



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

Year 4 Annual Report
October 1, 2019 – September 30, 2020



TETRA TECH

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DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS AND ABBREVIATIONS

AfWA	African Water Association
AJHTM	<i>American Journal of Hygiene and Tropical Medicine</i>
ASALs	Arid and Semi-Arid Lands
BCC	Behavior Change Communication
CFN	Clean, Fed & Nurtured
CKM	Communications and Knowledge Management (USAID)
CLTS	Community-Led Total Sanitation
COR	Contracting Officer's Representative
CRSHIP	Cambodia Rural Sanitation and Hygiene Improvement Program
CSO	Civil Society Organization
DDL	Digital Development Library
DEC	Development Experience Clearinghouse
DFAT	Australia Department of Foreign Affairs and Trade
DFID	United Kingdom Department for International Development
DPD	Deputy Project Director
DRC	Democratic Republic of Congo
DST	Decision Support Tool
E3	Bureau for Economic Growth, Education, and Environment
EQ	Evaluation Question
FSM	Fecal Sludge Management
GESI	Gender Equality and Social Inclusion
GHP	Global Handwashing Partnership
GOE	Government of Ethiopia
GOG	Government of Ghana
GUC	Grants Under Contract
icddr,b	International Center for Diarrheal Disease Research, Bangladesh
ICT	Information and Communications Technology
iDE	International Development Enterprises
IDS	Institute of Development Studies

IE	Impact Evaluation
IRB	Institutional Review Board
IYC/IYCF	Infants and Young Children/ Infant and Young Child Feeding
KEA	Kenya and East Africa
KII	Key Informant Interview
KIWASH	USAID Kenya Integrated Water Sanitation and Hygiene Project
LOE	Level of Effort
LOP	Life of Project
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 (Kenya)
NOURISH	USAID/Cambodia Integrated Nutrition, Hygiene, and Sanitation Project
OD/ODF	Open Defecation/Open Defecation Free
ONSE	USAID's Organized Network of Services for Everyone's Health Activity
OWNP	Ethiopia's One WASH National Programme
P&L	Profit and Loss
PD	Project Director
PE	Performance Envelope
PED	Price-Elasticity of Demand
PI	Principal Investigator
PRO-WASH	USAID's Practices, Research, and Operations in WASH
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
RFA	Request for Approval
RFS	USAID Bureau for Resilience and Food Security

SBC	Social and Behavior Change
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
SuSanA	Sustainable Sanitation Alliance
TAC	Taqman Array Card
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
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)
WADI	Water and Development Indefinite Delivery Indefinite Quantity Contract
WASH	Water, Sanitation and Hygiene
WASHPaLS	Water, Sanitation and Hygiene Partnerships and Learning for Sustainability
WCAR	West and Central Africa Region
W-GDP	Women's Global Development and Prosperity
WHO	World Health Organization
WSSCC	Water Supply and Sanitation Collaborative Council

PREFACE

The United States Agency for International Development's (USAID) Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) Project is a five-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 nongovernmental 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 policymakers 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 policymakers, tapping into broad coalitions and dynamic partnerships (Component 4).

The WASHPaLS Year 4 Annual Report covers the period from October 1, 2019 to September 30, 2020. It presents the project's major achievements, notable challenges, and adherence to the schedule of activities outlined in the Year 4 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 4 Annual Partnerships Report.

I.0 OVERVIEW OF YEAR 4

WASHPaLS activities in Year 4 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 collaborative approach to activity planning and implementation. In Year 4, WASHPaLS also began or continued implementation of several Component 1 buy-in activities that directly respond to Mission and Operating Unit needs, and advanced the project's investigation of innovations in hygiene behavior change programming by managing eight small grants. Across the portfolio, WASHPaLS supported activities in 14 countries throughout the year, working in collaboration with local and national governments, NGOs, civil society organizations (CSOs), and other donors. Implementation was impacted by the COVID-19 pandemic; however, WASHPaLS adjusted to remote working quickly and made progress in all workstreams.

Below is a summary of significant achievements in the fourth year of the WASHPaLS project, covering the period from October 1, 2019, to September 30, 2020. Details are provided in the following sections of the report.

I.1 COMPONENT 1: TECHNICAL ASSISTANCE TO USAID

In Year 4, WASHPaLS received \$1.23 million in funding for three new requests for technical assistance, bringing the total amount obligated to date to \$7.76 million for 12 work orders. Under Component 1, WASHPaLS:

- Continued implementation of the USAID/Cambodia Integrated Nutrition, Hygiene, and Sanitation (NOURISH) Project impact evaluation (IE), including analysis and write-up of endline data including anthropometry data and household surveys. Stool samples were shipped to the US-based laboratory and analysis resumed after pandemic lockdowns were lifted.
- Continued implementation of the Kenya Resilient Arid Lands Partnerships for Integrated Development (RAPID) IE, including completion of Round II data collection and reporting and initiation of Round III data collection.
- Received approval for an expansion of the ongoing research on menstrual hygiene management (MHM) in the workplace and its potential link to women's economic empowerment; and progressed on implementation by scoping partnerships in Ethiopia, Kenya, Nepal, and Nigeria, conducting formative research in Nepal and Kenya, and designing workplace interventions in both countries. The team also developed behavior change communication (BCC) materials for the intervention in Nepal, prepared a Cost-Benefit-Analysis Plan, and prepared a concept note for a situational analysis (in lieu of a full intervention) in Ethiopia. WASHPaLS also conducted a landscaping study on MHM metrics and issued a Request for Proposals (RFP) to field test metrics.
- Continued support to the Global Handwashing Partnership (GHP) for advocacy, knowledge management, steering committee facilitation, and strategy development activities.
- Successfully delivered findings from a performance evaluation of the Water Sanitation and Hygiene for Health (W4H) Project on behalf of USAID/Ghana.
- Initiated formative research on gender and hygiene behaviors in Mozambique by conducting a desk review, conducting a scoping trip, developing an inception report, and recruiting a field team. The

activity was placed on hold due to the pandemic, but began investigating options for resuming activities at the end of Year 4.

- Initiated implementation of the Taxes and Tariffs Module of the Decision Support Tool (DST) in Ethiopia; approval was issued in Q1.
- Received approval in Q3 and successfully delivered an end-term Performance Evaluation of the Kenya RAPID Activity on behalf of USAID Kenya and East Africa (KEA) relying on an extensive document review and key informant interviews (KIIs) that were conducted remotely. By the end of Year 4, the team had received comments on the draft evaluation report and began finalizing deliverables.
- Received approval in Q3 for a request to conduct research on behalf of USAID/KEA on rural sanitation learning. The research is in two parts: research on sanitation for pastoralists in the arid and semi-arid lands (ASALs) of Kenya is underway with a completed desk review and inception report; and a county-level sanitation market assessment will begin in early Year 5.
- Received in Q3 approval for a new request from the USAID Bureau for Resilience and Food Security (RFS) to assess the impacts of the COVID-19 pandemic on current and likely future access to WASH services and products in USAID high priority countries. Deep dive analyses (phone-based interviews and SMS surveys) were conducted in seven countries along with econometric forecast modeling, the initial results of which were presented in Q4. The activity extended into Year 5 with additional research in Ghana and completion of written reports.

1.2 COMPONENT 2: IMPLEMENTATION RESEARCH

In Year 4, WASHPaLS continued to focus on implementation and, for some, finalization of field activities under the three streams of research of Component 2: CLTS, MBS, and SPS. In consultation with sector stakeholders and the WASHPaLS Advisory Board, WASHPaLS implemented the research designs developed in previous years to address the evidence gaps identified in the desk reviews. Despite major disruptions caused by the onset of the COVID-19 pandemic in Q2, WASHPaLS was able to pivot to primarily remote work and continued progress on all work streams.

As in previous years, 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

In Year 4, WASHPaLS continued work on the CLTS performance envelope quantitative and quality lines of inquiry and on the subsidy study in Ghana:

- For the performance envelope (PE):
 - Completed quantitative analysis for Zambia, Cambodia, Liberia, and Ghana datasets.
 - Presented the quantitative results at the 2019 University of North Carolina (UNC) Water and Health Conference; the Kenya Sanitation Conference in Nairobi, Kenya; and the African Water Association (AfWA) International Congress and Exhibition in Kampala, Uganda.
 - Submitted the manuscript titled *Where does CLTS work best? Quantifying determinants of CLTS performance in four countries* for consideration by the journal *Environmental Science & Technology*.

- Completed qualitative data analysis for Cambodia and Ghana and shared findings with in-country partners, which included nuanced findings on the combinations of factors among communities with sustained latrine coverage and use.
- Submitted the manuscript titled *How do rural communities sustain latrine coverage and use? Qualitative comparative analyses in Cambodia and Ghana* for consideration by the *International Journal of Hygiene and Environmental Health*.
- Developed a draft combined report on quantitative and qualitative findings, which is currently under internal review and expected to be finalized in Q1-Q2 of Year 5.
- Developed a concept for a web-based interactive tool to assist with planning of rural sanitation programs, as follow-on to the PE work.
- For the subsidy study:
 - Completed analysis of baseline data, which provided insights into the levels and drivers of slippage in study communities prior to the targeted subsidy intervention.
 - Supported the United Nations Children’s Fund (UNICEF) in Ghana with the rollout of the targeted subsidy in “treatment” communities.
 - Prepared a midline implementation report including monitoring data, qualitative interviews with implementation stakeholders, cost estimates, and lessons learned.
 - Drafted a policy brief and a documentary outline for UNICEF on the process developed to identify vulnerable households in treatment communities eligible for targeted sanitation subsidies.
 - Initiated the identification of “would-be” eligible households in control communities.
- For the ICT study:
 - Drafted and revised a summary of the limited findings of the analysis of the Zambia mobile to web (M2W) tool, which is anticipated to be submitted to USAID for review late in Y5 Q1.

1.2.2 MARKET-BASED SANITATION

In Year 4, WASHPaLS focused on dissemination of results and findings from the enterprise viability research through preparation of articles, training modules, and toolkits:

- Published an article, *Global Assessment of Grant-Funded Market-Based Sanitation Development Projects*, in the *Waterlines* journal (<https://doi.org/10.3362/1756-3488.19-00018>).
- Completed 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 enterprise viability and sustainability toolkits—recruitment and diagnostics—based on methodologies developed for the case studies. Toolkits were peer-reviewed by major funders and practitioners with responses received from six reviewers and three more anticipated in Y5 Q1. Initiated a promising discussion with the USAID/Transform WASH project in Ethiopia to implement and validate the toolkit.
- Drafted an MBS Training Package that comprised eight modules spanning different levels of the sanitation market system, which will serve as the basis for training requested by Missions in Ethiopia and Kenya and UNICEF Ghana. The package is based on several WASHPaLS knowledge products and the implementation experience of the USAID Uganda Sanitation for Health Activity (USHA). The training modules, some of which may be converted to online modules and adapted for virtual training, will be used to support several other proposed training activities, including with USAID’s Practices, Research, and Operations in WASH (PRO-WASH, see below) or UNICEF.

- Provided technical assistance to PRO-WASH, starting with a peer review of its training package and inputs on a draft RFP for a sanitation market assessment in Niger. WASHPaLS' scope has expanded since then to include provision of materials, recordings, and participation for virtual MBS training sessions planned by PRO-WASH in Year 5.
- Produced a game-based MBS learning activity that was tested at the UNC Water and Health Conference 2019 and deployed independently by UNICEF at its MBS training session for their West and Central Africa Region (WCAR) offices.
- Provided technical assistance to the USAID Malawi Mission and USAID's Organized Network of Services for Everyone's Health (ONSE) Activity by reviewing the scope of work (SOW) for a sanitation market assessment, and evaluating proposals received to help select a local consultant. Technical assistance will continue in Year 5.

I.2.3 HYGIENIC ENVIRONMENTS FOR INFANTS AND YOUNG CHILDREN

In Year 4, WASHPaLS:

- Completed analysis and reporting on the Trials of Improved Practice (TIPS) in Ethiopia to test three playpen models for feasibility and appeal of use. Completed a final report, which was embargoed pending acceptance of peer-reviewed manuscript.
- A manuscript titled *Exploring the Use and Appeal of Playpens to Protect Infants from Exposure to Animals, Animal Feces, and Dirt in Rural Ethiopia* was accepted for publication in the *American Journal of Hygiene and Tropical Medicine (AJHTM)* [DOI: <https://doi.org/10.4269/ajtmh.20-0445>].
- A second manuscript featuring the WASHPaLS/Population Services International (PSI) user-centered design (UCD) process, with discussion of the TIPS findings, also was accepted for publication in *AJHTM*, pending minor revisions.
- Presented findings at the 2019 UNC Water and Health Conference and a widely attended webinar presented in collaboration with PRO-WASH.

I.3 COMPONENT 3: SMALL GRANTS PROGRAM

Through Year 4, WASHPaLS has issued nine grants, utilizing approximately \$1.3 million of the \$1.5 million allocated to grants under the task order. In Year 4, WASHPaLS:

- Awarded a non-competed grant to EarthEnable to study the effect of improved or finished flooring on human and animal behaviors impacting child health (Behavioral and Biological Plausibility of the Protective Effects of Improved Flooring in Uganda).
- The other six active grants in Year 4 are:
 - icddr,b (1): mHealth Messaging: an Innovative Approach to Promote Improved Caregiver and Child Hygiene Practices in Bangladesh;
 - icddr,b (2): Household Problem-Solving to Reduce Children's Exposure to Chicken Feces in Bangladesh;
 - The Water Trust: Improving Hygienic Management of Poultry in Rural Uganda;
 - Gram Vikas: Developing and testing an innovative behavior change program for safe child feces management in India;
 - Stanford University: Bringing it Home: Driving School-Based WASH Messaging into the Household Environment in India; and
 - IDinsight: Testing Nudges to Increase Handwashing in Schools Among Pupils in the Philippines.

I.4 COMPONENT 4: PARTNERSHIPS

In Year 4, WASHPaLS increased opportunities for actively engaging with key sector stakeholders to ensure that the project's proposed and ongoing research activities are relevant, timely, and of value to the sector, and 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, including as a significant presence at the 2019 UNC Water and Health Conference, 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 GHP and the Clean, Fed & Nurtured (CFN) Coalition.
- Coordinated a well-attended three-part webinar series convened by CFN and the USAID PRO-WASH Project.
- 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, hygiene behavior change, and MHM.
- Completed analysis of endline data for the study on the effectiveness of subsidies to increase sanitation access in Lao People's Democratic Republic implemented by Thrive/East Meets West, and co-funded, with the World Bank and the Department of Foreign Affairs and Trade (DFAT). This work informed the design of the WASHPaLS subsidy research in Ghana. Submitted a manuscript for consideration by the journal *Lancet Global Health*.

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

2.0 YEAR 4 ACHIEVEMENTS BY COMPONENT

This section presents Year 4 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.

- There were no changes in board member appointments in Year 4. This stability has allowed the project to deepen 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).
- In October 2019, an official board meeting was held as a side session during the UNC Water and Health Conference; Michael Gnilo, Clarissa Brocklehurst, Eddy Perez, and Susanna Smets were able to attend in person. WASHPaLS presented the Year 4 plans and options for additional research and the Advisory Board provided valuable feedback.
- Over the course of the year, Board members were kept abreast of project activities through periodic emails and individual communications with WASHPaLS team members. Board member inputs were solicited on several occasions. For instance, in Q1-Q3, WASHPaLS staff contacted individual Board members on seven occasions to gather feedback on the PE follow-on research activities.

