mHealth completed. • A modification to revise their final deliverable will be required to remove the RCT (given insufficient time and budget to pursue) and instead finalize the formative research, rigorously testing the finalized modules and document the limited uptake of behaviors from mHealth nudging alone.
ICDDR,B (2) *Household Problem-Solving to Reduce Children's Exposure to Chicken Feces*	• An extensive inventory on existing poultry management practices (to be presented at UNC) has been carried out. Discussions on potential for related publication in progress. • Some delays with implementation may require a no-cost extension, no other concerns.
Stanford University *Bringing it home: Driving School-based WASH messaging into the Household*	• After only two months of implementation, Stanford has held kick-off meetings with key stakeholders, collected data on participating schools, and began developing the learning communication objects. • Partnerships established with World Vision, Sesame Workshop and District Magistrate, and the Sitapur District. • No major concerns or delays evident in Year 3.
Gram Vikas *Developing and Testing an Innovative BC program for safe child feces management in India*	• Gram Vikas began grant activities by identifying key behavioral determinants influencing safe child feces management (CFM) behaviors with Emory University and training staff on these determinants. • Emory University provided Gram Vikas staff with training on user-centered design. • Initial focus group discussions and user-centered design workshops held to develop CFM hardware prototypes, including adaptation of existing products. • Minor delays in pilot testing from delays in hardware development. • No other major concerns or delays evident in Year 3.
IDinsight *Testing Nudges and Lesson Plans to increase HW in Schools in the Philippines*	• Launch of activities, selection of schools (n=100) for trials, data collection and cleaning have been completed. Partnership with Zamboanga del Norte Department of Education to pilot and test nudges established [2.1] • Partnership with UNICEF who is funding various parts of the study established. Research findings to inform policies of UNICEF WASH Philippines, Philippines National DepEd, and Zamboanga del Norte DepEd.

Grantee & Activity Title	Year 3 Highlights and Challenges
	• Design and piloting of different nudges including footprints leading to handwashing stations, sticker eyes on mirrors, and soap dishes with directive arrows have been completed. • Safety concerns arose with an increased presence of rebel groups in 3 schools, which were subsequently dropped from the sample and replaced with 3 new schools. • No other major concerns or delays evident in Year 3.
The Water Trust *Improving Hygienic Management of Poultry in Rural Uganda*	• Partnership with Makerere University established through the submission of their IRB. • Formative research began with FGD, development of survey instruments and training of 27 enumerators on carrying out the baseline survey. • Challenges with identifying positive hygienic poultry management practices as FGDs revealed that households do not view poultry feces as a health hazard. • Household sample size was reduced due to unavailability of respondents during the planting season. There is a need for an additional round of household surveys. This has led to the resubmission of their IRB and which will likely require a no-cost extensions to the grant.

2.5 COMPONENT 4: PARTICIPATION IN STRATEGIC PARTNERSHIPS

2.5.1 PARTICIPATION AND PRESENTATIONS AT SECTOR EVENTS

WASHPaLS had a significant presence at the 2018 UNC Water and Health Conference, hosting and participating in several side sessions, presenting a poster, and a giving technical presentation:

- WASHPaLS led a side session titled *How Does Research Drive Policy and Practice in the Quest to Change Behavior, Deliver Sanitation Services, and Improve Public Health?* The session began with short presentations from representatives of USAID, BMGF, Northwestern University, and DFID on the comparatively scarce performance information available for evaluating sanitation and hygiene interventions as well as active efforts that donors can take to drive evidence-based programming, including payment-by-results and embedding applied research results into future programming. The interactive portion of the session employed a "fishbowl" format in which audience members were able to engage directly with panelists.
- WASHPaLS co-hosted a side session titled *Designing Effective Sanitation Enterprises* with four partners: iDE, PSI, WaterSHED Cambodia, and UC Davis. Rishi Agarwal delivered a presentation, which was followed by four thematic discussions facilitated by WASHPaLS' partners. Approximately 55-60 participants attended the workshop based on headcount.
- WASHPaLS participated in three side sessions on hygienic environments, each attended by audiences of 45-60 people, including as a discussant to a session on food hygiene and presenting WASHPaLS' work on UCD in Ethiopia at a session titled *Hygienic Environments for Infants and Young Children: Addressing the Underestimated Pathways of Risk*.
- Milan Thomas of Georgetown University presented preliminary results of the CLTS-subsidy field experiment in Laos conducted by Thrive and co-funded by WASHPaLS.

At the invitation of the World Bank, in November, WASHPaLS participated in the brainstorming session "Rethinking Rural Sanitation" and provided technical input to anticipated guidelines for rural sanitation programming. A working group on Rural Sanitation with World Bank, UNICEF, and other groups was formed, with the TOCOR representing WASHPaLS.

In November 2018, WASHPaLS attended the CLTS Hub bi-annual meeting in London. The goal of this meeting is for different rural sanitation stakeholders to update each other on ongoing programs and research. Attendees included representatives from DFID, WaterAid, Plan UK, PSI, and the CLTS Knowledge Hub. WASHPaLS presented the project's three ongoing research projects on CLTS and received valuable feedback on study design, similar ongoing programs, etc.

In February 2019 at the AfricaSan conference, WASHPaLS presented the findings from the MBS desk review with live French interpretation at a side session convened by BMGF, USAID, and UNICEF. Ninety-three participants, primarily from government and UNICEF country offices with additional participants from civil society and donor organizations, attended the session. The audience appreciated the comprehensiveness of the desk review and the MBS framework. WASHPaLS also contributed slides on subsidy research to a UNICEF Ghana presentation titled "Sanitation Research in Ghana: Approaches to Influencing Policy" at a thematic session on how research can be actionable, timely, and relevant.

In March at the University of Colorado Boulder WASH Symposium, the Kenya RAPID Impact Evaluation PI presented an overview of the design of the impact evaluation and initial findings from baseline data collection.

WASHPaLS presented the top-level findings and recommendations from the desk review at the ANDE 10th Annual London Member Meeting in April 2019. Although participants comprised social enterprises from other sectors, the lessons resonated with the audience, noting they are applicable in many non-sanitation markets.

On May 3, WASHPaLS presented on the study design of the CLTS performance envelope quantitative and qualitative research at the Bay Area WASH Symposium at UC Berkley. The session was attended by approximately 60 academic researchers (20 male and 40 female), primarily from UC Berkeley, Stanford, and UC Davis.

In June, WASHPaLS participated in the PRO-WASH Learning by Doing: User-Centered Design Workshop (delivered by iDE), and was invited to share the UCD process to develop and test playpen designs in Ethiopia, as well as to share initial study impressions.

In August, WASHPaLS presented findings of the MHM desk review at two sessions at Stockholm World Water Week (SWWW), one titled "Women and Youth: Living Apart Together" convened by the DFAT Water for Women Fund, UN Women, World Bank, Water for Youth Network, and the Women for Water Partnership, and another session titled "MHM: Health and Dignity for All" co-convened by UNICEF.

The following abstracts, submitted in Q3, were accepted to the UNC Water and Health Conference (Chapel Hill, North Carolina, October 2019):

- "Planning for success: context-specific programming for rural sanitation," side session;
- "Sustaining Market-Based Sanitation: Designing Viable Sanitation Enterprises," side session;
- "Hygienic Environments for Infants & Young Children for Improved Growth: New Evidence and Interventions," side session;
- "Where does CLTS work best? Evidence from four national datasets," verbal presentation;

- "Menstrual hygiene management in the workplace and women's economic empowerment," poster presentation; and
- "A randomized, controlled trial on targeted subsidies post-CLTS in Ghana: study design and baseline findings," poster presentation.