2.2 COMPONENT I: 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 I is entirely demand driven and requires operating units to buy into the mechanism. The WASHPaLS task order can accommodate up to \$15,000,000 in buy-ins over the life of the project. To date, \$7.76 million has been obligated to the project for 12 STTA requests (see Table I). WASHPaLS is aware of five additional requests for technical support under consideration by various Missions, described under “additional requests” below.

TABLE 1: COMPONENT 1 WORK ORDERS ISSUED TO DATE

ACTIVITY	REQUESTING OPERATING UNIT	IMPLEMENTATION DATES ¹	STATUS
1. NOURISH IE	E3/W	August 2018 -TBD	Ongoing
2. RAPID IE	Kenya and East Africa (KEA)	June 2018 –February 2021	Ongoing
3. KIWASH PE	KEA	September 2018 –March 2019	Completed
4. MHM Action Research	E3/Gender Equality and Women’s Empowerment (GEWE)	February 2019 – August 2021	Ongoing
	E3/Women’s Global Development and Prosperity (WGDP)		
5. Support to the GHP 2019	Global Health (GH)	April 2019 – April 2020	Completed
6. W4H PE	USAID/Ghana	July 2019 – March 2020	Completed
7. Gender and Hygiene Formative Research	USAID/Mozambique	October 2019 – TBD	On Hold
8. Ethiopia DST	Africa Bureau	October 2019 –TBD	Desk work ongoing; field work on hold
9. Support to the GHP 2020	GH	April 2020 – April 2021	Ongoing
10. Kenya RAPID Performance Evaluation	KEA	May – December 2020	Ongoing
11. WASH and COVID Trends and Futures Analysis	Bureau for Resilience and Food Security (RFS)	May – December 2020	Ongoing
12. Kenya Rural Sanitation Research	KEA	July 2020 – July 2021	Ongoing

*These values reflect adjustments made after the original funding obligation.

NOURISH Impact Evaluation. This IE evaluates the impact of integrating sanitation and hygiene interventions along with nutrition programming on child growth in rural Cambodia. The evaluation team successfully completed data collection for the IE at the end of Year 3. Analysis of the anthropometry data and 4,015 household surveys progressed through Y4 Q2, and the team submitted a draft report on primary outcomes to USAID in February, with the final version approved in May. The team also drafted a two-page brief that summarizes the preliminary results, discussion, and recommendations presented in the IE final report. Preliminary results were consistent with those from other sanitation trials: the sanitation interventions did not significantly increase sanitation coverage over the strong secular trend and had no discernable effect on measured child health outcomes; and nutrition interventions had a clear and consistent effect on child growth. Top line recommendations were threefold: 1) USAID should scale up nutrition interventions so more children can benefit; 2) USAID should pursue sanitation programming that can reduce children’s exposure to excreta; and 3) USAID should not abandon the

¹ Note: Implementation dates have been impacted by the COVID-19 pandemic. As national and regional responses to the pandemic continue to evolve, the impacts to activity timelines is being monitored, and progress against the Year 4 work plan is presented in Annex B.

CLTS approach but should invest more selectively in sanitation programming in settings where secular growth in sanitation coverage is not already strong.

The Principal Investigator (PI) presented the primary outcome results on three occasions: virtually to USAID/Cambodia in January, in person to USAID staff based in Washington, DC (with others calling in) in March, and again to the WASHPaLS team during the biannual work planning session in March. Following the January presentation and at the request of USAID/Cambodia, an additional brief was submitted describing the adherence and impact of specific nutrition interventions.

Following approval by the National Ethics Committee on Health Research and negotiation with shipping vendors, World Courier shipped the 3,155 stool samples from Cambodia to Georgia Tech in Atlanta, Georgia in Q1, where they were received and transferred to cold storage. According to the Year 4 work plan, the PI was to begin laboratory analyses in Q2 with the draft secondary outcomes report following in Q4. However, in response to the COVID-19 pandemic, Georgia Tech closed its campus and laboratory in March.

Also in Q1, the PI confirmed that the originally proposed methodology for stool analysis would not be feasible² and developed several alternative options for analysis. Early in Q2, the team decided to proceed with development of a new Taqman Array Card (TAC) to be manufactured by ThermoFisher, which is comparable technically and financially to the original proposal. A custom TAC was developed and includes over 70 enteric pathogen and antimicrobial resistance (AMR) gene targets, assembled from validated and published assays. These custom TACs were delivered to Georgia Tech in March and validated at the end of Q3.

The campus partially reopened with limited capacity in mid-June, and the laboratory resumed operation at full capacity in August. It is anticipated that laboratory analysis will run through February 2021, barring any additional closures, and will be halted by mid-May at the latest to ensure that data analyses and reporting are completing prior to the end of WASHPaLS in September 2021. In Q4, the laboratory team also completed DNA and RNA extractions on all samples needed for pathogen/AMR analyses using the custom TAC; these analyses are ongoing.

In June, the evaluation team began drafting a manuscript on baseline findings and circulated a draft to contributing authors in Q4. A draft of the manuscript reporting endline findings is in progress. The team plans to submit both manuscripts for peer review in Y5 Q1, following review by Tetra Tech and USAID.

The PI is in process of transferring from Georgia Tech to UNC-Chapel Hill, but will continue to oversee the work at Georgia Tech as an adjunct professor, and a graduate assistant will run the laboratory analysis on campus. According to the most recent timeline, associated deliverables will be subject to a six-month delay, with the activity closing out in Y5 Q3.

Kenya RAPID Impact Evaluation. This evaluation sets out to test how remote sensing technology and information sharing affect water borehole pump runtime and management decisions. This quasi-experimental, mixed-methods IE uses a matching design, in which targeted boreholes in the five Kenya RAPID counties are matched with comparable, non-intervention boreholes in eight neighboring counties. Quantitative sensor data will be compared across the second and third rounds of analysis, with borehole asset survey data used as part of the inferential model to estimate impacts of the activity on borehole uptime. Using qualitative data, comparison between the first and third rounds of data

² The proposed supplier of TACs to be used for analysis indicated that they would not be publishing and, thus, not making public the detailed analytical methodology, thereby precluding publication in a peer-reviewed journal of any findings reliant on that methodology.

collection will take place to evaluate perceptions of functionality and the impact of the sensor-based systems, among water managers and borehole users.

Round II data collection activities were completed in October 2019. A team of 24 people was deployed 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 to provide context for any changes since Round I. Ipsos, the local data collection firm, uploaded data on a daily basis for quality assurance check by the WASHPaLS Evaluation Coordinator.

During Q1, the evaluation team cleaned the data from the comparison borehole sensors and requested data on the intervention boreholes from SweetSense, the RAPID implementation partner responsible for the sensors. The evaluation team delivered a remote outbrief to USAID/KEA in December and presented a revised timeline for report delivery (pending receipt of data from SweetSense).

SweetSense shared the raw dataset in early December and responded to requests for clarification, allowing analysis to proceed at pace. SweetSense provided a revised dataset in late December that accounted for false negatives (i.e., sensors indicating borehole downtime when it is known that the sensor was malfunctioning or detached, despite proper functioning of the borehole). The evaluation team will assess the data based on the raw input, as well as determine, what, if any, differences exist for the updated output.

In Q2, the evaluation team analyzed Round II data that included 1) data on borehole pump on-time from 115 of 132 comparison borehole sensors covering the period August 2018 through October 2019, 2) a limited borehole asset survey to identify any change in context for the 132 comparison boreholes, and 3) data on borehole pump on-time from 69 intervention boreholes covering the period April 2017 through December 2019.

The draft Round II evaluation report outlined changes to the comparison borehole context through descriptive analysis of survey data, a review of borehole pump sensor data, and preliminary comparisons across treatment and comparison groups for borehole pump on-time during the drought months. A first draft was submitted in March and final revisions were approved in May, pending further discussion on the approach to the outcome measure of borehole pump uptime. The discussion turned on whether borehole pump uptime is an accurate proxy for pump functionality and water access.

In Q3, the evaluation team also finalized a pre-analysis plan for Round III inferential analysis to guide analysis and to clarify model specification, details of which are included in the Round II report. The team liaised with SweetSense to explore improvements to the data treatment regarding pump uptime and submitted a revised approach in Q4, which was subsequently approved. The evaluation team's revised approach will mimic SweetSense's own analysis by collapsing the data to seven-day intervals under the assumption that longer week-long periods of pump off-time imply breakages rather than day-to-day substitution based on rainfall or other available options. The evaluation team has also included a second estimation approach that uses a survival model to estimate the mean difference in "time to repair," measured by the gap between down-times, rather than borehole pump-on time as a way to better understand the distinction between borehole pump breakages and non-use. This plan was submitted to the Registration for International Development Impact Evaluations (RIDIE), which is managed by the International Initiative for Impact Evaluation (3ie), and at the time of writing is awaiting approval.

The PI met with the Kenya RAPID Chief of Party and SweetSense representatives at the Colorado WASH Symposium in March to check on implementation status. In May, the evaluation team received quarterly reports from the Kenya RAPID activity, enabling us to assess implementation fidelity to guide Round III data collection and analysis. The team then proposed a sample selection for Round III qualitative data collection and shared this with the RAPID implementing partners and the local data

collection firm for feedback in June. We also revisited the Round I qualitative discussion and interview guides in preparation for Round III data collection.

In Q3, the evaluation team reviewed all available National Drought Management Authority monthly bulletins for each county in the evaluation sample. Using these bulletins, the team recorded the proportion of water access types by category (e.g., borehole, stream). This information will provide additional insight into alternative water sources in the sampled counties.

To monitor the issue of attrition in comparison borehole sensors, the WASHPaLS Local Coordinator conducted random spot checks of 26 comparison boreholes in late May. The boreholes were randomly sampled within each comparison county, selection stratified by power source type. Of the 26 borehole managers contacted, five borehole managers were not reachable. All the sensors were reportedly installed on the borehole pump.

Round III download of the sensor data and qualitative interviews commenced in August/September to coincide with the end of the drought season. Although travel restrictions related to the COVID-19 pandemic meant that the PI was unable to travel to Kenya to participate in qualitative data collection, local research firm Ipsos developed their own safety protocols and were able to travel within Kenya to complete data collection with remote oversight from the PI and Evaluation Specialist.

Ipsos transferred the sensor data to Tetra Tech at the end of September. The Evaluation Specialist began data cleaning and review to prepare a full data set of Round II and Round III sensor data for analysis. The draft Evaluation Report will be submitted to USAID in November 2020.

Menstrual Hygiene Management Action Research. In Q1 and Q2, WASHPaLS revised and resubmitted the technical response for the expanded scope of activities, per additional funding received from the Office of Gender Equality and Women's Empowerment (GenDev) and the Women's Global Development and Prosperity (W-GDP) Initiative. This expanded scope and funding would permit the MHM Action Research activity to implement field activities in up to four countries, enact a more robust economic impact study in each country, collaborate with MHM experts to field test a set of metrics that measure the impact of MHM on working women, and expand dissemination of findings and learning. There are six tasks outlined in the expanded technical response: (1) desk review (completed), (2) partnership development and research design (in progress), (3) workplace MHM intervention (to be launched in Y5 Q1), including (4) cost-benefit analysis (CBA) study (analysis plan underway), (5) metrics development and indicators field test (in progress), and (6) dissemination of findings and results (to be launched in Year 5).

Task 2. Partnership development and research design: To begin work on Task 2, the team conducted scoping trips in Ethiopia, Kenya, Nepal, and Nigeria in Q1 and Q2 with the aim of identifying private sector partners in each country as well as sustainability partners who would remain engaged through the course of the workplace interventions and continue efforts upon the end of the WASHPaLS-led activity. Partners were confirmed in Ethiopia, Kenya, and Nepal: AQ Roses in Ethiopia, Thika Cloth Mills (TCM) in Kenya, and Shangrila Carpets in Nepal. In Nigeria, the search for a partner continued after the scoping trip. The team received interest in a partnership from Almat Farms in Abuja—which unfortunately did not result in a confirmed partnership. After an initial call, the team had difficulty contacting the owner of Almat Farms via telephone; meanwhile the political situation in Nigeria deteriorated, making it difficult for local consultants to conduct in-person outreach, especially in light of COVID-19. The team continued to search for a partner in Nigeria through Q3 but were not successful. Meanwhile, the team received Mission concurrence for the proposed activities in Ethiopia, Kenya, and Nepal. Activities continued to progress in Kenya and Nepal; while in Ethiopia, the team was unable to schedule the formative research due to the onset of the COVID-19 pandemic toward the end of Q2.

Following the scoping trips, mid-Q2 the team drafted and submitted for approval a Formative Research Plan in preparation for Nepal formative research activities, which were carried out and completed from

February 22 to March 13 (Q2). The team met with Shangrila Carpets owners, management, and employees as well as with relevant individuals, organizations, and businesses involved in the menstrual hygiene space, and several government ministries and departments. The Nepal Formative Research Trip Report was submitted to USAID shortly thereafter, and the Formative Research Plan (global) was updated to reflect learnings and adjustments from the Nepal experience. This updated plan was used to conduct formative research in Kenya during Q3, using a partially virtual model due to restrictions imposed by the COVID-19 pandemic. Data collection methods correlated with COVID-related conditions in Kenya, keeping methods virtual when Nairobi went into lockdown, and in-person visits to the company when the situation improved and TCM was comfortable with such work. As such, the team conducted KIs with MHM stakeholders in Kenya using Zoom, and they completed formative research activities by facilitating in-person KIs with TCM leadership and focus group discussions with employees. In-person data collection methods were carried out on site at TCM, adhering to strict physical distancing and hygiene protocols to reduce COVID-19 transmission.

Upon the completion of the formative research, the team analyzed the data using identified themes to inform the design of the workplace interventions in each country. Intervention areas include (1) products/infrastructure and related women's economic empowerment, (2) social and behavior change, and (3) workplace policies and guidance. The team developed a research protocol, including a set of study tools, for evaluating progress toward adequate MHM, as well as the costs and benefits of the program which will serve as inputs to the CBA. The WASHPaLS team conducted a rapid review of the literature to document validated MHM metrics applied in research and practice. From this review, the team compiled a menu of indicators and scales for customized application, as per each country's specific intervention design.

In Q3, WASHPaLS prepared the Nepal Field Research Inception Report, submitted to USAID for review in June and received approval in September. The Kenya Field Research Inception Report, which used a similar format to Nepal's, was submitted in September and approved in October. In parallel, WASHPaLS applied for and received ethical research approvals from a US-based Institutional Review Board (IRB) in Q4 for both the Nepal and Kenya work. Applications also were submitted to in-country ethics boards (Nepal Health Research Council and United States International University in Kenya); approval is pending on both.

The team translated the study tools and protocols into CommCare, a data collection, management, and storage platform for all research sites. In Q4, the team developed a training for all staff on using CommCare and expects to use it to start data collection in-country in Y5 Q1.