2.5.2 STRATEGIC PARTNERSHIPS

Clean, Fed & Nurtured Coalition. WASHPaLS contribution to the CFN Coalition centered on the Steering Committee and general membership meetings preparation and follow up, particularly on aspects of the advocacy agenda and linking to key tools and resources. WASHPaLS further contributed input (initiated in Y2) to the Nurturing Care Framework being developed by WHO, UNICEF, the Partnership for Maternal, Newborn, and Child Health and others.

Global Handwashing Partnership (GHP). The SBCS continued to contribute to the GHP Steering Committee, including contribution to the 2019 Business Plan as well as the 2020-2024 Strategic Planning Process, which included identifying technical priorities and potential business models.

On World Water Day, GHP launched the Global Handwashing Day theme "Leave No One Behind." WASHPaLS supported the preparation of a GHP webinar featuring Dr. Christine George of Johns Hopkins University and provided technical feedback to the session. This webinar focused on the first phase of the CHOBI7 research with ICDDR,B Bangladesh, but included a mention of a second phase of mHealth activity nudging BabyWASH behaviors, funded through a WASHPaLS behavior change grant.

WASHPaLS drafted a blog for the GHP website, published in Q3, that shares findings from the Hygienic Environments Literature Review, with a link to the full review.

MapSan Results. In Q3, WASHPaLS responded to a request from USAID to support the dissemination of USAID-funded research by arranging travel for two consultants to visit USAID offices in Washington, DC in May to present on the results of the Maputo Sanitation (MapSan) Trial.

Sanitation and Water for All (SWA). Following discussions at the December Steering Committee meeting in Lisbon, SWA requested that the Governance Consultant finalize several draft documents including 1) the Ethics and Conflict of Interest Management Policy, 2) Conflict of Interest Declaration Statement and Form, 3) Responsibilities of the Secretariat, and 4) the Executive Oversight Committee's Terms of Reference (ToR). The first three documents were delivered in early January (the fourth was removed from the request and will be completed by the SWA). This was the last activity in WASHPaLS' support to the SWA partnership, which spanned over a year and included a USAID contribution to SWA of approximately $75,000.

SHARE. WASHPaLS held an introductory call with the Research Director and the Research Impact Officer of SHARE on June 25 to discuss synergies and potential for collaboration around dissemination and uptake of research findings (e.g., relating to MHM). The conversation will be continued leading up to an in-person meeting at the UNC Water for Health Conference in October.

UNICEF. WASHPaLS continues to collaborate closely with UNICEF on areas of mutual interest, including CLTS and MBS, and potentially on MHM:

- WASHPaLS provided comments on UNICEF's Shaping Markets strategy and its Guidance on MBS approaches for UNICEF country staff
- In Q3, WASHPaLS participated in a group call with UNICEF, iDE and PSI to coordinate on hosting a facilitated discussion on indicators of positive sanitation market systems development, which

culminated in a group call on June 20. The group agreed to remain in contact and explore further knowledge sharing efforts as opportunities arise.

- Through the TOCOR, WASHPaLS received a request to assist with the preparation and delivery of training workshops for UNICEF staff operating in East and Southern Africa, and West and Central Africa regions. The TOCOR shared WASHPaLS's MBS presentations and webinars to incorporate into UNICEF's training program.

USAID/Communications and Knowledge Management (CKM) Project. WASHPaLS continues to coordinate with the USAID/CKM project to turn over administration and upkeep of the Mendeley citation database utilized by WASHPaLS for research activities. In Q3, a beta version of an integrated WASHPaLS/CKM library was shared with USAID staff, though software restrictions on USAID personnel will limit use of the desktop (vs. web) clients of Mendeley. Further decisions regarding public sharing of the library and ongoing maintenance will be explored during Y4 Q1.

USAID's centrally-funded water mechanisms. Throughout the year, the Project Director (PD) and/or another member of the WASHPaLS team attended the quarterly meetings of USAID's centrally funded water mechanisms.

3.0 GENDER CONSIDERATIONS

Iris Group continues to lead WASHPaLS' efforts to integrate Gender and Social Inclusion (GESI) considerations across project components. During Year 3, the focus of GESI support was on 1) ensuring attention to and integration of GESI considerations in Component 2 research documents, protocols and instruments; 2) providing GESI technical reviews and support to all active grantees, supporting Round 2 grantees in the development of their gender analyses, and selecting Round 3 grantees; 3) finalizing the WASHPaLS Gender Integration Plan (GIP); and 4) responding to the GESI-related buy-ins on MHM and Mozambique. A list of GESI touch points across the project is provided in Table 3.

TABLE 3: GESI INTEGRATION DURING YEAR 3

Component 1—Buy-ins	
MHM	▪ Received approval for an activity to research menstrual hygiene management (MHM) and its potential link to women's economic empowerment in the workplace. ▪ Completed Phase I of the activity, a systematic literature review which culminated in a Desk Review Report. ▪ Presented the results of the literature review at World Water Week in Stockholm. ▪ Initiated ongoing partnership search to find a corporate partner for the learning activity and action research phases of the work.
Mozambique	▪ Received approval for an activity on behalf of USAID/Mozambique to conduct formative research on gender and hygiene behaviors.
Component 2—Research Streams	
	▪ Reviewed research reports, protocols and instruments to integrate GESI considerations. ▪ Provided technical support to research teams on GESI as needed.
Component 3—Grants	
	▪ Provided technical support to Round I grantees, particularly to the GESI grantee (iDE) to redesign research questions following the Deep Dive formative research, on their data analysis, on their report and finalizing their grant. ▪ Provided technical assistance to Round II and III grantees for their gender analysis deliverables. ▪ Participated in Round III grant selection, reviewed research reports and grant applications/agreements to integrate GESI considerations, and supported grantees in preparing gender analysis. ▪ Provided ongoing GESI support and reviews to grantees.
Cross-Cutting	
Semi-annual team meetings	▪ Gave GESI-oriented feedback to research teams and on other technical presentations ▪ Presented results of the MHM literature review, as well as plans for the learning activity. ▪ Drafted internal document with guidelines and resources for promoting inclusiveness and equal participation in meetings.
Gender integration plan	▪ Completed revised Gender Integration Plan based on USAID feedback. ▪ Received TOCOR approval of the Gender Integration Plan.
MELP	▪ Worked with M&E Specialist to review GESI results.
Conferences	▪ GESI team members from Iris Group attended the UNC Water and Health Conference in October of 2018 to network on GESI issues, informally share WASHPaLS GESI work, and stay current with GESI and WASH research.

4.0 MONITORING, EVALUATION, AND LEARNING

In Year 3, WASHPaLS submitted a revised Monitoring and Evaluation Plan (MEP) to incorporate changes discussed with USAID, fine-tuning indicator definitions; approval is expected in Y4 Q1. The WASHPaLS Deputy Project Manager (DPM) reviewed weekly activity updates, solicited reporting of specific results from the activity leads via Google Forms, and validated and archived the results. Results submitted via Google Forms were processed using linked Google Sheets, which enables automatic updating of the results summary tables and tables of results disaggregated by topic area, country, etc., as specified in the MEP. These disaggregate tables are provided in Appendix 3.