In Q3, the Nepal team conducted research on development and design of BCC materials, including a virtual workshopping of the message map. The Nepal team's process of developing messages involved three phases. During the first phase, the research team analyzed findings from the formative assessment and identified a series of themes important to the beneficiaries. This involved the Nepal MHM team and Tsewang Dhoenkyi Sadutshang, one of the next generation owners of Shangrila Carpets. The second phase focused on refining the messages for the Edutainment Video, while the third phase continued refining messages for the information, education, and communication/BCC materials. As a complementary step, the team also did a rapid review of BCC tools from Nepal, South Asia, and around the world. The team reached out to several artists, designers and production houses and researched costs and the details of developing visual and video materials. The Kenya team began a similar process in Q4, mapping out topics and tools for social and behavior change and identifying candidates for a BCC design firm/consortium lead to discuss the process and way forward with the workplace culture messaging element of the intervention design.

In Q4, with the continuation of the COVID-19 pandemic, the team made a decision with the support of USAID to shift focus from implementing four workplace interventions in four countries to implementing two interventions each in Kenya and Nepal. Kenya and Nepal were further along in Task 2 than either

Ethiopia or Nigeria. In Nigeria, the absence of a confirmed partner made further progress challenging. In Ethiopia, the political unrest coupled with the restrictions imposed by the pandemic made it difficult to proceed. As a result, the team began to search for second companies in Kenya and Nepal. In Q4, the team identified Shona EPZ as a candidate in Kenya and submitted for Mission support in September. In Nepal, a likely candidate is Milha Custom Rugs, a supplier to Shangrila Carpets who also independently exports to Europe and the United States. In addition, the team continued to advance partnerships with local suppliers as well as experts to serve as part of the advisory committees and sustainability committees. At the request of USAID/Ethiopia, the team proposed to conduct a situation analysis of MHM in the workplace in Ethiopia, which would identify paramount issues and stakeholders related to the private sector and women's economic empowerment, specifically influenced by MHM in workplace settings. This work will begin in Year 5.

Task 4. Cost-benefit analysis study: In Q3, the team began to develop the CBA Plan, synthesizing findings from a literature review on similar analyses (e.g., Hutton et al.'s work on the costs and benefits of WASH programs) and on operationalizing and monetizing relevant variables (e.g., perceived self-efficacy, job satisfaction, etc.). We expect to submit the plan for review early in Year 5. In Q4, the team confirmed a member of the Department of Maternal and Child Health and Public Policy at UNC-Chapel Hill as a CBA Advisor.

Task 5. Metrics development and indicators field test: In Q2, the team drafted a Metrics Landscaping Report that captures the findings of a thorough review of current MHM research and researchers, and the applicability of this work to the metrics task. Following approvals of the report in Q4, the team developed an open call for proposals to field test MHM metrics in a workplace environment. The RFP was issued in early September with the selected offeror expected to start work in Y5 Q1.

Finally, on Menstrual Hygiene Day on May 28, 2020, the team conducted a webinar, "Dignity, Agency, Power: Exploring the Linkages between Women's Economic Empowerment and Workplace MHM," highlighting the findings of the desk review and the formative research in Nepal.³ Hosted by USAID, the webinar was attended by over 200 attendees. The team also presented on the MHM work as part of an online lecture to master's students at Brown School at Washington University, sharing findings and the preliminary design for the social norms change intervention. In addition, in Q3, the team prepared and submitted two abstracts to the UNC Water and Health Conference, and one abstract in Q4 to the Fecal Sludge Management (FSM)-6 conference.

Support to the Global Handwashing Partnership. USAID funding continues to be critical for a vibrant GHP, and together with other sources of funding, contributed to various activities through the past year. During Q1, the GHP secretariat completed a draft of the 2020-2024 Strategic Plan along with the proposed 2020 work plan. The GHP also convened two side sessions at the UNC Water and Health Conference in 2019, one on human-centered design of handwashing station products and another on nudging handwashing.

The GHP co-hosted the Nigeria Handwashing Roundtable to support handwashing as a focus of the Clean Nigeria Campaign with the Water Supply and Sanitation Collaborative Council (WSSCC), the Federal Ministry of Water Resources, and the National Task Force on Sanitation. The roundtable convened diverse stakeholders, including USAID/Nigeria, to discuss the next steps for handwashing impact in Nigeria through the Clean Nigeria Campaign.

The GHP facilitated the 2019 Global Handwashing Day with the theme "Clean Hands for All" emphasizing the importance of handwashing equity and inclusivity in handwashing programs. The Global Handwashing Day website and community forum was redesigned to make it easier for celebrants to

³ <https://www.globalwaters.org/resources/assets/washpals/webinar-dignity-agency-power-exploring-linkages-between-womens-economic>

access tools and materials needed for individual campaigns. On Global Handwashing Day, the campaign hashtags, #GlobalHandwashingDay and #CleanHandsforAll, reached over 275 million people on social media platforms.

During Q2, the GHP secretariat finalized its 2020-2024 Strategic Plan. A second draft of the Handwashing Handbook was completed. However, COVID-19 response delayed efforts of some partners of the working group to complete assignments.

The GHP initiated the WASH Viruses Away campaign in response to the COVID-19 pandemic. The GHP and its partners developed a handwashing poster and other materials in response to the need for handwashing-specific communications materials for COVID-19. The GHP also developed a COVID-19 microsite⁴ on the GHP website to provide a central platform for handwashing and coronavirus materials including key resources, news updates, and online forums.

In Q3, the GHP continued its advocacy campaigns including WASH Viruses Away⁵ and Rx Hand Hygiene, focused on hand hygiene in healthcare facilities. As part of the campaigns, the partnership developed materials, such as a “how-to” guidance series with topics that include facilitating national and subnational handwashing partnerships and communication for hand hygiene during the pandemic. The partnership also convened a webinar⁶ focused on access to hand hygiene facilities in healthcare settings.

In Q4, GHP took the chair of the Hand Hygiene for All advocacy group meetings and contributed to leadership of planning for a high-level event on Global Handwashing Day, that included a video from USAID. The fourth draft of the Handwashing Handbook was finalized and prepared for a Global Handwashing Day launch. Throughout the year, GHP supported handwashing advocacy and programming through engagement with partners in Nigeria (Federal Ministry of Water Resources, WSSCC), Philippines (Manila Water Foundation), and the UK (Unilever). The GHP has regularly hosted a Handwashing Behavior Change Think Tank to assemble the best thinkers regarding handwashing behavior change for discussions which are shared with the sector to support best practice implementation. A decision for planning for the Handwashing Behavior Change Think Tank was that country roadmaps for handwashing should be more developed before hosting the Think Tank with the topic of sustaining an increase of handwashing practices after COVID-related attention turns away from hand hygiene.

WASH for Health (W4H) Performance Evaluation. WASHPaLS submitted the draft evaluation report and annexes to USAID in November. Following revisions based on USAID feedback, the team submitted the revised report, a 15-page summary and two-page brief, in December. The documents were uploaded to the Development Experience Clearinghouse (DEC) and global waters website in March and associated datasets were submitted to the Digital Development Library (DDL) in June. A client satisfaction survey was completed by the USAID activity manager in September; the activity received an overall score of 8 out of 10, with 8s for all survey categories (responsiveness, timeliness, technical quality, sensitivity to local context, and communication). The Mission noted that the “recommendations were on point and will be useful for the new design and shape moving forward in WASH.”

Formative Research for Gender and Hygiene Behaviors in Mozambique. WASHPaLS began work on the formative research activity following approval in early October. The team prepared a draft of the desk review examining key gender and hygiene considerations in Mozambique, focusing on gendered and behavioral determinants of selected hygiene behaviors (i.e., decision making relating to

⁴ <https://globalhandwashing.org/responding-to-covid-19>

⁵ <https://globalhandwashing.org/wash-viruses-away-on-world-water-day/>

⁶ <https://globalhandwashing.org/webinar-summary-rx-hand-hygiene-facilitating-clean-hands-in-healthcare-facilities-during-covid-19-and-beyond/>

latrine construction and connection to piped water, latrine adoption and use, handwashing, safe disposal of child feces). From the desk review, the team developed a draft inception report that included the research questions in preparation for KIs and a stakeholders' meeting in Maputo in early December.

The team incorporated findings from the KIs and stakeholder meeting into the final inception report and to develop the study protocol, submitting a draft to USAID at the end of Q1. The Inception Report uses the Elephant Path Rider framework overlaid with the Sani-FOAM framework to identify key determinants of the selected hygiene behaviors identified through the desk review; it also includes guides for the focus group discussions, as well as a detailed study protocol. The Inception Report captures four changes to scope requested by USAID: (1) eliminate the focus on post-cyclone conditions, based on inputs from the key informants in Mozambique; (2) remove connection to piped water as a selected hygiene behavior because of the low supply of piped water services in Mozambique; (3) add MHM as a hygiene behavior of interest; and, (4) add COVID-19 related questions in the study tools. The team addressed these changes in the inception report that was sent to USAID for review, then revised based on received comments, and resubmitted for final approval in Q2. The team received USAID approval for the inception report in Q3.

The team also completed recruitment for field staff and developed a training curriculum for the onboarding of the field research team. The team made preparations for the commencement of field data collection (expected to have begun with the onboarding in March), which came to a halt with the emerging realities of the COVID-19 pandemic. With the imposition of international travel restrictions, the team considered a remote training option to onboard the team and begin data collection, but upon further discussion decided to sideline that option as a risky alternative that might be undermined by domestic travel restrictions as the pandemic spread to Mozambique and possible threats to the quality of the field research and data collection. At the end of Year 4, the team is prepared to begin field work but is awaiting the end of international and domestic travel restrictions and the resumption of normal activities to commence the remainder of this activity.

Ethiopia Decision Support Tool. WASHPaLS completed a scoping trip to Ethiopia in November 2019 and achieved four objectives: (1) improved its understanding of the Government of Ethiopia's (GOE) plans and status to reduce/exempt sanitation products from import duties and domestic taxes; (2) secured the GOE's support for WASHPaLS technical assistance; (3) established the need for a dedicated study on price-elasticity of demand (PED) for sanitation products; and (4) interviewed several stakeholders (five ministries, UNICEF, two private sector suppliers, and value chain participants in Southern Nations, Nationalities, and People's Region).

Addressing objective (3) above, the team designed a novel approach to estimate the PED. We adapted the Becker-DeGroot-Marschak (BDM) auction method for execution in rural marketplaces instead of the conventional setting of the respondents' residence. The adaptation will reduce the time and cost of data collection and also tests customer's willingness to pay in a prevalent setting (i.e., Woreda marketplaces) for the sale of plastic sanitation products. WASHPaLS collaborated closely with several members of the USAID/Transform WASH project to design the study for the marketplace setting, contract a research agency, and prepare a training and logistics plan for field research in March. Due to COVID-19, WASHPaLS deferred field research twice and ultimately postponed travel altogether as the situation worsened.

To ensure progress, however, WASHPaLS reorganized its work plan to bring forward desk-based tasks that were planned for after the field research. These included customization of the Microsoft Excel DST model for the Ethiopian context, KIs (e.g., private sector and IRC WASH), and quantification of health benefits from improved sanitation as an outcome of the proposed taxes and tariffs reduction policy. The last activity was not a part of the original scope; it emerged in response to the Federal Ministry of Health's request to USAID/Transform WASH, our in-country partner. Through Q3, WASHPaLS

continuously updated contingency plans to be ready to conduct field research if opportunities to travel arose despite rapidly changing conditions in Ethiopia and India (team home office).

Realizing that COVID-19 is likely to prevent travel until early 2021, the team was concerned about the substantial lag in engaging the GOE after the November scoping trip. The team evaluated options to generate results using secondary data so that stakeholders could at least discuss the proposed policy and form a point of view, if not a decision. Therefore, we constructed a synthetic demand curve using two different methods (for validation) to contextualize primary willingness-to-pay data from studies conducted in Kenya and Tanzania by WASHPaLS colleagues at the Aquaya. WASHPaLS completed the findings and recommendations based on the synthetic demand curve, which was well received by the WASHPaLS TOCORs and USAID/Ethiopia (see Box 1).

Box 1: Tax exemptions for plastic sanitation products in Ethiopia – Key findings and recommendations

KEY FINDINGS: Tax exemptions for plastic sanitation products will contribute to Ethiopia's ONE WASH goals and reduce its costs by

- Potentially increasing rural improved sanitation coverage by up to 21 percentage points
- Creating a ETB 0.7 billion opportunity that can attract domestic manufacturers leading to import substitution and OWNPs goal for domestic private sector participation
- Reducing OWNPs costs by up to ETB 0.9 billion and generating non-monetary health benefits worth ETB 2.9 billion; compared to ETB 0.2 billion in potential foregone revenue or cost to government

KEY RECOMMENDATION: The GOE can implement tax exemptions in a phased manner complemented by market-development interventions

- Phase 1: Seed the market by granting tax and custom duty exemptions on imported plastic sanitation products; support domestic manufacturer entry by addressing barriers to import technology/equipment and access to industrial land.
- Phase 2: Localize the market to increase domestic private sector participation by restoring customs duties and incentivizing plastic sanitation product manufacturing.
- Phase 3: Reach the bottom 40% households with targeted market-compatible subsidies.
- Engage the private sector and NGOs to expand distribution and marketing channels throughout all phases.

With guidance from USAID/Ethiopia and USAID/Transform WASH, WASHPaLS finalized the government engagement plan that is centered on Ethiopia's One WASH National Programme (OWNP). USAID/Ethiopia views the OWNPs as the platform for facilitating discussions among the key decision-makers and influencers on the proposed policy. Toward this objective, USAID/Transform WASH secured a meeting scheduled in July, convened by the State Minister of MoWIE and lead of the OWNPs, with participants comprising of FMOH representatives and MoWIE technical experts. Unfortunately, the meeting was canceled due to domestic disturbance in Ethiopia, and we anticipate gaining an audience with the Minister and other officials in Y5 Q1. WASHPaLS still intends to conduct the BDM marketplace study to generate primary willingness-to-pay data that will not only refresh our analyses but also form a public good that can potentially inform other interventions in Ethiopia. Carrying out this field work is dependent upon the ability to travel from India to Ethiopia prior to the end of February 2021 which coincides with the harvest season when households have more disposable income. After this, there are challenges with ensuring optimal participation of households at the auctions.

Throughout the engagement, WASHPaLS and USAID/Transform WASH continually strengthened the collaboration and relationship. WASHPaLS consulted not only the prime contractor (PSI/Ethiopia) but also IRC WASH, which is a part of the consortium, for valuable inputs on technical content, government engagement, and field research plans. Further, the WASHPaLS team responded to unplanned, urgent

requests from USAID/Transform WASH such as preparing an application for tax exemption sought by *SiAfrica*, a Transform WASH partner. In communications with USAID, Transform WASH has deeply appreciated the quality of technical assistance and perseverance of the WASHPaLS team in support of its objectives in Ethiopia.

Kenya RAPID Performance Evaluation. WASHPaLS received a new SOW from USAID/KEA in February to undertake an end-term performance evaluation of the Kenya RAPID activity. The technical response was submitted in March and we received approval at the end of April. The evaluation team was comprised of a team leader based in the UK, technical specialists based in Kenya, and home office support from Tetra Tech.