4.1 REVIEW OF PERFORMANCE INDICATORS

Table 4 summarizes WASHPaLS achievements on the performance indicators against Year 3 and life-of-project targets, as stated in the revised MEP. These are discussed below.

4.1.1 INDICATOR C1: NUMBER OF USAID MISSIONS AND OPERATING UNITS, IMPLEMENTING PARTNERS, LOCAL GOVERNMENTS, AND DONORS APPLYING WASHPALS APPROACHES/TOOLS

In Year 3, eleven partners applied WASHPaLS approaches/tools, achieving the life-of-project (LOP) target of eleven. This is the first year that WASHPaLS has logged results for this indicator. Seven of the organizations integrated WASHPaLS approaches in to a policy, procedure, or strategy; four cited WASHPaLS in their research; and two organizations incorporated WASHPaLS findings into training materials. The disaggregate numbers sum to greater than eleven since some partners applied WASHPaLS approaches/tools multiple times. The majority of partners applied MBS research (7), while three partners applied CLTS research and one applied both MBS and CLTS research. Although the LOP target has been achieved, WASHPaLS will continue to seek opportunities to expand uptake of results, emphasizing more significant results than basic report citations.

4.1.2 INDICATOR C2: NUMBER OF REPORTS, POLICIES, LAWS, AGREEMENTS, ACTION PLANS, REGULATIONS, STRATEGIES, OR INVESTMENT AGREEMENTS (PUBLIC OR PRIVATE) INFLUENCED BY WASHPALS

In Year 3, WASHPaLS logged influence on 10 documents, including three policies/strategies/action plans and seven knowledge products (reports/training materials), exceeding the LOP target of six. Three of the results to date are considered significant: the 1) incorporation of WASHPaLS comments into Water Aid/Plan/UNICEF's *Practical Guidance on Programming for Rural Sanitation and Hygiene* published February 2019; 2) incorporation of WASHPaLS PowerPoint slides into a training by the World Bank for their task team leaders in April 2019; and 3) incorporation of WASHPaLS feedback into the SWA Governance Document published in June 2018, but logged in Year 3. The remaining documents represent "weak" influence by WASHPaLS, as they include limited citations of the WASHPaLS' literature reviews.

4.1.3 INDICATOR C3: NUMBER OF PEOPLE EXPOSED TO WASH APPROACHES/TOOLS THROUGH WASHPALS EVENTS, COMMUNICATIONS MATERIALS, AND PRODUCTS

The revised MEP (pending approval) adjusted this indicator to capture the total number of people reached through webinars, presentations, number of report downloads, etc.

In Year 3, WASHPaLS estimates that over 4,000 people were reached through events and products that have significant potential to result in increased knowledge. These values are based on the number of people attending webinars or events, downloading communication materials (estimated), or viewing blogs. Based largely on anonymous data, it is not possible to account for duplication if the same individual accesses multiple documents or events, or to capture the gender, affiliation, or country of the individual. WASHPaLS delivered 24 in-person presentations, for which all participants were counted using sign-in sheets.

Currently, ten WASHPaLS learning products, including records of the four webinars to date, can be downloaded from several websites. The project is in contact with the hosts of these websites, in order to obtain statistics on numbers of visitors and downloads on an annual basis, as shown in Table 5. In the instances where the project has data for both the number of visitors and number of downloads, WASHPaLS notes that an average of 51% of people who view the report landing page also download the report. Statistics for downloads only are available from the DEC, Programme Solidarite Eau, WASHfunders, and Global Handwashing Partnership websites. All other known dissemination platforms (Sanitation Updates, Twitter and other social media, and email distribution lists) direct traffic to either globalwaters.org or the Tetra Tech site to access the full reports. This data does not contain disaggregates on gender, affiliation, or country.

TABLE 4: PERFORMANCE INDICATORS RESULTS AND TARGETS

N°	Performance Indicator	RESULTS					YEAR 3 Target	Variance	Results To Date	LOP Target
		Q1	Q2	Q3	Q4	YEAR 3				
C1	Number of USAID Missions and operating units, implementing partners, local governments and donors applying WASHPaLS approaches/tools (Custom) [OUTCOME]	3	5	1	2	11	3	+8	11	11
C2	Number of reports, policies, laws, agreements, action plans, regulations, strategies, or investment agreements (public or private) influenced by WASHPaLS (Custom) [OUTCOME]	2	6	1	1	10	1	+9	11	6
C3	Number of people exposed to WASH approaches/tools through WASHPaLS events, communications materials and products (Custom) [OUTCOME]	481	197	237	51	4,037	1,250	+2,787	8,878	5,000
C5	Number of workshops/events at which research methods, preliminary results and findings are presented (Custom) [OUTPUT]	9	7	8	2	26	8	+18	44	30
1.1	Number of technical assistance assignments and technical reports produced by WASHPaLS team (Custom) [OUTPUT]	0	2	1	1	4	6	-2	7	20
1.2	Level of Mission satisfaction with the responsiveness and quality of WASHPaLS Technical Assistance (Custom) [OUTPUT]	0	0	8	0	8	8	0	8	8.5
2.1	Number of local partners actively participating in research activities designed and implemented by WASHPaLS (Custom) [OUTPUT]	2	3	2	4	11	12	-1	23	28
2.2	Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs (STIR-12) [OUTPUT]	0	0	0	1	1	1	0	1	4
3.1	Number of grants awarded to behavior change innovators (Custom) [OUTPUT]	1	0	1	3	5	7	-2	8	10
4.1	Number of partnerships established or supported (Custom) [OUTPUT]	1	0	0	0	1	5	-4	7	24

TABLE 5: WEBSITE STATISTICS

Platform	Webpage	Statistic Available	
		Views	Downloads
Tetra Tech	http://www.tetratech.com/en/projects/water-sanitation-and-hygiene-partnerships-and-learning-for-sustainability-washpals	Y	Through Year 2 only
Global Waters	http://www.globalwaters.org/washpals	Y	Y
USAID DEC	https://dec.usaid.gov/dec/home/Default.aspx	N	Y
SuSanA	www.susana.org/en	Y	Y
FSG Website	https://www.fsg.org/publications/scaling-market-based-sanitation	Y	Y
CLTS Knowledge Hub	https://www.communityledtotalsanitation.org/resources/examination-clts-s-contributions-towards-universal-sanitation	Y	Y
Programme Solidarite Eau	https://www.pseau.org/en	N	Y
WASHFunders	https://washfunders.org/	N	Y
Global Handwashing Partnership	https://globalhandwashing.org/focusing-on-the-h-in-wash-new-insights-into-why-handwashing-and-hygiene-are-key-for-child-health-and-growth/	Y	N
YouTube	https://www.youtube.com/	Y	N

4.1.4 INDICATOR C5: NUMBER OF WORKSHOPS/EVENTS AT WHICH RESEARCH METHODS, PRELIMINARY RESULTS AND FINDINGS ARE PRESENTED

WASHPaLS exceeded the annual and LOP target with 26 events in Year 3. Seven events were organized or co-organized by WASHPaLS, and the project was invited to present at 11 events convened by third parties, including six conferences. The events focused on CLTS (10), MBS (6), and pathways of fecal contamination in IYC (8).