The evaluation sought to assess Kenya RAPID's design and implementation to inform the design and implementation of future WASH, nutrition, livestock, and rangeland management activities in the ASALs. It also provides learning on how innovative partnership approaches can support Kenya on its journey to self-reliance and resilience. Specifically, the evaluation sought to answer the following evaluation questions (EQs):

1. To what extent is the design of Kenya RAPID appropriate to the context in the ASALs? (Are the assumptions and theory of change valid? Which approaches were not well suited to this context?)
2. To what extent did bringing diverse partners together within the GDA structure result in broader impacts than would otherwise have been achieved? (What were the resource implications of this type of partnership? What kinds of strategic decisions were undertaken by the steering committee, and how effective was this model for partnership governance?)
3. To what extent was Kenya RAPID able to establish sustainable, replicable and scalable business models? (Were the business models identified appropriate to the ASAL context? Were there any spillover effects or results achieved through private sector engagement?)
4. How effective was the facilitative, governance-focused approach under Kenya RAPID? (Were changes in county government capacity and commitment achieved? To what extent was Kenya RAPID successful in improving community level governance?)

The evaluation commenced with a kick-off call with USAID in early May, when we received and began reviewing project documentation. Given the dynamic situation with COVID-19 in Kenya and globally, the Evaluation Team was ultimately advised against travelling or holding face-to-face meetings and thereby conducted the entire evaluation remotely. A desk review informed the design of primary data collection, based on interviews with primary key informants undertaken via Skype, telephone, or other virtual media. Interviews were conducted in July and August with approximately 70 key informants, with 60 percent based in the five Kenya RAPID counties, 26 percent of whom were women. The team conducted between six and eleven interviews per county.

The draft evaluation report was submitted in early September and comments received from USAID, Swiss Development Corporation, and Millennium Water Alliance later that month. The final report, 15-page summary and 2-page brief will be submitted early in Year 5. With regard to its overarching impact, the Evaluation Team applauds Kenya RAPID's ambition and inclusivity, noting a clear shift in county government officials' attitudes. The Evaluation Team was, however, unable to answer whether: 1) counties will continue to work through a multi-themed approach without Kenya RAPID's facilitation support, 2) technologies and data will continue to be used for decision-making, 3) women's empowerment efforts will be sustained without addressing entrenched gender norms, and 4) community structures put in place or strengthened will withstand the test of time.

Kenya Rural Sanitation Research. WASHPaLS received a SOW for a new buy-in activity from USAID/KEA in February 2020. The request comprised two areas of focus: (1) Approaches for sanitation access in pastoralist areas within the ASALs, and (2) Deep dive market assessment at the county level.

The draft technical responses, considering travel restrictions due to the COVID-19 pandemic, were submitted to USAID/KEA in mid-June for final review and received approvals in June-July.

Pastoralist Sanitation: Regarding the ASAL sanitation research, the work aims to answer three research questions:

1. What are the underlying factors and constraints affecting sanitation adoption in the ASALs?
2. What are acceptable standards for sanitation in pastoralist communities, with regard to both user experience and public health?
3. What potential adaptations to CLTS will address the challenges associated with sanitation among pastoral communities in the ASALs?

In Q4, WASHPaLS completed a detailed literature review concerning sanitation conditions among pastoralists in Kenya's ASAL regions. Through this review, we identified three general categories of pastoralists, differentiating among pastoral communities based on degree of mobility and livelihood: highly nomadic, transhumance, agro-pastoralist. Additionally, the review uncovered a number of CLTS interventions and adaptations that have been implemented in the ASAL regions of Kenya, as well as in similar environments in neighboring countries, although many of these programs have had limited success. Generally, the literature review revealed that a deeper understanding of environmental, economic, and sociocultural constraints and norms is needed to inform appropriate adaptations to CLTS and other sanitation interventions among pastoralists in the ASAL regions. In collaboration with USAID/KEA, we identified three counties for field work: Kitui, Samburu, and Turkana.

WASHPaLS drafted an inception report, detailing the study motivation, the research questions and hypotheses, findings from the literature review, plans for data collection, strategies for dissemination, and the overall project timeline. We submitted this report to USAID/KEA for review in October of Year 5, along with the draft data collection tools. These will also be shared with UNICEF consultants, who are currently working to inform the Government of Kenya's national sanitation strategy, for feedback. We also compiled all materials necessary for ethical review of the research by the African Medical and Research Foundation (AMREF) Ethics and Scientific Review Committee, as well as application for a research permit from the National Committee for Science, Technology, and Innovation (NACOSTI). Data collection activities are planned for November and December 2020, relying on Kenya-based staff and assuming domestic travel continues to be permissible.

Sanitation Market Assessment: The market assessment will begin early in Year 5 with remote data collection for the desk review to be followed in Y5 Q2 with the anticipated field work.

WASH and COVID Trends and Futures Analysis. In May, WASHPaLS received a request from the Bureau for Resilience and Food Security to conduct a trends and futures analysis of COVID-related impacts on access to WASH at a national level in WASH high-priority (HP) and aligned countries. USAID intends to use the results for situational awareness, development of guidance, advocacy and targeting resources. WASHPaLS submitted a technical response and received technical approval for the activity in June.

The activity consisted of two main elements: 1) a "deep dive" into seven countries (Democratic Republic of the Congo (DRC), Ghana, Kenya, Mozambique, Nepal, Rwanda, and Senegal), consisting of literature review, KIIs and SMS-based consumer surveys; and 2) construction of national-level statistical models to forecast changes in access to water and sanitation from different economic shocks.

The team conducted the research between June and October, maintaining weekly check-ins with USAID and using all remote methods for data collection. The first of a series of presentations of the work occurred on 23 September via teleconference with USAID headquarters personnel as well as invited Mission staff. Production of additional outputs, including sector- and country-specific reports, mission-specific presentations, a full activity written report and global webinar, are planned for Y5 Q1.

At the end of Q4, USAID/Ghana expressed interest in additional research to better understand the continuing impacts on small water service providers. This work will continue into Y5 Q1.

Additional requests: Late in Year 4, WASHPaLS provided feedback on a concept note from USAID/Ethiopia for a WASH-Nutrition Integration Assessment centered on the Growth through Nutrition Activity. The formal request and official SOW was received early in Year 5. Also early in Year 5, WASHPaLS received a SOW from USAID/Liberia to conduct a nationwide assessment of the sanitation market. WASHPaLS will submit technical responses to both buy-in SOWs in Y5 Q1. USAID Missions in Senegal and DRC also have expressed interest in buy-in activities.

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 an ICT assessment 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 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 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. Year 4 progress under each of the tasks is presented in the following sections.

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.

2.3.1 COMMUNITY-LED TOTAL SANITATION

Task 2.1.1. The CLTS literature review continues to be of value to the sector and referenced in discussions with partners. According to Google Scholar, the journal publication has been cited in five other academic articles.

Task 2.1.2. WASHPaLS continues implementation of CLTS implementation research in two thematic areas: targeted subsidies and the CLTS performance envelope.

Targeted subsidies: WASHPaLS is collaborating with UNICEF Ghana in the design and implementation of a randomized controlled trial (RCT) on targeted subsidies in the Northern Region. 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 is piloting a subsidy to eligible vulnerable households. The program targets open defecation free (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 an RCT experiment on top of UNICEF programming.

The research investigates whether post-ODF targeted subsidies can improve the outcomes of CLTS programs by focusing on the following research questions:

1. To what extent do targeted subsidies result in higher latrine ownership, quality, and usage amongst the most vulnerable households?
2. To what extent do these benefits spill over to the rest of the community?

3. What are the costs and challenges of implementing a post-ODF targeted subsidy program?

In Q1, WASHPaLS started analyzing baseline data collected from 98 study communities, covering: 1) descriptive statistical analyses of household demographics, latrine coverage, and sanitation behaviors and 2) analyses of treatment vs. control group. We found that the majority of study communities had slipped since obtaining ODF status 3-32 months prior to baseline: 75% no longer had a latrine coverage of 80% or more, which is the requirement for ODF status in Ghana. Overall, 39% of households did not own a functional toilet, and 24% reported that household members usually practiced open defecation. The team presented preliminary findings at the 2019 UNC Water and Health conference through a poster and a side session convened by Global Communities, entitled “Reaching the Poor and Leaving No One Behind in Sanitation,” and in a brown bag seminar at UNICEF headquarters in December.

The second phase of data analysis was completed in Q3-Q4 and focused on investigating the determinants of slippage by examining associations between environmental, demographic, and socioeconomic factors and sanitation outcomes. This additional analysis showed that latrine collapse was a leading cause of slippage: 60% of households that did not own a toilet at baseline had previously owned one that collapsed (90%) or filled up (10%). Factors that led to higher likelihood of slippage included time since ODF verification and presence of rocky soils, while factors associated with lower likelihoods of slippage included a system of fines to punish OD, the presence of a Village Savings and Loans Association (VSLA), and remoteness. Additionally, households that were wealthier, larger, had a male head of household, and no member with a chronic illness were more likely to own and use a toilet. Due to COVID-19, WASHPaLS did not travel to Ghana in Q3 as initially planned to present findings of the baseline analysis to national stakeholders; this event was rescheduled to the Mole conference in November 2020.

While the subsidy intervention in “treatment” communities started at the end of Year 3, it was on hold for most of Y4 Q1, because UNICEF Ghana experienced substantial challenges in transferring funds to its implementing partners. During that period, UNICEF Ghana, nevertheless, trained artisans in the project’s two study districts on the construction of masonry, pre-cast, and Digni-Loo latrines (the three options available on the voucher). Implementation resumed in early Q2 and was largely completed by the end of Q3. The COVID-19 pandemic had minimal impacts on the study. In March-April, Ghanaian authorities implemented a lock-down in three large cities, but not in the Northern Region. This resulted in a temporary shortage of cement in the Northern Region, but supply chains were restored shortly afterwards.

The WASHPaLS technical lead was in the field for most of Q2 to help coordinate implementation and support UNICEF Ghana, financial institutions, and District Assemblies. Specifically, she assisted with: (1) the identification of subsidy beneficiaries, (2) the negotiation of contracts with 49 local artisans and 23 material suppliers, (3) the establishment of Digni-Loo suppliers in the two districts, (4) voucher distribution to 441 eligible households, (5) training of financial institutions in the use of an online tool to track voucher redemptions and payments, (6) follow-up visits in program communities to monitor progress, and (7) resolution of differences between stakeholders as needed. In addition, in one of the two study districts, the District Assembly reallocated funds initially earmarked to support the subsidy rollout (for unknown reasons) and was not able to dispatch as many field facilitators as initially planned. The WASHPaLS field team filled this gap and replaced District Assembly facilitators on many occasions during implementation. This enhanced participation by the WASHPaLS team was critical to implementation of the subsidy intervention and resulted in significant increased level of effort (LOE) and field expenses, beyond what was originally envisioned for the study.

In Q2, the WASHPaLS technical lead also conducted midline data collection, which consisted of qualitative interviews with 35 community members, four artisans, and four material suppliers. The purpose of these interviews was to understand what worked well during the subsidy rollout and what did not, based on feedback from beneficiaries, non-beneficiaries, and community leaders. As per the

inception report, we also documented the costs of implementation, capturing both WASHPaLS' and UNICEF's contributions. This information was analyzed in Q3. We presented midline findings to USAID and UNICEF Ghana in Q4.

In Q3, WASHPaLS continued to monitor the progress of voucher redemption and toilet construction through previously established online trackers and to support District Assemblies and financial institutions with quality assurance and payments. By the end of Q3, all 441 beneficiaries had redeemed their vouchers. At the end of Q4, 85% of toilets had passed quality verification checks by the District Assemblies. The midline report mentioned above summarizes findings and lessons learned from implementation. We found that the process we developed for beneficiary identification, which relied on community consultation, succeeded in identifying a subset (14%) of households with greater poverty and vulnerability than the rest of the population. Further, this process revealed far more selective than the government's Livelihood Empowerment Against Poverty Program, which targets 45% of households in our study areas. Because it drew on community members inputs, our approach was also largely approved by communities. Regarding voucher implementation, the main lesson was that this type of activity required a lot more coordination and oversight than UNICEF had initially anticipated, leading to implementation costs (148 USD per beneficiary) that were on par with the subsidy itself (120 USD per beneficiary). We also identified opportunities to smoothen implementation by providing the right incentives to all stakeholders (artisans, material suppliers, District Assemblies, and financial institutions who managed the funds).

Following a request by UNICEF/Ghana, we also drafted a short policy brief describing the approach to identify the poorest and most vulnerable households in rural communities. According to UNICEF Ghana, such a brief could guide revisions of the National Pro-Poor Guidelines, which currently lack specific guidance on *how* to target subsidies. In Q4, by applying machine learning techniques to our datasets, we explored whether a small number of indicators could help predict the outcomes of community consultation and thereby make the process for identifying eligible households more efficient. Data analysis is still in progress. We also prepared an outline for a documentary on the beneficiary identification process that UNICEF Ghana will produce in Y5. We also gave a virtual presentation on the study to the Institute of Development Studies (IDS) Sanitation Learning Group in Q3.

As a complement to the research on subsidies, WASHPaLS co-funded (with AusAID/DFAT and the World Bank) completion of endline data collection for a random assignment experiment of CLTS and targeted subsidies in Laos, via a subcontract to Thrive Networks. Researchers from Georgetown University, the University of Melbourne, Monash University, and the WASHPaLS Deputy Project Director drafted a manuscript on the study findings. Our submission of the CLTS/subsidy research manuscript to *Lancet Global Health* was rejected; we subsequently submitted the manuscript to the *Journal of Health Economics*, where it is currently in peer review. Preparation of the dataset for submittal to the DDL is ongoing.

Performance envelope: This research investigates the relative importance of factors associated with CLTS performance, with a focus on the following questions:

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

WASHPaLS addressed Question 1 by first collecting datasets of CLTS program outcomes from implementing partners in Zambia, Cambodia, Ghana, and Liberia, and then modeling associations between community-level outcomes and a range of environmental factors. The quantitative component examined CLTS datasets from implementing partners in Zambia (Akros/Ministry of Water: 20,398 communities), Cambodia (Plan International: 2,273 communities), Ghana (UNICEF/GOG and Global Communities: 3,772 communities), and Liberia (Global Communities: 2,030 communities). We found that publicly available, high-resolution datasets on accessibility, socioeconomic, and environmental factors can be leveraged to gain insights on the potential success of CLTS interventions. The only universal finding across countries was that small communities are more favorable for ODF achievement. Beyond community size, the influence of factors evaluated differed both between countries and performance metrics (ODF achievement and ODF sustainability). Thus, our findings do not support the hypothesis of a universal CLTS performance envelope. This research has also illuminated quality issues with CLTS monitoring data collected by partners, and avenues for improvement to promote future analyses.

In Y4, findings of the quantitative research were showcased at multiple global conferences. In Q1, the team gave a technical presentation and organized a side session at the 2019 UNC Water and Health conference, for which the team developed a data visualization dashboard. WASHPaLS also presented findings at the Kenya Sanitation Conference in October 2019. In Q2, WASHPaLS presented the results at the 2020 African Water Association (AfWA) International Congress and Exhibition in Kampala, Uganda.