4.1.5 INDICATOR 1.1: NUMBER OF TECHNICAL ASSISTANCE ASSIGNMENTS AND TECHNICAL REPORTS PRODUCED BY WASHPALS TEAM

Technical responses to four Component 1 STTA work orders were approved in Year 3, falling short of the annual target (6). Three additional requests were received and are pending approval in Q1 Y4.

Two Component 1 STTA reports were approved in Year 3, including the Kenya RAPID Round 1 Evaluation Report and the KIWASH midterm performance evaluation final report. As the first report for each activity, they have not been counted as additional results.

4.1.6 INDICATOR 1.2: LEVEL OF MISSION SATISFACTION WITH THE RESPONSIVENESS AND QUALITY OF WASHPALS TECHNICAL ASSISTANCE

Following completion of the KIWASH Midterm Performance Evaluation, the first client satisfaction survey was sent to the Mission point-of-contact. The survey reported 8 out of 10 for timeliness, 9 out of 10 for technical quality and 10 out of 10 for sensitivity to local context. Overall satisfaction was 8 out of 10.

4.1.7 INDICATOR 2.1: NUMBER OF LOCAL PARTNERS ACTIVELY PARTICIPATING IN RESEARCH ACTIVITIES DESIGNED AND IMPLEMENTED BY WASHPALS

Eleven local partners were engaged in research activities in Year 3—two under the CLTS work-stream, two in MBS, three in safe play spaces, and four in grants—falling short of the annual target (12). Partners were a mix of USAID local IPs/collaborating organizations, community-based/civil society organizations, research institutions, and local government. Most partners were engaged in research design, data gathering and reviewing findings/reports. WASHPaLS may identify additional partners in future years for dissemination of results, implementation of findings, or new research activities, and it is possible the project will identify five additional partners to achieve the overall target of 28.

4.1.8 INDICATOR 2.2: NUMBER OF PEER-REVIEWED SCIENTIFIC PUBLICATIONS RESULTING FROM USG SUPPORT TO RESEARCH AND IMPLEMENTATION PROGRAMS

One manuscript was published in a peer-reviewed journal in Year 3 (a CLTS manuscript) achieving the annual target. In addition to manuscripts that capture findings from Component 2 field research and Component 1 activities, at least an additional six manuscripts are anticipated from grants awarded to date and the project is on track to exceed the overall target of four manuscripts submitted.

4.1.9 INDICATOR 3.1: NUMBER OF GRANTS AWARDED TO BEHAVIOR CHANGE INNOVATORS

Five grants were awarded Year 3, falling short of the annual target (7). Two sole-source grants are anticipated in Year 4 to reach the overall target of ten grants awarded.

4.1.10 INDICATOR 4.1: NUMBER OF PARTNERSHIPS ESTABLISHED OR SUPPORTED

WASHPaLS engaged in one new partnership with the World Bank in Year 3, falling short of the annual target (5) and has achieved only seven to date. To stay on target, WASHPaLS is expected to engage in an additional 17 partnerships in Years 4 and 5. Based on performance to date, WASHPaLS may fall short of the partnership LOP target of 24.

4.2 REVIEW OF MANAGEMENT INDICATORS

Table 6 summarizes WASHPaLS achievements on the management indicators. They are discussed below.

TABLE 6: MANAGEMENT INDICATOR RESULTS

N°	Management Indicator	Q1	Q2	Q3	Q4	Year 3	To Date
M1	Number of people trained through WASHPaLS Activities	35	20	63	37	155	176
M2	Number of USAID Missions supported by WASHPaLS	0	0	1	1	2	5
M3	Number of grant applications submitted in response to public solicitations	0	49	0	0	49	394
M4	Number of communications materials developed to share information and learning	12	4	4	7	27	70
M5	Number of formal consultations with Advisory Board	2	0	2	3	7	44

4.2.1 INDICATOR M1: NUMBER OF PEOPLE TRAINED THROUGH WASHPALS ACTIVITIES

WASHPaLS trained 155 enumerators through WASHPaLS field research, of which 86 participants were male, 65 were female, and four unknown. Enumerators were trained in Ethiopia, Nepal, Bangladesh, India, and Uganda by WASHPaLS grantees and in Cambodia and Ghana by the core research teams.

4.2.2 INDICATOR M2: NUMBER OF USAID MISSIONS SUPPORTED BY WASHPALS

In Year 3, WASHPaLS supported two USAID Missions (Ghana and Mozambique) through Component 1 STTA Activities. The LOP number reported decreased from 12 to 5 following discussion with USAID clarifying that only activities that provide core support to the Mission count towards Management Indicator 2.

4.2.3 INDICATOR M3: NUMBER OF GRANT APPLICATIONS SUBMITTED IN RESPONSE TO PUBLIC SOLICITATIONS

Forty-nine expressions of interest were received in Year 3 to the third REOI, of which 13 were invited to submit a full application (all of which applied), and four were selected for award: Water Trust, IDinsight, Stanford, and Gram Vikas.

4.2.4 INDICATOR M4: NUMBER OF COMMUNICATIONS MATERIALS DEVELOPED TO SHARE INFORMATION AND LEARNING

WASHPaLS developed 27 communications materials in Year 3, including 20 presentations, three briefing notes, two conference posters, one factsheet, and one French translation of a report. Two materials were developed specifically for sharing with local government, two for USAID, and five for international NGOs. The translated report was shared publicly; the remaining 17 materials were shared at a specific conference or other event.

4.2.5 INDICATOR M5: NUMBER OF FORMAL CONSULTATIONS WITH ADVISORY BOARD

The Advisory Board and its members were consulted formally seven times in Year 3, three of which were consultations of the full board (one in-person Board meeting and two virtual presentations of project material/research results); four were consultations with individual members.

5.0 PROJECT MANAGEMENT

As the technical focus of activities in Year 3 remained on field implementation, including for Component 1 buy-in activities and management of the small grants, there was a significant increase in programmatic implementation that required adjustments to the project management team (e.g., adding staff, redistributing roles and responsibilities) to keep pace with administrative and technical needs. Project management highlights from Year 3 include the following:

Staffing

- In February, WASHPaLS on-boarded a part time Home Office DPM to support operations, administrative management and technical oversight of WASHPaLS, to backfill the role after the previous DPM transitioned to fill the OFM vacancy. The DPM role will continue to provide 50% LOE support to the project and has taken on responsibilities for M&E reporting.
- In June, the Project Manager/WASH Specialist left the project and was replaced by a new Home Office Project Manager. The new Project Manager is based in the Arlington office with the majority of the Tetra Tech team and will initially provide 50% LOE support to the project, until the role of WASH Specialist is filled. It is anticipated that another Home Office hire will provide WASH Specialist support beginning early in Year 4.
- Subcontractors also have increased the number of technical and some administrative staff supporting their research activities; while full-time staff at their respective companies, they are all part-time to the project.

Planning

- WASHPaLS maintains a productive and collaborative working relationship with the USAID technical leads through bi-weekly project meetings to discuss overall progress, as well as through periodic technical meetings that permit a deeper dive discussion of Component 2 and 3 activities. WASHPaLS prepares and distributes meeting notes.
- In March, WASHPaLS held a Mid-Year Team Planning Meeting at Tetra Tech's office in Arlington, Virginia. WASHPaLS full- and part-time staff, the US-based Research Advisors, and representatives from USAID attended the meeting, which allowed for extremely valuable face-to-face, in-depth technical discussions.
- In July, WASHPaLS held the Year 4 Annual Work Planning Meeting at Tetra Tech's office in Arlington, Virginia. WASHPaLS full- and part-time staff, the US-based Research Advisors, and representatives from USAID participated. The major outcome of the meeting was general agreement on the overarching direction of Year 4 activities.

Reporting

- WASHPaLS kept pace with the timely submittal of Year 3 contract deliverables, including the Year 3 Work Plan, Year 2 Annual Report, quarterly reports, and accruals reports.
- A list of all deliverables, including technical deliverables (e.g. inception reports) submitted in Year 3, is provided in Appendix 2.

APPENDIX 1: STATUS OF PLANNED YEAR 3 ACTIVITIES

TABLE A1: STATUS OF YEAR 3 PLANNED ACTIVITIES

Year 3 Planned Activities	Status
WASHPALS Advisory Board	
• Convene quarterly Board meetings • Engage individual members on an ad hoc basis	• Convened one formal board meeting in Q1 and two in Q4. • Individual board members engaged in CLTS, MBS and MHM research streams throughout the year.
Component 1: Provide Short-Term Technical Assistance to Missions	
• Respond to Mission SOWs, as requested	• Responded to all requests received and including the Support to the Global Handwashing Partnership, WASH for Health Performance Evaluation, Formative Research for Gender and Hygiene Behaviors, and application of the MBS Decision Support Tools in Ethiopia.
NOURISH Impact Evaluation • Annual Implementation Fidelity Report • Quarterly Implementation Fidelity Reports • Design finalization and ethical approval • Procurement of local subcontracts for household survey, stool sampling, and analysis • Endline data collection	**NOURISH Impact Evaluation** • Annual Implementation Fidelity Report approved • Quarterly Implementation Fidelity Reports approved • Design Finalized and ethical approval obtained • Subcontracts procured for household survey, stool sampling, and analysis • Endline data collection completed
Kenya RAPID Impact Evaluation • Round I data collection • Round I data analysis and report • Presentation of Round I findings • Round II data collection and analysis	**Kenya RAPID Impact Evaluation** • Round I data collection complete • Round I data analyzed and report approved • Round I findings presented • Round II data collection initiated
KIWASH Midterm Performance Evaluation • Desk Review and Inception Report • Qualitative field work • Preliminary findings presented to Mission • Final Evaluation Report and other products	**KIWASH Midterm Performance Evaluation** • Desk Review and Inception Report approved • Qualitative field work completed • Preliminary findings presented to Mission • Final Evaluation Report and other products approved
Menstrual Hygiene Management • TBD	**Menstrual Hygiene Management** ***Desk Review*** • Kickoff meeting conducted • Systematic review, grey literature search, and KIIs completed • Members of the TAG identified • Desk review report drafted and reviewed • Presented findings in two sessions at Stockholm World Water Week and as accepted as a poster presentation at UNC Water and Health Conference 2019

Year 3 Planned Activities	Status
	Economic Impact Study • Compiled available quantitative and qualitative evidence regarding the costs and benefits of workplace MHM • Determined a full EIS not possible with available data • Developed a conceptual model as a foundation for the EIS ***Partnership Development*** • Hired consultant to lead partnership negotiations • Circulated one-pager to USAID Missions as part of country selection
Component 2: Develop and Test New and Innovative Approaches and Tools for Implementation of Interventions	
• Develop theme/country-specific Engagement Plans for countries in which field research is implemented • Produce WASHPaLS communication products (written, webinars, manuscripts, etc.) – ongoing • Quarterly meeting of the Research Working Group	• Added detail to engagement plans for countries in which field research is implemented • Produce WASHPaLS communication products (written, webinars, manuscripts, etc.) – ongoing • Ad hoc as needed meetings of the Research Working Group. • Preparation of the first journal manuscript is ongoing, with submission expected by the end of Q1 Y4
Task 2.1: Assess Mechanisms for the Delivery of Sanitation Services at Scale – focus on behaviors (primarily, but not limited to CLTS)	
2.1.1: CLTS desk review	
• Submit Manuscript for USAID Review • Revise and submit manuscript for peer review	• Published the manuscript titled *Policy Diffusion in the Rural Sanitation Sector: Lessons from Community-Led Total Sanitation (CLTS)* in the peer-reviewed journal World Development.
2.1.2: Implementation Research on CLTS	
Quantitative Research • Conduct data analysis on up to 4 National Datasets • Qualitative phone/Skype follow-ups • Prepare country briefs for implementers • Draft publication ***Qualitative Research: Cambodia*** • Fieldwork preparations (i.e., local consultant) • Qualitative data collection ***Qualitative Research: Zambia*** • Fieldwork preparations (i.e., ethical clearance, site selection, local consultant) • Qualitative data collection ***Qualitative Research: Ghana (or Kenya, TBC)*** • Fieldwork preparations (i.e., ethical clearance, site selection, local consultant) • Qualitative data collection ***Qualitative Research: All*** • Qualitative data analysis • Preparation of dissemination materials	***Quantitative Research*** • Completed data analysis on 7 datasets from four countries • Completed qualitative phone/Skype follow-ups • Ongoing preparation of country briefs for implementers • Draft manuscript delayed to Year 4 ***Qualitative Research: Cambodia*** • Completed national ethics approval and recruitment of local research team • Completed data collection and qualitative coding of data ***Qualitative Research: Zambia*** • On hold, to coordinate with UNICEF Zambia ***Qualitative Research: Ghana*** • Completed national ethics approval and recruitment of local research team • Completed data collection ***Qualitative Research: All*** • Ongoing qualitative data analysis using fsQCA • Ongoing preparation of dissemination materials

Year 3 Planned Activities	Status
CLTS + Subsidy Study • Conduct formative research in Ghana • Finalize first draft of inception report with study details • Feedback and revisions of inception report • Finalize MOU with UNICEF • Recruit local survey firm • Develop data collection tools • National and international ethical approvals ***Data collection*** • Training, piloting, community selection, planning logistics • National launch workshop with MoW and CWSA • Baseline data collection • Intervention (targeted subsidy) in treatment communities • Aquaya staff in the field to manage and troubleshoot • Data analysis and presentation of intermediary findings ***Thrive CLTS/Subsidy Evaluation in Lao PDR*** • Review and/or produce communication products of results	***CLTS + Subsidy Study*** • Completed formative research in Ghana • Completed inception report • Completed final MOU with UNICEF • Completed recruitment of local enumerators • Completed data collection tools • Completed national and international ethical approvals ***Data collection*** • Completed training, piloting, community selection, planning logistics • Completed national launch workshop with MWSR and CWSA • Completed baseline data collection • Ongoing implementation of intervention (targeted subsidy) in treatment communities • Completed Aquaya staff in the field to manage and troubleshoot • Ongoing data analysis and presentation of intermediary (baseline) findings in Q1 Y4 ***Thrive CLTS/Subsidy Evaluation in Lao PDR*** • Completed final report
2.1.3: ICT to Aid the effectiveness of CLTS Implementation	
• Produce lessons learned documentation and know how on M2W development and implementation • In country data collection: Conduct in country interviews with Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP), CLTS implementers, Real Time Monitoring (RTM) coaches and selected provincial/district staff • Qualitative analysis of interview results and preparation of draft study • Report review by USAID, Zambian CLTS implementers, UNICEF • Finalize report and communications products	• Lessons learned documentation and know how on M2W development and implementation received from Akros • In country data collection and subsequent steps on hold pending coordination with country partners
Task 2.2: Assess Mechanisms for the Delivery of Sanitation Services at Scale	
2.2.1: MBS desk review	
• Finalize and submit journal manuscript for review	• Journal manuscript submission in October 2019 • Published French translation of the MBS desk review
2.2.2: Implementation Research on MBS	
• Finalize three country level case studies • Conduct feedback sessions with implementing partners • Prepare and submit retrospective findings • Inception Report, partner recruitment, Mission concurrence • Workshops with prospective research partners in 3 countries	• Two of three country case studies finalized for publication; third case study scheduled in October 2019 • Completed feedback sessions with partners done in October 2018 • Retrospective research findings from three countries draft prepared; revised version due in December 2019. • Mission concurrence for DST implementation in Uganda rejected. • Workshops with prospective research partners in 3 countries not applicable because the activity was discarded in favor of developing toolkits (in consultation with USAID).