The quantitative team worked on three primary sets of deliverables in Y4: a set of country brief reports with complimentary slides decks, a journal manuscript, and a final report with integrated findings from both the quantitative and qualitative research. In Q1, WASHPaLS finalized data analysis and drafted the four country briefs and accompanying power point presentations, distilling the results into clear recommendations for implementers. After feedback from USAID, the length and format of the report briefs were amended, and a revised Cambodia brief was submitted for internal feedback in Q3. After receiving USAID's feedback, the team updated this brief along with similar ones for Ghana, Liberia and Zambia in Q4.

In parallel to drafting the country briefs, the quantitative team worked on a journal manuscript to convey the major results of the analyses. The manuscript, titled "Where does CLTS work best? Quantifying determinants of CLTS performance in four countries" was submitted to the journal *Environmental Science & Technology* in Q4.

For Question 2, the team employed qualitative comparative analysis (QCA) to analyze the rich qualitative data collected in Ghana and Cambodia. This methodology allows for a structured, qualitative approach to analyzing case studies that include both qualitative and quantitative data, with the goal of identifying key factors that influence a pre-determined outcome. WASHPaLS applied QCA to identify community-level factors that promote the sustainability of ODF status in Ghana and Cambodia. We defined sustainability according to two metrics: (1) current latrine coverage and (2) consistent latrine use. The analysis revealed very different results for Cambodia and Ghana. In Cambodia, we found that communities with aggressive leaders, frequent follow-up by NGOs, and access to subsidies or support to the poor were less likely to exhibit consistent latrine use. In contrast, in Ghana, we found that communities with better sanitation outcomes had a more typical combination of factors including engaged natural leaders, supported by traditional leaders and external CLTS facilitators, and strong internal support mechanisms (i.e., neighbors helping neighbors to construct and maintain latrines).

In Q2, the team drafted a journal manuscript titled "How do rural communities sustain latrine coverage and use? Qualitative comparative analyses in Cambodia and Ghana" presenting the findings of the QCA. In Q4, the manuscript was finalized and prepared for submission to the *International Journal of Hygiene and Environmental Health*.

In Q1 and Q2, the team synthesized results in draft country briefs for implementing partners. These briefs describe the qualitative research process and broad findings. Following approval from USAID, WASHPaLS will share these briefs with our primary partners and country-specific stakeholders, including government and other WASH sector partners.

With regards to other dissemination, in May, WASHPaLS presented findings from the Cambodia qualitative analysis to Cambodia Rural Sanitation and Hygiene Program (CRSHIP). The research was showcased in a side session at UNC in October 2019 and discussed with UNICEF in December 2019, including potential next steps. These discussions led to the exploration of a potential learning partnership for additional research and case studies on CLTS adaptations and sustainability, but it was determined that this type of research might be challenging to due to COVID-19 travel restrictions and schedules of in-country partners.

A final report synthesizing combined findings from the quantitative and qualitative research was drafted in Year 4 and is currently under internal review. Following approval by USAID, the team will share the country briefs and final report with partners and explore additional opportunities for dissemination in Year 5. In-country dissemination will most likely not be possible due to COVID-19 travel restrictions, so we will explore potential webinar opportunities with partners and platforms to cross-post the country briefs, such as Sanitation Learning Hub or country specific online resources in the first quarter of Year 5.

Follow-on Activities:

In Year 4, WASHPaLS defined a set of follow-on activities to build on the findings of the PE work, seeking to translate these into practical guidance and tools to support decision-making and design of rural sanitation programs. In Q2, WASHPaLS completed a rapid desk review of existing guidance and toolkits on rural sanitation programming design and data management. Documents reviewed included program planning and guidance documents, such as the Rethinking Rural Sanitation Guidance (RRSG) and WaterAid's Data to Decisions Report (2019), national sanitation policies and guidelines, and rural sanitation program impact evaluations (i.e., UNICEF and SNV's Sustainable Sanitation and Hygiene for All Program). In addition, WASHPaLS discussed the concept with Advisory Board Member Michael Gnilo, who is also the UNICEF focal point for the RRSG. The desk review found little evidence of existing data analysis tools specifically for rural sanitation program planning and design, and no examples of tools that applied environmental and contextual data to guide programming decisions. As a result, the team identified an opportunity to develop a community classification tool to support the grouping of communities as defined in the RRSG.

To further investigate the utility of such a tool, in Q3, WASHPaLS discussed the concept with a broader sampling from the sector, including: five WASHPaLS Advisory Board Members, implementing partners from prior performance envelope activities, representatives from WaterAid, and an expert consultant involved in the development of the RRSG. Stakeholder interviews acknowledged value in the proposed community classification tool. Advisory Board members expressed that the tool offered opportunities for improving program planning and costing by national and sub-national actors. WaterAid felt the tool could expand upon their current efforts to operationalize the RRSG in countries where they are currently undertaking a community classification process.

WASHPaLS defined and tested classification rules, which facilitate pixel by pixel classification assignments using three primary variables (distance to roads, travel time to cities, and population density) in Q3-Q4. We utilized information provided by Aquaya in-country staff on 148 rural communities in Ghana to establish appropriate classification rules and produce a test Ghana map layer, which will inform the next steps for extrapolating methods to other countries. In Q4, we created four simple online interactive platforms and loaded raw data layers as well as draft classification layers for Cambodia, Ghana, Liberia, and Zambia. In September, we used these online tools to gather feedback on the usefulness of the classifications and the interactive map from partners in each of the four countries. In Q4, the team also

outlined the steps for product development and began the design process. This included evaluating various web frameworks, software tools, and hosting options. Anticipated users of the tool were categorized into personas where their needs, capabilities, and goals were collated and prioritized to ensure a good user experience for all. These personas help to inform the final list of functionalities required by the tool. WASHPaLS will construct and deploy the final online tool in Year 5, with the next phase of user testing scheduled for the end of Q1. The team is evaluating the available options for long-term hosting and ownership. We will consider multiple options including embedding on an existing USAID site or hosting on a third-party site. WASHPaLS will develop a sustainability plan that includes estimated costs and maintenance requirements for long-term function of the tool for each appropriate option. We are also exploring other potential partnerships or owners within the sector. The sustainability plan will be drafted in Y5 Q1 and we will aim to have a final decision on long-term hosting by the end of Q1. Activities planned to address tool development are desk based and should not be impacted by the COVID-19 pandemic.

2.3.2 MARKET-BASED SANITATION

Task 2.2.1. WASHPaLS submitted the manuscript “Global Assessment of Grant-Funded Market-Based Sanitation Development Projects” to *Waterlines* for editorial and peer review in October 2019; it was published in Q4 (<https://doi.org/10.3362/1756-3488.19-00018>).

WASHPaLS finalized the French-language version of the MBS Desk Review in September and posted it on Globalwaters.org; it is also featured on the websites of *Programme Solidarité Eau* (www.pseau.org) and the USAID/Food and Nutrition Network (www.fsnnetwork.org). UNICEF distributed the French-language version of the MBS Desk Review to participants of its WCAR MBS training session in October 2019.

The concepts of demand generation, demand activation, and demand fulfillment from the MBS Desk Review were used in an IRC WASH blog post⁷ on how combining CLTS and MBS approaches can help improve rural sanitation access. The blog post referenced the MBS desk review as an example of research on the subject.

Task 2.2.2. The MBS implementation research focuses on two themes: the viability and sustainability of sanitation enterprises and decision support tools for policymakers.

Viability of sanitation enterprises: This research seeks to understand 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 these questions, WASHPaLS undertook retrospective analyses of sanitation enterprises across a range of viability levels and country contexts, interviewing scores of entrepreneurs in three countries: India, Nigeria, and Cambodia.

During Year 4, WASHPaLS prepared and soft-launched three co-branded country case studies on Globalwaters.org.⁸ Among our three partners, WaterSHED in Cambodia featured the case study in its blog. USAID and WASHPaLS opted for a soft launch, i.e., publish but defer active dissemination, until we release a guidance report that builds on the findings and recommendations in the three case studies (see Box 2). During the year, WASHPaLS drafted the second version of the guidance report, which is

⁷ https://www.ircwash.org/blog/we-are-not-track-achieve-sdg-62?mc_cid=8afc5f8863&mc

⁸ <https://www.globalwaters.org/resources/assets/washpals/case-study-rural-sanitation-india>
<https://www.globalwaters.org/resources/assets/washpals/case-study-rural-sanitation-nigeria>
<https://www.globalwaters.org/resources/assets/washpals/case-study-rural-sanitation-cambodia>

currently undergoing internal review before submission to USAID in Y5 Q1. The findings and recommendations were presented at the side-event organized at the *UNC Water & Health Conference 2019*. Following publication, WASHPaLS will host two webinars to accommodate audiences in different time zones.

WASHPaLS developed a *Designing Viable Sanitation Enterprises* game-based training activity for a side-event hosted at the UNC Water & Health Conference 2019. The activity was well-received by the audience with many participants taking copies of the materials.



Photos 1 & 2: Participants engaged in Designing Viable Sanitation Enterprises Side-Event

Subsequently, WASHPaLS released the game as a training resource for wider distribution on [Globalwaters.org](https://www.globalwaters.org)⁹ where the facilitation guide has been downloaded 193 times, game materials 114 times and the excel model 105 times. UNICEF incorporated the game in its training sessions for WCAR offices and in partnership with the Helvetas Swiss Cooperation in Guatemala. WASHPaLS is also integrating this resource in its MBS training package, which is under development. Aiding WASHPaLS dissemination, Programme Solidarité Eau developed a webpage¹⁰ to describe the game as an MBS resource and linked it to relevant webpages on [globalwaters.org](https://www.globalwaters.org).

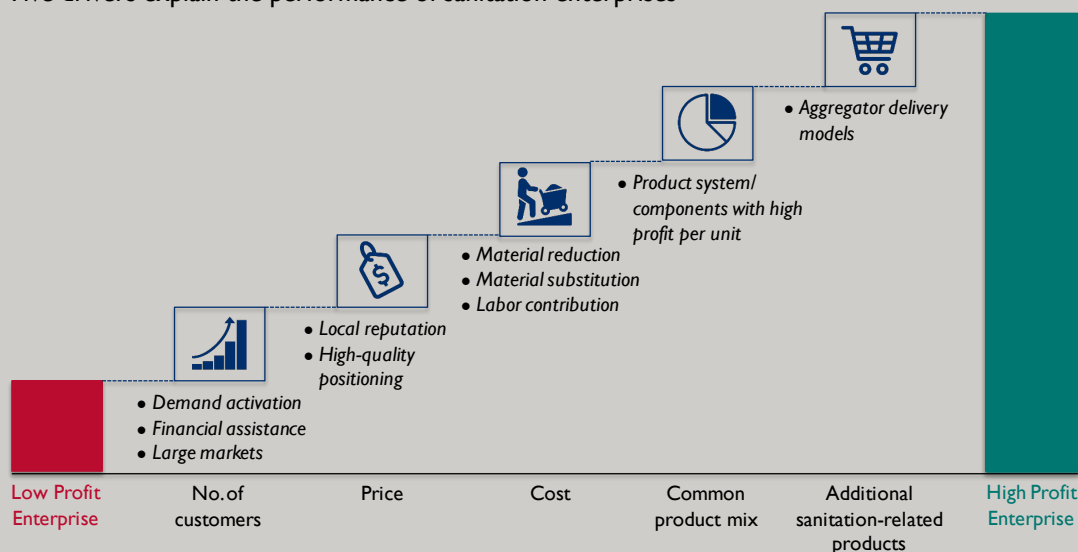
⁹ <https://www.globalwaters.org/pages/washpals/designing-viable-sanitation-enterprises-market-based-sanitation-game>

¹⁰ <https://www.pseau.org/outils/biblio/resume.php?d=8496&l=en>

Box 2: Creating Viable and Sustainable Sanitation Enterprises – Key findings and recommendations

KEY FINDINGS

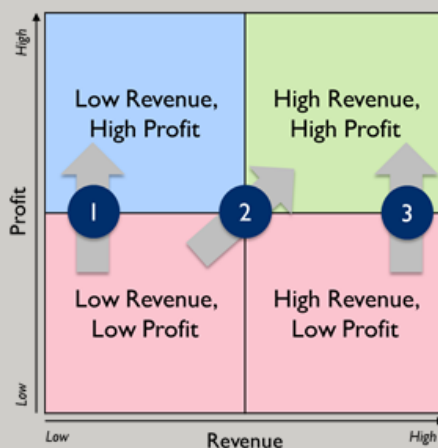
- Sanitation is attractive as a business line but not as a standalone, full-time business
- Five drivers explain the performance of sanitation enterprises



- Sustainability is a challenge for enterprises that are unaccustomed to paying or budgeting for all expenses
- Programs' intermediation or participation in market transactions create dependencies that impact market continuity

KEY RECOMMENDATIONS

- Recruit entrepreneurs with existing, related businesses to start sanitation enterprises
- Guide enterprises in choosing a strategic path to improve viability that appreciates their capabilities and constraints



- Recognize that some (indeed many) sanitation enterprises may not have a viable or scalable proposition
- Facilitate the development of a sanitation market system instead of direct participation
- Track enterprise performance beyond sales metrics

MBS toolkits: The MBS toolkits are based on the methodologies developed and implemented for the enterprise viability and sustainability knowledge products. During the year, WASHPaLS completed an enterprise recruitment toolkit to complement the enterprise viability and sustainability diagnostic toolkit that was the original scope.

WASHPaLS designed a two-part process to peer-review and beta-test the toolkits for refining the final outputs. We have received responses from six peer reviewers, including from the Bill & Melinda Gates Foundation, Vitol Foundation, iDE Global, PSI, Global Communities, and AguaConsult. We anticipate three more reviews from UNICEF, WaterSHED, and the Stone Family Foundation. Overall, reviewers unanimously agree that programs should assess enterprise viability and sustainability and that the toolkit is an excellent, comprehensive package. They are concerned, however, that programs may lack the capacity or skill set to implement the toolkits independently due to the breadth and depth of the constituent modules. The size of the toolkit also posed a challenge by demanding significant time to review, for which reason, WASHPaLS recommended a targeted review of select contents. A recurrent recommendation is to draft a SOW template for programs to hire consultants with business and financial knowledge and overcome their capacity challenge. WASHPaLS will process the feedback and engage in internal discussions on potential next steps before requesting the TOCOR to convene external stakeholders for consultations.

Early in the review process, we anticipated challenges in recruiting programs to beta-test the toolkit. First, there are few MBS programs with active sanitation enterprises, which is a pre-requisite, and second, beta-testing involves a non-trivial effort such as dedicating personnel to learn the toolkit, training field staff to interview enterprises and collect data, and allocating technical staff for analysis. Such support may not be forthcoming because of the COVID-19 crisis posing mobility restrictions and possibly prompting programs to reorient resources toward handwashing and health interventions. Fortunately, Advisory Board member Eddy Perez offered to facilitate a technical assistance partnership with Global Communities' USAID/WASH for Health (W4H) program in Ghana to implement the toolkit. Due to W4H timelines necessitating implementation in Y5 Q1, WASHPaLS regretfully declined the opportunity. The team, however, had a promising discussion with the USAID/Transform WASH project in Ethiopia, which has two years left in the program and is prioritizing enterprise viability and sustainability. Further, WASHPaLS has developed an excellent working relationship with Transform WASH for the Component I activity, and we anticipate that USAID/Ethiopia will be supportive of this activity. We are hopeful that a concrete opportunity for technical assistance in Year 5 will emerge.