Year 3 Planned Activities	Status
• Data collection • Finalize decision-support modeling tools • Research report on decision-support tools for policymaking	• Data collection for prospective research cancelled • Decision-support modeling tools finalized • Research report on decision-support tools for policymaking replaced by two planned deliverables – paper and poster presentation for African Water Association (AfWA) 2020 and a marketing brief to be produced after DST technical assistance implementations • Completed development of the enterprise viability and sustainability diagnostic toolkit • Developed a board game and model to design viable sanitation enterprises for public distribution
Task 2.3: Effectiveness of Improved Hygiene Environments for Babies and Young Children	
2.3.1 Literature Review	
• Develop a plan for journal publication • Write and submit article for peer review journal • Develop short learning note for implementers	• Preparing manuscript on TIPS results for peer-reviewed publication
2.3.2 Field-Based Research	
• Obtain local Phase 1 and Phase 2 IRB approval • Acquire play space units for Trials of Improved Practice (TIPS) • TIPS to test and refine a subset of prototypes; single prototype to result • Field observations, interviews, and focus group discussions (FGDs) • Key informant interviews • Limited stool sampling and analysis • Decision point of whether to proceed to Phase 3 • Submit IRB applications (U.S. and Ethiopia) for Phase 3 • Acquire play space units for plausibility study • Implement programming for plausibility study • Research intervention tools testing for Phase 4 (using Phase 3 as the opportunity to test) • Decision point of whether to proceed to Phase 4 • Documentation of Phase 3 results • Submit U.S. and local ethical reviews for Phase 4 • Acquire play space units for Phase 4 • Develop intervention approach and tools for Phase 4	• Obtained Phase 1 and Phase 2 IRB approval • 24 Play space units produced and inspected for use in Trials of Improved Practice (TIPS) • TIPS tested playpens, and resulted in a description of desired characteristics (drawing from the 3 models). Proposed USAID Transform WASH further explore market viability of local production and/or import • Field observations, interviews, and focus group discussions (FGDs) conducted • Key informant interviews conducted • Stool sampling eliminated from research design; *E. coli* sampling taken • Decision taken not to proceed with Phase 3 • Phase 3 cancelled, n/a • Play space units acquired • Plausibility study implemented • Phase 4 cancelled, all remaining tasks n/a
Component 3: Small Grants Program on Hygiene Behavior Change	
• Award single award from Round 2 • Round 2 HBC grantees implement activities • Prepare and release third REOI • Review applications, REC meeting, negotiations, award grant for third REOI • Award Round 3 HBC grants • Round 3 HBC grantees implement activities • Prepare and release fourth REOI (if necessary) • Review applications, REC meeting, negotiations, award grant for fourth and final REOI	• Awarded 1 grant from Round 2 • Round 2 grant ongoing • Released third REOI • Reviewed applications and selected awardees • Awarded 4 grants in Round 3 • Round 3 grants ongoing • Decision taken to develop sole source grants, not to proceed with fourth REOI, remaining tasks n/a

Year 3 Planned Activities	Status
• Award HBC grants • HBC grantees implement activities	• Round 1 grants ongoing, 2 grants from Round 1 closed
Component 4: Support USAID's Participation in Strategic Partnerships	
Partnerships • Provide technical support to GHP • Provide technical support to CFN Coalition *Events* • Attend Stockholm World Water Week • Attend GHP BC Think Tank (Manila) • Attend UNC Water and Health conference • Attend African Sanitation conference • Present at CORE group fall meeting	*Partnerships* • Technical support provided to GHP • Technical support provided to CFN Coalition *Events* • Attended Stockholm World Water Week • Attended GHP BC Think Tank (Manila) • Attended UNC Water and Health conference • Attended African Sanitation conference • Presented at CORE group fall meeting • Presented at the Aspen Network of Development Entrepreneurs (ANDE) Annual London members meeting

APPENDIX 2: SUMMARY OF YEAR 3 DELIVERABLES AND REPORTS

TABLE A2: YEAR 3 DELIVERABLES AND REPORTS

Deliverable	Date Approved	Notes
Year 3 Annual Work Plan	October 3, 2018	
Annual Report (Y2) (incl. Foreign Assistance Reporting)	December 6, 2018	Includes Q4 Y2 quarterly report and Annual standalone report summarizing partnership activities, results and achievements
Quarterly Reports (Including Quarterly Financial Report)	February 4, 2019 April 16, 2019 August 19, 2019	Q1 Q2 Q3
Award of a minimum of 10 grants under the small grants program	November 19, 2018 July 9, 2019 June 7, 2019 July 25, 2019 July 19, 2019	5 grants awarded in Year 3; 2 remaining to reach 10. WASHPaLS-G04-ICDDRB: WASHPaLS-G05-Stanford: WASHPaLS-G06-Gram Vikas WASHPaLS-G07-IDinsight WASHPaLS-G08-Water Trust
Annual Work Plan (Y4)	November 4, 2019	Draft submitted September 5, 2019; approved after end of Year 3

APPENDIX 3: YEAR 3 DISAGGREGATED RESULTS

This appendix contains disaggregated results for performance indicators with non-zero results in Year 3. Results submitted via Google Forms were processed using linked Google Sheets, which enables automatic updating of all results tables. Table A3 provides an overview of disaggregates for each indicator as specified in the MEP.

TABLE A3: PERFORMANCE INDICATOR DISAGGREGATES AND DATA COLLECTION METHOD AND FREQUENCY

N°	Performance Indicator [and Type]	Disaggregation	Data Collection Method (Frequency)
C1	Number of USAID Missions or operating units, implementing partners, local governments and donors applying WASHPaLS approaches/tools (Custom) [OUTCOME]	Type of guidance[4]; Type of Institution[5]; Topic area; Version (draft, final); Level of influence (strong, medium, weak)	Google Forms (Quarterly)/KIIs and Internal Outcome Evaluation Reports (Annually)
C2	Number of reports, policies, laws, agreements, action plans, regulations, strategies, or investment agreements (public or private) influenced by WASHPaLS (Custom) [OUTCOME]	Type of guidance; Stage (proposed, adopted); Geographic location; Level of influence (strong, medium, weak)	Google Forms and WASHPaLS Activity Reports (Quarterly)
C3	Number of people exposed to WASH approaches/tools through WASHPaLS events, communications materials and products (Custom) [OUTCOME]	Country; Type of exposure (event, knowledge product); Sex (female, male, undisclosed); Topic area; Affiliated institution	Web analytics (Annually), WASHPaLS Activity Reports, attendance records (Quarterly)
C5	Number of workshops/events at which research methods, preliminary results and findings are presented (Custom) [OUTPUT]	Project role (organized, co-organized, presented); Topic area; Number of people in attendance by gender (reported under C3)	Google Forms and WASHPaLS Activity Reports (Quarterly)

[4] Types of Guidance include (for indicators C1 and C2) policy, procedure, strategy, law, agreement, action plan, regulation, investment agreement (public/private), and (for C1 only) training materials, solicitation design, and others.

[5] Types of Institutions include USAID, other donor, USAID implementing partner, local government (national/subnational), community-based or civil society organization, private sector, research institution, and others.

N°	Performance Indicator [and Type]	Disaggregation	Data Collection Method (Frequency)
1.1	Number of technical assistance assignments and technical reports produced by WASHPaLS team (Custom) [OUTPUT]	Type of TA[6]; Recipient; Country; Topic area; Status (ongoing, complete)	Google Forms and Technical Assistance Tracker (Quarterly)
1.2	Level of Mission satisfaction with the responsiveness and quality of WASHPaLS Technical Assistance (Custom) [OUTPUT]	Topic area; Type of TA; Country	Post-STTA client satisfaction survey (Semi-annually)
2.1	Number of local partners actively participating in research activities designed and implemented by WASHPaLS (Custom) [OUTPUT]	Topic area; Type of local partner[7]; Type of engagement[8]; Country	Google Forms and WASHPaLS Activity Reports (Quarterly)
2.2	Number of peer-reviewed scientific publications resulting from USG support to research and implementation programs (STIR-12) [OUTPUT]	Status (submitted, published/ disseminated); Topic area; Type of peer-reviewed publication[9]	Google Forms and WASHPaLS Activity Reports (Quarterly)
3.1	Number of grants awarded to behavior change innovators (Custom) [OUTPUT]	Value of grant[10]; Topic area; Country; Status; Solicitation Number	Google Forms and WASHPaLS Activity Reports (Semi-annually)
4.1	Number of partnerships established or supported (Custom) [OUTPUT]	Partnering institution(s); Level (global, national, local); Status of partnership (established, supported)	Google Forms and WASHPaLS Activity Reports, MOUs (Quarterly)

6 Types of technical assistance include impact evaluation, performance assessment, and other.

7 Types of local partners include USAID local implementing partner/collaborating organization, local government (national/subnational), research institution, private sector, community-based or civil society organization. This list mirrors types of institutions while excluding USAID and other donors.

8 Types of engagement by local partners include research design, data gathering, reporting/dissemination of findings, or implementing activities based on findings

9 Types of peer-reviewed publications include: Technical report, scientific journal, conference proceedings.

10 Proposed grant tiers for disaggregation: 0 to $100,000 USD; $100000 to $250,000; and greater than $250,000 USD.

TABLE A4, INDICATOR C1: NUMBER OF USAID MISSIONS AND OPERATING UNITS, IMPLEMENTING PARTNERS, LOCAL GOVERNMENTS AND DONORS APPLYING WASHPALS APPROACHES/TOOLS

Indicator C1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	3	5	2	2	**11**	11
C1A: Type of Guidance	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Policy, Procedure or Strategy	1	4	1	1	**7**	7
Training Materials	1	0	0	0	**1**	1
Solicitation Design	0	0	0	0	**0**	0
Other	1	2	0	1	**4**	4
Subtotal	**3**	**6**	**1**	**2**	**11***	**11***
C1B: Institution	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
USAID	0	0	1	0	**1**	1
Other Donor	1	1	0	1	**3**	3
Implementing Partner	0	3	0	0	**3**	3
Local Government	0	0	0	0	**0**	0
Community-based or Civil Society Organization	0	0	0	0	**0**	0
Private Sector	0	0	0	0	**0**	0
Research Institution	1	0	0	1	**2**	2
Other	1	1	0	0	**2**	2
Subtotal	**3**	**5**	**1**	**2**	**11**	**11**
C1C: Topic Area	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
CLTS	1	1	1	2	**5**	5
Sanitation Marketing	2	5	2	1	**10**	10
Pathways of Fecal Contamination in Infants	0	0	0	0	**0**	0
Hygiene Behavior Change Communication	0	0	0	0	**0**	0
Gender and Social Inclusion	0	0	0	0	**0**	0
Other	0	0	0	0	**0**	0
Subtotal	**3**	**6**	**3**	**3**	**15***	**15***
C1D: Level of Influence	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Strong	0	2	2	0	**4**	4
Medium	1	0	0	0	**1**	1
Weak	2	3	0	2	**7**	7
Subtotal	**3**	**5**	**2**	**2**	**12***	**12***

*Greater than total results because some partners contributed multiple times, providing different guidance and/or incorporating more than one topic.

TABLE A5, INDICATOR C2: NUMBER OF REPORTS, POLICIES, LAWS, AGREEMENTS, ACTION PLANS, REGULATIONS, STRATEGIES, OR INVESTMENT AGREEMENTS (PUBLIC OR PRIVATE) INFLUENCED BY WASHPALS

Indicator C2	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	2	6	1	1	**10**	11
C2a: Type of Guidance	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Policy, Procedure, or Strategy	1	2	0	0	**3**	3
Law/Regulation	0	0	0	0	**0**	1
Agreement	0	0	0	0	**0**	0
Knowledge Product	1	4	1	1	**7**	7
SUBTOTAL	**2**	**6**	**1**	**1**	**10**	**11**
C2B: Stage	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Proposed	3	5	2	0	**10**	12
Adopted	2	6	1	1	**10**	11
C2C: Location	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Global	2	4	0	1	**7**	9
Cambodia	1	0	0	0	**1**	1
Mozambique	1	0	0	0	**1**	1
Ghana	1	0	0	0	**1**	1
Indonesia	0	0	1	0	**1**	1
West and Central Africa	0	1	0	0	**1**	1
Uganda	0	0	1	0	**1**	1
Subtotal	**5**	**5**	**2**	**1**	**13***	**15***
C2D: Level of Influence	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Strong	0	1	1	0	**2**	3
Medium	0	0	0	0	**0**	0
weak	2	5	0	1	**8**	8
Subtotal	**2**	**6**	**1**	**1**	**10**	**11**

*Greater than total results as some cover multiple countries.

TABLE A6, INDICATOR C3: NUMBER OF PEOPLE WITH EXPOSURE TO WASH APPROACHES/TOOLS THROUGH WASHPALS EVENTS, COMMUNICATIONS MATERIALS, AND PRODUCTS (CUSTOM) [OUTCOME]

Indicator C3	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	481	197	237	51	**4,037**	8,878
C3a: Modality	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Event	407	197	237	26	**867**	2,208
Product	74	0	0	25	**99**	1,299
Online Material Downloads	N/A	N/A	N/A	N/A	**1,956**	4,256
Blog and Webinar Views	N/A	N/A	N/A	N/A	**1,115**	1,115
Subtotal	**481**	**197**	**237**	**51**	**4,037**	**8,878**

TABLE A7, INDICATOR C5: NUMBER OF WORKSHOPS/EVENTS AT WHICH RESEARCH METHODS, PRELIMINARY RESULTS, AND FINDINGS ARE PRESENTED [OUTPUT]

Indicator C5	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	9	7	8	2	**26**	44
C5a: WASHPaLS Participation	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Organized	0	1	0	0	**1**	1
Co-organized	0	1	3	2	**6**	11
Presented	9	5	5	0	**19**	32
Subtotal	**9**	**7**	**8**	**2**	**26**	**44**
C5b: Topic Areas	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
CLTS	3	3	3	1	**10**	18
Sanitation Marketing	3	2	1	0	**6**	16
Pathways of Fecal Contamination in Infants	4	1	3	0	**8**	12
Hygiene Behavior Change Communication	0	0	0	1	**1**	1
Gender and Social Inclusion	0	0	1	0	**1**	1
Other	0	1	0	0	**1**	1
Subtotal	**10**	**7**	**8**	**2**	**27***	**49***

*Greater than total results as some events covered multiple topics.