In light of the feedback and the need to identify measures to improve the utility of the toolkit, WASHPaLS has deferred for now the development of a series of toolkit walkthrough videos to aid self-learning.

Decision support tools (DSTs): 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 lead to an increase in toilet sales. To answer this, WASHPaLS developed several Microsoft 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 the denial of service or imposition of a 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. The taxes and tariff model is being implemented through the DST activity in Ethiopia described above under Component I.

MBS training and package: WASHPaLS has received several requests for MBS training under Component I activities in Ethiopia and Kenya as well as standalone requests from UNICEF Ghana, WaterAid Nigeria, and the USAID PRO-WASH activity.

In preparation, the team drafted a training package comprising of eight modules spanning different levels of the sanitation market system. We repurposed existing materials developed by WASHPaLS (e.g., *Introduction to MBS* presentation and activity, *Designing Viable Sanitation Enterprises* game), the USAID/USHA project in Uganda (e.g., designing a product system, delivery models), and created new materials, where required. We intend to publish the training package in Q2 on globalwaters.org (and other platforms such as the *Sanitation Learning Hub*) as an additional contribution to MBS tools for the sector's benefit and delivering additional value for USAID's investment. The draft package is completed and we are seeking preliminary, informal feedback from UNICEF before submitting it to USAID for review. We opted for UNICEF Ghana first to get feedback from the perspective of implementer, government, and private sector personnel who will be invited for its training session.

Other sector engagement: USAID/Malawi submitted a request to WASHPaLS for technical assistance with a sanitation market assessment that will be managed by USAID/ONSE and executed by a local consultant. WASHPaLS submitted a proposal, recommending its role as technical input on the RFP and to peer-review the local consultant's module design and outputs, which was accepted by the Mission. This recommendation was driven by the lack of contextual knowledge that would prevent WASHPaLS from playing a larger role. During the year, WASHPaLS reviewed the Request for Approval (RFA), evaluated three proposals received from consultants, and submitted its recommendations at an evaluation committee meeting.

In April, USAID/PRO-WASH released the RFP for the Sahel Market Assessment in Niger, which incorporated WASHPaLS feedback from a review conducted in Q2. PRO-WASH requested WASHPaLS to peer-review its training package, which incorporated several concepts and materials from the MBS Desk Review and webinars, and the UNC Water and Health Conference 2019 side-event presentation and game. The review was completed in March 2020. In Q4, PRO-WASH approached WASHPaLS for assistance with re-purposing select sections of its training package for virtual training. WASHPaLS responded with potential contributions, including training materials, pre-recorded presentations, and virtual participation (depending on staff availability considering Component I commitments in Year 5). PRO-WASH and WASHPaLS will finalize and fulfill the scope for materials/recordings in Y5 Q1.

2.3.3 HYGIENIC ENVIRONMENTS FOR INFANTS AND YOUNG CHILDREN

The WASHPaLS Hygienic Environments work this year focused on analysis, writing and dissemination of findings from the Trials of Improved Practice (TIPS) research testing three playpen models for feasibility and appeal in Amhara, Ethiopia. WASHPaLS prepared and submitted a final report in the first quarter of Y4, but the report was embargoed from circulation until a manuscript was accepted for publication.

In Q3 we submitted a manuscript to the *American Journal of Hygiene and Tropical Medicine (AJHTM)*, which was accepted for publication with minor but extensive revisions, including reanalysis and revised reporting of key TIPS findings. WASHPaLS resubmitted the manuscript in Q4, with immediate acceptance for publication. To facilitate wide dissemination, WASHPaLS paid for open access to the article [DOI: <https://doi.org/10.4269/ajtmh.20-0445>].

A second manuscript profiling the user-centered design process of Cranfield University and the NGO Partners in Need, entitled *Multisectoral participation in the development of a BabyWASH playspace for rural Ethiopian households*, prominently features the WASHPaLS/PSI user-centered design (UCD) process, with discussion of our TIPS findings, was also accepted for publication AJHTM pending minor modifications.

The study findings were presented at UNC Water and Health Conference 2019 and as part of a widely-attended webinar series. WASHPaLS organized a side session panel at the UNC Water and Health Conference 2019, focusing on the latest research on hygienic environments for IYC and the impact on child growth. As part of the panel, FHI360 presented preliminary TIPS results.

WASHPaLS worked closely with USAID/Ethiopia to advance planning for an in-country dissemination workshop, tentatively scheduled for May 2020. The workshop was specifically designed to bring together a multi-sectoral audience (WASH, infant and child health, nutrition/agriculture/food security, child development, education, women/gender), share results from the WASHPaLS Playpen research, and facilitate sectoral and multi-sectoral discussion of implications of the findings. Although the study was inconclusive about the potential for playpens to significantly protect infants from pathogen exposure, the multi-sectoral nature of the event is critical, given that the findings include extensive and multi-sectoral benefits of playpen use from the household point of view. Due to COVID-19 restrictions, however, the workshop is postponed indefinitely.

WASHPaLS began preparation for a final, brief wave of data collection to track the current location, condition and use of study playpens. Preparations were underway, however all activities were halted due to COVID-19 restrictions and will not resume, considering the uncertainty around the restrictions, the expiration of current Institutional Review Board (IRB) approvals, and other technical considerations, most importantly that the time lapse between the last interview and an 'aging' study population of means infants may no longer be in an age cohort appropriate for playpen use.

WASHPaLS presented the playpen study findings as part of a 3-part webinar series co-convened with USAID/PRO-WASH and the Clean, Fed and Nurtured Coalition. WASHPaLS also planned and was accepted to organize a side session at the 2020 UNC Water and Health Conference, focusing on the latest research on hygienic environments for IYC and the impact on child growth which includes the research of several WASHPaLS grantees. This is further discussed below in Component 3.

2.4 COMPONENT 3: SMALL GRANTS PROGRAM ON HYGIENE BEHAVIOR CHANGE

In Year 4, WASHPaLS issued one new grant, bringing the total number of grants issued to nine. After extensive discussions, USAID agreed that a tenth grant will not be issued, and funds will be reprogrammed. WASHPaLS has requested a contract modification to amend the associated deliverable.

Grantees experienced significant delays in the final two quarters of Year 4 due to the COVID-19 pandemic, which restricted movement and implementation at the international, national, and local levels. Timelines, and in some cases budgets, required extension and realignment. Despite these challenges, some grantees were able to continue implementation, and one grant (IDinsight) was completed in Q4. Table 2 summarizes the status of active grants in Year 4.



Photo 3, Gram Vikas: Pre-activity training meeting in Odisha, India.

EarthEnable was awarded a grant to study the effect of improved or finished flooring on human and animal behaviors impacting child health. Through this grant, EarthEnable seeks to understand whether improved flooring has the potential to reduce pathogen sequestration and viability through behavioral modification, i.e., households that have improved floors may interact with their floor differently than households with unimproved floors. EarthEnable also aims to understand the potential magnitude of the effect on children by characterizing how much time they spend on improved versus unimproved surfaces and how often they mouth hands and objects that have been in contact with improved vs unimproved surfaces. Furthermore, EarthEnable plans to evaluate which illnesses and pathogens are most likely to be

influenced by the introduction of improved flooring. The WASHPaLS grant complements a larger, ongoing integrated study EarthEnable is conducting with \$700,000 in funding from USAID/Development Innovation Ventures (DIV) and Grand Challenges Canada (GCC), of willingness-to-pay, marketing messages, and health outcomes of its novel, plant-based floor varnish.

In Year 4, WASHPaLS closed one grant from the third grant cycle, **IDinsight**, who tested, in collaboration with UNICEF and the Philippines Department of Education, the use of nudges and curriculum to increase handwashing among students in the Philippines. The tested intervention consisted of the following nudges: painted footpath with spray-painted footprints from toilet stall to handwashing station, calendar of handwashing posters, “watching eye” sticker above the handwashing station, and arrow sticker pointing to a soap dish. Some key findings include:

- Handwashing with water and soap after toilet use rates among pupils in treatment schools were **17.3 percentage points (pp) or 148 percent** higher than in control schools
- Access to functional handwashing facilities with soap near toilets in treatment schools were **20.2 pp or 38%** higher than in control schools
- The program simultaneously nudged students to wash hands with soap in classrooms that already had soap, and nudged teachers to provide soap where it was not already available.

Schools in the Philippines closed in Year 4 due to COVID-19, and IDinsight anticipates that the results of this handwashing research will be integrated into UNICEF WASH Philippines, DepEd, and WinS TWG’s school reopening recommendations, and may also be integrated into the COVID-19 [Hygiene Hub’s](#) School Reopening recommendations. The study is also featured in the Philippines Department of Health’s ‘Health Promotion Playbook’ for Local Health Systems’ COVID response. A manuscript on ‘Nudging Handwashing among Primary School Students in the Philippines: Evidence from a Cluster Randomized Trial’ was submitted to the *American Journal of Tropical Medicine & Hygiene* in Q3 and was preliminarily accepted. Additionally, IDinsight was accepted to present the study as a poster at the 2020 UNC Water and Health conference.

In addition to dissemination of individual grant research findings, WASHPaLS plans to identify cross-cutting themes emerging from multiple grants for end-of-project reflections. This year, the project began discussing emerging themes at both the Year 4 mid-year meeting and again at the Year 5 planning meeting last July. Two clear themes are improving hygienic environments for infants and young children and nudging handwashing behavior. The actual ‘vehicle’ for exploring these themes has yet to be decided, whether a brief, webinar or other tactic for knowledge sharing.



Photo 4, IDinsight: Testing nudges from latrines to handwashing stations.

TABLE 2: STATUS OF ACTIVE GRANTS

Grantee, Activity Title	Year 4 Highlights and Challenges
icddr,b (1) <i>mHealth Messaging: An Innovative Approach to Promote Improved Caregiver and Child Hygiene Practices in Bangladesh</i>	• Developed mHealth and pictorial modules and piloted them in 15 households. • Conducted an intensive evaluation through expanded piloting of the modules to 100 households. • Conducted structured observations, semi-structured interviews, focus discussions, and spot checks with participant households. • Experienced significant delays in Y4, mainly due to COVID-19. • WASHPaLS issued a modification to revise the final deliverable, to remove the RCT (given insufficient time and budget to pursue). Instead icddr,b finalized the formative research, rigorously testing the finalized modules and document the limited uptake of behaviors from mHealth nudging alone. • Manuscript on the ‘Formative Research for the Design of a Baby Water, Sanitation and Hygiene Mobile Health Program in Bangladesh (CHoBI7 Mobile Health Program)’ accepted by the <i>American Journal of Tropical Medicine and Hygiene</i> in Q4. (https://www.ajtmh.org/content/journals/10.4269/ajtmh.20-0456). • Presented at 2019 UNC Water and Health Conference. • Final analysis and report submitted in Q4. • Grant to close in Y5 Q1.
icddr,b (2) <i>Household Problem-Solving to Reduce Children’s Exposure to Chicken Feces</i>	• Presented at WASH, Nutrition & Child Growth Webinar Series on ‘Interventions for Reducing Childhood Exposure to Enteric Infections: Lessons Learned from Piloting’ (https://www.fsnnetwork.org/wash-nutrition-and-child-growth-webinar-series-implementing-partners) • Presented at 2019 UNC Water and Health Conference. Abstract was accepted for presentation at the 2020 Hygienic Environments Side Sessions convened by WASHPaLS and others. • Conducted transect walks to identify existing strategies for separating children and chickens. • Completed in-depth interviews and focus group discussions on separation strategies, diarrhea risk perceptions, and household contamination. • Selected villages for the TIPS and identified Community Hygiene Promoters; icddr,b selected eight poultry and child confinement strategies to be deployed in the TIPS villages. • carried out TIPS; submitted report on household observations and survey results regarding poultry practices, feces management and IYC contact with feces. • Recruited and trained Neighborhood-based Environmental Assessment and Planning (NEAP) promoters. • Conducted Baseline assessment. • Due to the Government of Bangladesh-issued stay-at-home order effective March 26, icddr,b suspended all field activities and travel and encouraged staff to work remotely. This resulted in significant delays to activities, as icddr,b was just beginning Phase 2 field work. • During the lockdown period, icddr,b continued preparations for their planned field activities, including developing session guides, training guides, and poultry health behavioral recommendations; pre-testing posters and flip books; and finalizing a video from TIPS households to be shared in group sessions.

Grantee, Activity Title	Year 4 Highlights and Challenges
	• Received a costed extension to address COVID-19 related implementation delays and to authorize continued payment of grantee staff during lockdown period. • Grant expected to close in Y5 Q3.
Stanford University <i>Bringing it home: Driving School-based WASH messaging into the Household</i>	• In Q2, Stanford obtained final IRB approval in India, and moved forward with collaborators and key stakeholders to design the activity's learning communications objects (LCO). • Paused travel and field implementation throughout Q3 and Q4 due to the COVID-19 pandemic, resulting in significant delays. • WASHPaLS and Stanford have had ongoing discussions on COVID-19 impacts and contingency plans and were in a holding pattern for Q3 and Q4. • Absent a WASHPaLS contract extension, Stanford will not be able to complete their intervention as designed. If USAID does not approve a contract extension, WASHPaLS and Stanford will consider terminating or modifying the grant to revise the intervention.
Gram Vikas <i>Developing and Testing an Innovative BC program for safe child feces management in India</i>	• Completed Research Protocol and Gender Analysis. • Completed Baseline assessment. • Co-created and pilot tested child feces management prototypes. • Gram Vikas trained 10 female and 7 male family members in the practice of safe disposal of child feces. • Experienced significant delays in Q3 and Q4 due to COVID-19 and resulting lockdowns and school closures. • Resumed implementation in late Q4, and the intervention design workshop and stakeholders consultative meeting were held. No other major concerns or delays evident in Year 4. • A no-cost extension is anticipated in Year 5 due to COVID-19 related delays. • Abstract accepted for presentation at the 2020 Hygienic Environments Side Sessions convened by WASHPaLS and others at UNC. • Grant expected to close in Y5 Q3.
EarthEnable <i>Behavioral and Biological Plausibility of the Protective Effects of Improved Flooring in Uganda</i>	• Completed launch of activities and Research Protocol and Gender Analysis. • Established partnership with Medical and Molecular Laboratories at Makerere University in Kampala for sample analysis. • Interviewed 30 control and 30 intervention households, including transcription and translation, and preliminary analysis. • Conducted training for video observations in Q4, resulting in 18 women learning to use the video camera; and training of 1 male to learn and practice qualitative interviewing skills. • No major concerns or delays evident in Year 4. • Abstract accepted for presentation at the 2020 Hygienic Environments Side Sessions convened by WASHPaLS and others at UNC. • Grant expected to close in Y5 Q3.
The Water Trust <i>Improving Hygienic Management of Poultry in Rural Uganda</i>	• Completed Research Protocol and Gender Analysis. • Developed context-appropriate poultry management training guide and began trainings. • Completed Baseline survey and microbial testing. • Continued monthly coaching of self-help groups remotely in Q3 and Q4 due to COVID-19 shutdown.

Grantee, Activity Title	Year 4 Highlights and Challenges
	• Underwent a change in design of activity in Q4 to offer small no-interest loans to encourage families to purchase materials to build chicken coops and increase uptake of the intervention. This decision was made based on discussions internally, with WASHPaLS, and with community members, given a general shortage of revolving funds available this time of year, which has been exacerbated by COVID-19. • Rescheduled household surveys and microbial soil sample testing from the originally planned May and August 2020, to August and November 2020, as a result of COVID-19. The Water Trust does not anticipate a change to their grant end date due to this adjustment. No other major concerns or delays evident in Year 4. • Presented poster at the 2019 UNC Water and Health Conference. • Abstract accepted for presentation at the 2020 Hygienic Environments Side Sessions convened by WASHPaLS and others; as well as a free-standing poster presentation. • Grant expected to close in Y5 Q2.

2.5 COMPONENT 4: PARTICIPATION IN STRATEGIC PARTNERSHIPS

2.5.1 PARTICIPATION AND PRESENTATIONS AT SECTOR EVENTS

UNC Water and Health Conference (Chapel Hill, North Carolina, October 7-11, 2019).

UNC continues to be a valuable platform for WASHPaLS. The conference attracts a diverse audience from within and outside the sector providing many opportunities to share the research and engage others formally and informally. As in previous years, our participation at UNC raised the profile of the project and provided an effective means to disseminate USAID research findings to, as well as jointly convene sessions with, the sector at-large. We have observed that UNC provides an opportunity to have critical conversations that may inform the design of upcoming work led by others. Additionally, we have learned about or been invited to join new opportunities to collaborate with USAID and other partners.

The CLTS workstream sessions were well received; many participants noted the high quality of the data presented – the Director General of Cambodia’s Ministry of Rural Development commented that the dashboard “made data fun.” Other participants noted their interest in the utility of the dashboard as an interactive tool for implementers. The side and poster sessions spurred discussions on the relevance of the findings for other work (e.g., WaterSHED Cambodia’s Civic Champions and Sanitation Marketing programs) and policy (CWSA noted the timeliness of the findings as the Government of Ghana plans to revise its Sanitation Strategy). Interest in the findings led to invitations to partner in follow up work (e.g., CRSHIP on community selection in the next phase of implementation), and integration of the tools into the UNICEF guidance on rural sanitation. This provided the initial justification for the PE Follow-on work described above.

Under the market-based sanitation workstream, WASHPaLS jointly convened a side-session on market-based sanitation with UNICEF. WASHPaLS presented the findings and guidance from its forthcoming enterprise viability and sustainability knowledge products followed by an activity-based learning game, while UNICEF unveiled its guidance for rural MBS. From an organizer’s perspective, the simulation game format provided a nice balance between discussing abstract concepts and solving a case study, which we had considered as a preliminary option. Several participants took home the game material packs, while others requested copies—a testimonial to its novelty and utility. The UNICEF presentation was a good complement to the session—socializing terminology from the MBS Desk Review. The research team had

productive side meetings with the Chief of Party of USAID/Transform WASH and WaterAid UK, which informed design of other WASHPaLS activities (i.e., Ethiopia DST and upcoming STTA in Nigeria).

With the SPS workstream starting to wind down, the team presented findings from Ethiopia TIPS study. The research team's involvement in this topic led to many in-depth discussions with researchers and implementers working in the Behavior Change space. The different discussions confirmed how this work fits in the evolving and growing interest on the role of animal feces in the development of infants and young children. In the absence of solid evidence to inform programming guidance, further research will continue to shed light on the issue. Our small grants work will continue to provide much-needed data and more generally provide leadership in this technical area.

The MHM research team held several fruitful discussions with researchers regarding the proposed scope of activities and generated significant interest in the work and in possible collaboration (e.g., with John Hopkins University about the development of the Menstrual Practices Needs Scale, which may be applied in the context of an upcoming MHM in the workplace study in Uganda and opportunities for future collaboration). UNICEF also expressed an interest in the MHM workstream and proposed the idea of working teachers in schools, the nexus between the focus of MHM and UNICEF. UNICEF was very enthusiastic about the idea of a metrics meeting and offered support in identifying experts and convening the meeting.

The following presentations were given at the conference:

- Side Sessions
 - “Hygienic Environments for Infants & Young Children for Improved Growth: New Evidence and Interventions” including a verbal presentation by grantee icddr,b: “Chickens and Children”
 - “Planning for Success: Context-Specific Programming for Rural Sanitation”
 - “Sustaining Market-Based Sanitation: Designing Viable Sanitation Enterprises”
 - “Reaching the Poor and Leaving No One Behind in Sanitation,” convened by Global Communities, WASHPaLS presented on Ghana subsidy study.
 - “Integrating nudges into handwashing behavior change programs,” convened by the Global Handwashing Partnership and others, WASHPaLS supported and facilitated this session.
- Technical presentations
 - “Where does CLTS work best? Evidence from four national datasets”
 - “Women as WASH Change Agents,” presented by grantee iDE
 - “Formative Research for the design of a Baby WASH mobile Health program,” presented by grantee icddr,b
- Poster Presentations
 - “Menstrual Hygiene Management in the Workplace and Women’s Economic Empowerment”
 - “A Randomized, Controlled Trial on Targeted Subsidies Post-CLTS in Ghana: Study Design and Baseline Findings”
 - “Improving Hygienic Management of Poultry in Rural Uganda,” presented by grantee The Water Trust

Other presentations in Year 4 included the following:

- On October 30, WASHPaLS presented a brief overview of the findings from the PE quantitative study in a session on “Sanitation, Human, and Environmental Health” at the **Kenya Sanitation Conference** convened by the Ministry of Water, Sanitation, and Irrigation.
- On November 20, WASHPaLS grantee icddr,b presented their poster “Formative Research for the Design of Baby WASH Mobile Health Program in Bangladesh” at the 64th ASTMH Annual Meeting.
- On March 23, at the **AfWA International Congress and Exhibition in Kampala, Uganda**, WASHPaLS presented (1) an overview of the findings from the Performance Envelope quantitative

study in a session on “Enabling policies for the sanitation sector: Evidence and practice,” and (2) a poster on “The case for using Decision Support Tools (DST) for sanitation-related policymaking.”

- On April 1, WASHPaLS presented findings on subsidies from the two rural sanitation trials in Lao and Cambodia to 36 people attending the online meeting hosted by the **World Bank April RWSS Community of Practice Meeting**.
- On April 27, WASHPaLS presented an overview of the subsidy study, including baseline findings and a description of the targeted subsidy implementation protocol to 33 people at **WASH Action and Learning Group Meeting coordinated by IDS**.
- On May 5, WASHPaLS presented the playpen study findings as part of a 3-part webinar series co-convened with USAID/PRO-WASH and the Clean, Fed and Nurtured Coalition. A total of 307 participants signed up (70% female), and 167 participated in a lively 90-minute session that included presentations on emerging interventions to improve the hygienic environment including playpens, mats, and various animal husbandry options. WASHPaLS coordinated with USAID/Ethiopia to assure extensive circulation of the announcement to Ethiopia stakeholders.
- The TOCOR presented WASHPaLS accomplishments at two meetings: the **InterAction WASH Working Group Meeting** on April 15 and the **USAID Water Strategy Working Group Meeting** on June 24.

2.5.2 STRATEGIC PARTNERSHIPS

Partnerships and active engagement with local systems, international networks and other USAID projects represent a significant opportunity for USAID and WASHPaLS to maximize its contributions and learning within the WASH sector. Toward that end, in Q2 WASHPaLS began an internal process to build on our engagement and partnering strategy to best understand how to maximize WASHPaLS influence in the sector. Email and in-person discussions were initiated with the WASHPaLS partners prior to and during the mid-year work planning week in March 2020. The purpose of these discussions was to more clearly and strategically identify each stream’s target audiences and the partner institutions that would most effectively embed and diffuse WASHPaLS learning into the sector. Take-aways from these discussions will help WASHPaLS plan for, frame and prepare the end-of-project learning products.

Global Handwashing Partnership and the Clean, Fed, and Nurtured Coalition. WASHPaLS continued to participate in the Clean, Fed, and Nurtured (CFN) Coalition Steering Committee, as well as the GHP Steering Committee. We continue to provide technical input to the GHP, including serving on the Steering Committee and contributing to the strategic planning process and revision of the Handwashing Handbook. In Year 4, WASHPaLS co-convened the Hygienic Environments side session at the UNC Water and Health Conference, and in addition CFN joined with the USAID PRO-WASH initiative to plan and deliver a three-part webinar series around research and promising pilot interventions to address IYC-specific routes of exposure to harmful pathogens. Sessions included:

- “Exploring the Evidence: What do we know about impacts of enteric pathogens on early childhood growth and development?,” featured representatives from Cranfield University and Stanford University, airing on April 26 and drawing 342 participants.
- Interventions for Reducing Childhood Exposure to Enteric Infections: Lessons Learned from Piloting” airing on May 5 with 167 participants, included three presentations describing different modalities of research in Ethiopia, Uganda and DRC to explore options for, including playpens, mats, and various animal husbandry options.
- Rethinking WASH indicators to understand and address environmental contamination and improve child growth, on May 26 drew 104 participants and focused on measuring and monitoring

environmental contamination, featuring speakers from the Emory University Center for Global Safe WASH. Immediate follow up included compilation of a bibliography and resource list, further augmented following each webinar.

UNICEF. WASHPaLS continues to collaborate closely with UNICEF on topics including CLTS, MBS, and MHM. In Q1, WASHPaLS presented a brown bag at UNICEF headquarters in New York on the Ghana subsidy study. In addition, research activities under the Kenya Rural Sanitation Learning buy-in activity will take place in close collaboration with UNICEF Kenya, in support of their efforts to develop improved rural sanitation guidance alongside government partners.

In Q2, continuing its role as a peer reviewer for UNICEF knowledge products, WASHPaLS provided feedback on three chapters from the UNICEF Guidance on MBS, viz., *Optimizing market interactions*, *Expanding access to business finance*, and *Market Enablers*.

Also, WASHPaLS, in partnership with UNICEF headquarters, committed to supporting training on MBS as part of an expo organized by UNICEF Ghana, scheduled for late April 2020. This event was postponed due to COVID-19 tentatively to Year 5 Q2. Due to the uncertainty of travel and potential constraints on WASHPaLS resources in Year 5, UNICEF agreed to deliver select training modules WASHPaLS MBS training package if the team is unable to participate. USAID and WASHPaLS will decide the team's participation closer to the event date when finalized. WASHPaLS will prepare and submit its standardized training package.

In Q3, WASHPaLS also held discussions with UNICEF headquarters about follow-on activities from the CLTS workstream, including exploring a “learning partnership” between WASHPaLS, UNICEF and WaterAid, and continuing to seek feedback on the interactive data analysis tool.

WASHPaLS also provided input on UNICEF's review of menstrual health and hygiene monitoring tools, finalized in May. The review included tools and metrics for school-age girls and also considered implications for adult women.

WaterAID: WaterAID requested WASHPaLS' support for technical assistance and capacity building for MBS in Nigeria. Specifically, the request focused on training the National Water Resources Institute (NWRI) as well as several stakeholders from the government, development, and private sectors. WaterAID envisages two separate training sessions—one exclusively for the NWRI to inform its curriculum development for MBS with remote support to address questions over two months, and a second session for the broader group of stakeholders (e.g., National Sanitation Working Group members, regional government staff).

In addition, WASHPaLS sought feedback from WaterAid on the PE follow-on activities and interactive data analysis tool, and will continue working with WaterAid to test beta versions of the tool.

USAID/CKM. In Q2, the TOCOR and the DPD recorded a podcast entitled “Research Best Practices for WASH Services Delivery and Sustaining Behavior Change.” CKM organized, recorded, and posted to Globalwaters.org an interview with the WASHPaLS TOCOR and DPD in April. Collaboration on the Mendeley citation database currently is on hold, but the transfer should be completed by Y5 Q2.

2.6 GENDER CONSIDERATIONS

Iris Group continues to lead WASHPaLS' efforts to integrate GESI considerations across project components. During Year 4, the focus of GESI support was on (1) leading the work on Component I buy-ins on MHM and Mozambique; (2) providing GESI support for Component I buy-in COVID-related trends and leading the Nepal deep dive; and (3) providing GESI technical reviews and support to all active grantees, supporting Round 3 grantees and EarthEnable in development of their gender analyses.

3.0 MONITORING, EVALUATION, AND LEARNING

In Q3, USAID approved a revised monitoring and evaluation plan (MEP) to incorporate changes previously discussed with USAID, fine-tuning indicator definitions that were submitted in Year 3.

Throughout the year, the WASHPaLS Deputy Project Manager (DPM) continued to review 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.

In Q4, WASHPaLS initiated a process to assess the performance of WASHPaLS in achieving its main outcomes. In Year 5 WASHPaLS will hold a series of internal learning meetings and conduct several introspection activities to gather qualitative data that will allow the team to meaningfully report on uptake.

3.1 REVIEW OF PERFORMANCE INDICATORS

Table 4 summarizes WASHPaLS achievements on the performance indicators against Year 4 and life-of-project targets, as stated in the revised MEP approved May 2020. These are discussed below.

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

In Year 4, six new organizations applied WASHPaLS approaches/tools, exceeding the annual target of three. 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.

1. The Philippines Department of Health featured the study from grantee IDinsight in their Health Promotion Playbook for Local Health Systems' COVID response.
2. IRC used a WASHPaLS's figure from the MBS literature review showing phases of customer demand in a blog post about how combining CLTS and market-based approaches can help in programming.
3. The FSN Network provided the French translation of the MBS desk review as a main resource for participants attending the USAID ACCES and PRO-WASH webinar (in French) "Sharing experiences with USAID ACCES on sales marketing strategies and financing mechanisms for rural sanitation."
4. The USAID Indonesia Mission adapted the MBS board game for the local context to use for training field practitioners and teaching others about MBS.
5. Helvetas used the MBS board game as part of training sessions for implementation staff of the UNICEF and Helvetas MBS sanitation activities in Guatemala.
6. ONSE incorporated comments from WASHPaLS's technical review of their Malawi sanitation market assessment SOW.

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

In Year 4, WASHPaLS logged influence on four documents, including two policies/strategies/action plans and two knowledge products (reports/training materials), exceeding the annual target of two and the LOP target of six. Three of the results are considered significant: the (1) incorporation of WASHPaLS comments into PRO-WASH's Market Development Strategy RFA for USAID Food for Peace partners in Nigeria in April 2020; (2) incorporation of WASHPaLS Hygienic Environments modified f-diagram and other outcomes of the literature review in the USAID "Water and Development Technical Series - WASH and it's Links to Nutrition" in June 2020 ; and (3) incorporation of WASHPaLS Enterprise Viability Case Studies and outcomes of the MBS and CLTS literatures reviews in the USAID "Water and Development Technical Series - Rural Sanitation Services." The remaining document represents "weak" influence by WASHPaLS, as it has limited citations of the CLTS literature review.