TABLE A8, INDICATOR 1.1: NUMBER OF TECHNICAL ASSISTANCE ASSIGNMENTS AND TECHNICAL REPORTS PRODUCED BY WASHPALS TEAM [OUTPUT]

Indicator 1.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	0	2	1	1	**4**	7
1.1a: Type of Assistance	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Impact Evaluation	0	0	0	0	**0**	2
Performance Evaluation	0	0	1	0	**1**	2
Report	0	0	0	0	**0**	0
Other	0	2	0	1	**3**	3
Subtotal	**0**	**2**	**1**	**1**	**4**	**7**
1.1b: Recipient	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
USAID/E3	0	1	0	0	**1**	2
USAID/KEA	0	0	0	0	**0**	2
USAID/Ghana	0	0	1	0	**1**	1
USAID/Mozambique	0	0	0	1	**1**	1
USAID/DC	0	1	0	0	**1**	1
Subtotal	**0**	**2**	**1**	**0**	**4**	**7**
1.1c: Country	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Cambodia	0	0	0	0	**0**	1
Kenya	0	0	0	0	**0**	2
Ghana	0	0	1	0	**1**	1
Mozambique	0	0	0	1	**1**	1
Global	0	2	0	0	**2**	2
Subtotal	**0**	**2**	**1**	**1**	**4**	**7**

TABLE A9, INDICATOR 1.2: LEVEL OF MISSION SATISFACTION WITH THE RESPONSIVENESS AND QUALITY OF WASHPALS TECHNICAL ASSISTANCE

Indicator 1.2	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	0	0	8	0	**8**	8
1.2a: Country	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Kenya	0	0	8	0	**8**	8

TABLE A10, INDICATOR 2.1: NUMBER OF LOCAL PARTNERS ACTIVELY PARTICIPATING IN RESEARCH ACTIVITIES DESIGNED AND IMPLEMENTED BY WASHPALS [OUTPUT]

Indicator 2.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	2	3	2	4	**11**	23
2.1a: Research Activity	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
CLTS (2.1.2)	2	0	0	0	**2**	5
ICT in CLTS (2.1.3)	0	0	0	0	**0**	1
Market-based Sanitation (2.2.2)	0	1	0	1	**2**	7
Clean Play Spaces (2.3)	0	1	2	0	**3**	4
Grants (3)	0	1	0	3	**4**	6
Subtotal	**2**	**3**	**2**	**4**	**11**	**23**
2.1b: Local Partner	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
USAID Local Implementing Partner or Collaborating Organization	2	2	0	2	**6**	8
Community-based or Civil Society Organization	0	0	0	0	**0**	6
Private Sector	0	0	0	0	**0**	1
Research Institution	0	0	0	1	**1**	1
Local Government (National/Subnational)	0	1	2	1	**4**	7
Subtotal	**2**	**3**	**2**	**4**	**11**	**23**
2.1c: Engagement Level	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Research Design	1	1	0	3	**5**	7
Sharing Existing Data	0	1	0	2	**3**	9
Gathering Data (Primary or Secondary)	0	1	2	0	**3**	4
Dissemination of Results	1	0	0	2	**3**	3
Implementation of Activities Based on Findings	0	1	0	2	**3**	3
Review of Findings or Reports	2	1	0	2	**5**	9
Other	0	0	0	0	**0**	2
Subtotal	**4**	**5**	**2**	**11**	**22***	**37***
2.1d: Country	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Zambia	0	0	0	0	**0**	2
India	0	0	0	0	**0**	2
Cambodia	1	0	0	0	**1**	3
Nigeria	0	0	0	0	**0**	1
Ghana	1	0	0	0	**1**	3
Liberia	0	0	0	0	**0**	1
Ethiopia	0	1	2	1	**4**	7

Indicator 2.1	Q1	Q2	Q3	Q4	Year	To Date
Uganda	0	1	0	1	**2**	2
Philippines	0	0	0	2	**2**	2
Bangladesh	0	1	0	0	**1**	1
Subtotal	**2**	**3**	**2**	**4**	**11**	**24***

*Greater than total results as some partners engage multiple ways or in multiple countries.

TABLE A11, INDICATOR 2.2: NUMBER OF PEER-REVIEWED SCIENTIFIC PUBLICATIONS RESULTING FROM USG SUPPORT TO RESEARCH AND IMPLEMENTATION PROGRAMS [OUTPUT]

Indicator 2.2	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	0	0	0	1	**1**	1
2.2a – Status	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Submitted	0	0	2	0	**2**	2
Published	0	0	0	1	**1**	1

TABLE A12, INDICATOR 3.1: NUMBER OF GRANTS AWARDED TO BEHAVIOR CHANGE INNOVATORS

Indicator 3.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	1	0	1	3	**5**	8
3.1a: Topic Area	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
WASH-related behavior change	1	0	1	3	**5**	7
Gender in WASH	0	0	0	0	**0**	1
Subtotal	**1**	**0**	**1**	**3**	**5**	**8**
3.1b: Country	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Nepal	0	0	0	0	**0**	1
Ethiopia	0	0	0	0	**0**	1
Bangladesh	1	0	0	0	**1**	2
India	0	0	1	1	**2**	2
Uganda	0	0	0	1	**1**	1
Philippines	0	0	0	1	**1**	1
Subtotal	**1**	**0**	**1**	**3**	**5**	**8**
3.1c: Grant Value (USD)	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
<50,000	0	0	0	0	**0**	0
50,00–100,000	0	0	0	3	**3**	5
100,001–300,000	1	0	1	0	**2**	3
>300,000	0	0	0	0	**0**	0
Subtotal	**1**	**0**	**1**	**3**	**5**	**8**

TABLE A13, INDICATOR 4.1: NUMBER OF PARTNERSHIPS ESTABLISHED OR SUPPORTED [OUTPUT]

Indicator 4.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 3 Results	1	0	0	0	**1**	7
4.1a: Type of Partner	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Donor	1	0	0	0	**0**	1
Civil Society	0	0	0	0	**0**	0
Implementing Partner	0	0	0	0	**0**	0
Private Sector	0	0	0	0	**0**	0
Other	0	0	0	0	**0**	6
Subtotal	**1**	**0**	**0**	**0**	**1**	**7**
4.1b: Level	**Q1**	**Q2**	**Q3**	**Q4**	**Year**	**To Date**
Global	1	0	0	0	**1**	7
National	0	0	0	0	**0**	0
Local	0	0	0	0	**0**	0
Subtotal	**1**	**0**	**0**	**0**	**1**	**7**

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