TABLE 3: PERFORMANCE INDICATORS RESULTS AND TARGETS

N°	Performance Indicator	RESULTS					Year 4 Target	Variance	Results To Date	LOP Target
		Q1	Q2	Q3	Q4	YEAR 4				
C1	Number of USAID Missions and operating units, implementing partners, local governments and donors applying WASHPaLS approaches/tools (Custom) [OUTCOME]	2	1	1	2	6	3	+3	18	11
C2	Number of reports, policies, laws, agreements, action plans, regulations, strategies, or investment agreements (public or private) influenced by WASHPaLS (Custom) [OUTCOME]	1	0	3	0	4	2	+2	18	6
C3	Number of people exposed to WASH approaches/tools through WASHPaLS events, communications materials and products (Custom) [OUTCOME]	788	541	569	27	10,425*	1,250	+9,175	19,866	5,000
C5	Number of workshops/events at which research methods, preliminary results and findings are presented (Custom) [OUTPUT]	13	6	12	4	35	8	+27	80	30
1.1	Number of technical assistance assignments and technical reports produced by WASHPaLS team (Custom) [OUTPUT]	1	1	5	0	7	6	+1	14	20
1.2	Level of Mission satisfaction with the responsiveness and quality of WASHPaLS Technical Assistance (Custom) [OUTPUT]	NA	NA	NA	8	8	8.5	-0.5	8	8.5
2.1	Number of local partners actively participating in research activities designed and implemented by WASHPaLS (Custom) [OUTPUT]	1	0	1	0	2	4	-2	28	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	2	-1	2	4
3.1	Number of grants awarded to behavior change innovators (Custom) [OUTPUT]	0	1	0	0	1	0	+1	9	10
4.1	Number of partnerships established or supported (Custom) [OUTPUT]	0	1	1	0	2	5	-3	9	10

*Total includes the total annual exposure numbers from online views and downloads

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

In the revised MEP approved May 2020, this indicator is adjusted to capture the total number of people reached through webinars, presentations, number of report downloads, etc. It was acknowledged that the measure of increased knowledge among individuals is difficult to track in a meaningful way and is not appropriate for this project. Because WASHPaLS promotes uptake of evidence at an institutional level, Indicators C1 and C2 (Number of organizations influenced and Number of strategies, et al, influenced) will be more instrumental in measuring the project impact. WASHPaLS will continue to measure the reach of its research outputs through an estimate of number of individuals exposed.

In Year 4, WASHPaLS estimates that over 10,000 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. The number of people exposed through downloading/viewing communications materials is collected on an annual basis and not disaggregated by quarter. 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 35 in-person and virtual presentations, for which all participants were counted using sign-in sheets or participant counts on virtual platforms.

Currently, 21 WASHPaLS learning products, including recordings of five webinars to date, can be viewed or downloaded from several websites. The project is in contact with the hosts of these websites 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 54% of people who view the report landing page also download the report. Statistics for downloads are not available for the Tetra Tech website, Global Handwashing Partnership website and YouTube. 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: WEBSITE STATISTICS

Platform	Webpage	Statistic Available	
		Views	Downloads
Tetra Tech	http://www.tetrattech.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
Sanitation Learning Hub	https://www.communityledtotalsanitation.org/resources/examination-clts-s-contributions-toward-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

Platform	Webpage	Statistic Views	Available Downloads
WaterSHED	http://watershedasia.org/creating-viable-and-sustainable-sanitation-enterprises-a-retrospective-analysis-of-rural-sanitation-enterprises-in-cambodia/?ct=t%28WaterSHED+newsletter%29	Y	Y
YouTube	https://www.youtube.com/	Y	N

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

WASHPaLS exceeded the annual and LOP target with 35 events in Year 4. Ten events were organized or co-organized by WASHPaLS, and the project presented at 24 events convened by third parties, including three conferences. The events focused on CLTS (11), MBS (3), pathways of fecal contamination in IYC (6), hygiene behavior change (3), and gender and social inclusion (3), with several events encompassing multiple WASHPaLS thematic areas.

3.1.5 INDICATOR 1.1: NUMBER OF TECHNICAL ASSISTANCE ASSIGNMENTS AND TECHNICAL REPORTS PRODUCED BY WASHPaLS TEAM

Technical responses to four Component I STTA work orders were approved in Year 4. The revised MEP clarified that each STTA is counted as one result and is expected to produce at least one report. Additional reports produced by any STTA may count as additional results. Three technical reports that were the second report for each activity were produced in Year 4. Combined, the technical responses and technical reports approved in Year 4 exceeded the annual target.

3.1.6 INDICATOR 1.2: LEVEL OF MISSION SATISFACTION WITH THE RESPONSIVENESS AND QUALITY OF WASHPaLS TECHNICAL ASSISTANCE

Following completion of the WASH for Health Performance Evaluation, a client satisfaction survey was sent to the Mission point-of-contact. The survey reported a score of 8 out of 10 for all evaluation categories of responsiveness, timeliness, technical quality, sensitivity to local context and communication. Overall satisfaction was 8 out of 10.

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

Two local partners were engaged by WASHPaLS grantees in Year 4, falling short of the annual target (4) but the LOP target (28) has now been achieved. Makerere University is a local partner in Uganda for the EarthEnable grant and the Community Empowerment Lab is a local partner in India for the Stanford Grant. Both partners are research institutions and are engaged in research design, data collection, review of findings/reports and dissemination of results.

3.1.8 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 4 (an MBS manuscript) falling short of the annual target (2). A hygienic environments manuscript and a hygiene behavior change manuscript were both accepted for publishing in Year 4 and will be published in Year 5. Three additional manuscripts were submitted to journals and we are awaiting feedback.

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

One grant was awarded in Year 4, for a total of nine grants. WASHPaLS has requested reduction of the associated contract deliverables from ten grants to nine, and will revise, LOP MEL targets as appropriate in Year 5.

3.1.10 INDICATOR 4.1: NUMBER OF PARTNERSHIPS ESTABLISHED OR SUPPORTED

WASHPaLS engaged in two new partnerships in Year 4, falling short of the annual target (5) and has achieved nine to date. The revised MEP reduced the LOP target to 10 and the project is anticipated to engage in an additional partnership in Year 5.

3.2 REVIEW OF MANAGEMENT INDICATORS

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

TABLE 5: MANAGEMENT INDICATOR RESULTS

N°	Management Indicator	Q1	Q2	Q3	Q4	Year 4	To Date
M1	Number of people trained through WASHPaLS Activities	1,335	358	1	35	1,729	1,909
M2	Number of USAID Missions supported by WASHPaLS	0	2	0	0	2	6
M3	Number of grant applications submitted in response to public solicitations	0	0	0	0	0	394
M4	Number of communications materials developed to share information and learning	22	9	15	5	51	121
M5	Number of formal consultations with Advisory Board	2	1	5	0	8	51

3.2.1 INDICATOR M1: NUMBER OF PEOPLE TRAINED THROUGH WASHPaLS ACTIVITIES

WASHPaLS trained 1,729 enumerators through WASHPaLS field research, of which 1,023 participants were female and 706 were male. The majority of enumerators were trained through the Water Trust grant's poultry training in Uganda. Other enumerators were trained in Bangladesh, Philippines, Uganda and India by other WASHPaLS grantees and in Ghana by the core research team.

3.2.2 INDICATOR M2: NUMBER OF USAID MISSIONS SUPPORTED BY WASHPaLS

In Year 4, WASHPaLS supported two USAID Missions through Component I STTA Activities. Nepal and Ethiopia were supported through the MHM activity. WASHPaLS also supported the Kenya East Africa and Ghana Missions in Year 4 but are not counted as results, since the project supported Kenya East Africa in Year 2 and Ghana in Year 3.

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

No expressions of interest or applications were received in Year 4 because the ninth and final WASHPaLS grant was awarded without a call for proposals.

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

WASHPaLS developed 51 communications materials in Year 4, including 28 presentations, 4 technical reports, three videos, three conference posters, two blogs, two training materials, one factsheet, one briefing note, one policy recommendation, one news article, and five other products. Three materials were developed specifically for sharing with international NGOs and three for USAID Mission and staff. Twenty-two materials were for public dissemination and the remaining twenty-three were for conferences or other meeting participants.

3.2.5 INDICATOR M5: NUMBER OF FORMAL CONSULTATIONS WITH ADVISORY BOARD

The Advisory Board and its members were consulted formally eight times in Year 4, one of which was consultations of the full board (in-person meeting at UNC Water and Health Conference); seven were consultations with individual members.

4.0 PROJECT MANAGEMENT

As the technical focus of activities in Year 4 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 4 include the following:

Staffing

- In October, WASHPaLS on-boarded a part time home office WASH Specialist to fill the role vacated last June and temporarily filled by the home office Project Manager. The new WASH Specialist is based in the Arlington office with the majority of the Tetra Tech team, and provides about 50% LOE support to the project.
- In May, WASHPaLS on-boarded a full-time Subcontracts Manager. The position was created to support the growing management needs in line with an expanded STTA portfolio.
- In August, WASHPaLS brought on board a part-time Operations Specialist to backfill the roll of the previous Operations and Financial Specialist to support the increased administrative and financial reporting needs of the project.
- WASHPaLS hired a consultant to provide strategic partnership, communication, and dissemination advice to the project team.
- Subcontractors also have increased the number of technical and administrative staff supporting their research activities; while full-time staff at their respective companies, they all work part-time on the project.

Planning

- WASHPaLS maintains a productive and collaborative working relationship with the USAID technical leads through biweekly project meetings to discuss overall progress, as well as through periodic technical meetings that permit a deeper 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 August, WASHPaLS held a virtual Year 5 Annual Work Planning Meeting over a two-week period to accommodate disruptions to international and domestic travel due to COVID-19. 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 5 activities.
- In October, WASHPaLS submitted a joint budget realignment and no-cost extension (to February 2022, the WADI IDIQ end date) RFA to address COVID-19 impacts on implementation. The activity most impacted is the MHM intervention in Nepal, Kenya, and Ethiopia. Additionally, the grant to Stanford University in India cannot be completed without an extension to the period of performance. Other activities will be subject to cancellation in the absence of a project extension, with several decision points in the period between October and February.

Reporting

- WASHPaLS kept pace with the timely submittal of Year 4 contract deliverables, including the Year 4 Work Plan, Year 3 Annual Report, quarterly reports, and accruals reports.

A list of all deliverables, including technical deliverables (e.g., inception reports) submitted in Year 4, is provided in Appendix 2.

APPENDIX I: STATUS OF PLANNED YEAR 4 ACTIVITIES

TABLE AI: STATUS OF YEAR 4 PLANNED ACTIVITIES

Year 4 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. - Seven meetings were held with individual board members for feedback on the CLTS PE follow-on plans.
Component I: Provide Short-Term Technical Assistance to Missions		
- Respond to Mission SOWs, as requested NOURISH Impact Evaluation - Shipment of stool samples to Georgia Tech - Endline data collection and analysis - Draft report on primary outcome (survey data and anthropometry) - Laboratory Analysis - Preliminary secondary outcome (laboratory) report - Oral presentation to USAID and stakeholders - Final primary outcome report - Final secondary outcome report - Draft and final manuscripts submitted to a journal Kenya RAPID Impact Evaluation - Round II Data Analysis and draft report - USAID review and presentation - Final Round II Report - Round III Data Collection – Sensor downloads & qualitative - Check-ins with RAPID implementing partners Menstrual Hygiene Management <i>Task 2: Formative Research & Field Research Design</i> Sub-task 2a: Develop Partnership - Identify potential partners - Consult with potential partners for interest/fit - Develop partnership agreement Sub-task 2b: Formative Research - Design formative research, including research instruments - Submit for IRB approval (if necessary) - Travel to 2 sites to conduct formative research - Analyze data and produce findings - Draft formative research report Sub-task 2c: Activity Design - Develop list of approaches		- Responded to all requests received and including the Kenya RAPID Performance Evaluation, WASH and COVID Trends and Futures Analysis, and Kenya Rural Sanitation Research. NOURISH Impact Evaluation - Stool samples received at Georgia Tech - Endline data collection complete and analysis partially complete - Draft report on primary outcome (survey data and anthropometry) complete - Laboratory Analysis ongoing, delayed due to COVID - Preliminary secondary outcome (laboratory) report anticipated in Y5 Q3 - Oral presentation to USAID and stakeholders complete - Final primary outcome report approved - Final secondary outcome report anticipated in Y5 Q3 - Draft and final manuscripts submitted to a journal anticipated in Y5 Q1 Kenya RAPID Impact Evaluation - Round II Data Analysis and draft report complete - USAID review and presentation complete - Final Round II Report approved - Round III Data Collection – Sensor downloads & qualitative complete - Check-ins with RAPID implementing partners complete Menstrual Hygiene Management <i>Task 2: Formative Research & Field Research Design</i> Sub-task 2a: Develop Partnership - Partners identified: Thika Cloth Mills and Shona EPZ in Kenya; Shangrila Carpets and

Year 4 Planned Activities	Status
• Meet with TAG and USAID to select approach(es) to test • Design field research • Develop research protocol and instruments • Submit IRB application • Develop inception report for field research <i>Task 3: Field Research</i> Sub-task 3a: Field Research Implementation • Train field research team • Train partner on intervention elements • Conduct baseline • Intervention implemented • Conduct periodic monitoring • Produce quarterly activity reports • Conduct endline <i>Expanded MHM Study</i> • Develop workplan in collaboration with USAID • Scoping trips (TBC) • Implement Activity (TBD) Support to Global Handwashing Partnership • Strategic Plan Development • Global Handwashing Day and Follow-Up • Handwashing Handbook WASH for Health Performance Evaluation • Receive USAID & IP comments on draft evaluation report and finalize Formative Research for Gender and Hygiene Behavior Change • Provide technical input to Iris • Finalize onboarding local research team • Prepare training materials for local research team • Research team training and team planning meeting • Data collection • Translation of notes and preparation of dataset • Participatory analysis • Stakeholder meeting • Meet with USAID Mission staff for exit briefing • Drafting and USAID review of report • Final report and Portuguese translation DST in Ethiopia • Scoping to assess critical data availability and engagement plan • Secure GoE support and formalize technical assistance • Policy design workshop and data collection • DST customization • Decision-making workshop and handover • Price Elasticity of Demand (PED) Study • Update DST model with PED data	Milha Custom Rugs (TBC) in Nepal; AQ Roses in Ethiopia (suspended; scope changed [situation analysis]); Almat Farms in Nigeria (suspended) • Partnership agreements drafted for Thika Cloth Mills and Shangrila Carpets. Other agreements forthcoming. Sub-task 2b: Formative Research • Formative research plan designed and approved • Formative research conducted at Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal. • Findings incorporated into inception report (see below) • Formative research trip reports drafted for Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal Sub-task 2c: Activity Design • Intervention buckets developed • Field research designed at Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal • Research protocol and instruments developed for Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal • US IRB received for Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal. National IRBs submitted & pending approval. • Inception reports developed for Thika Cloth Mills/Kenya and Shangrila Carpets/Nepal <i>Expanded MHM Study</i> • Expanded workplan developed and approved • Scoping trips to Ethiopia, Kenya, Nepal, and Nigeria conducted • Activity implementation commenced Support to Global Handwashing Partnership • Strategic Plan Development • Global Handwashing Day and Follow-Up • Handwashing Handbook WASH for Health Performance Evaluation • Received USAID & IP comments and finalized draft evaluation report, summary and brief • Submitted documents to DEC and data to DDL Formative Research for Gender and Hygiene Behavior Change

Year 4 Planned Activities	Status
	- FHI provided technical input to IrisOnboarding local research team completed (prior to COVID) - Training materials for local research team prepared - Remote training option prepared DST in Ethiopia - Scoping trip completed in November 2019 - Secured GoE support and received USAID approval - Designed a novel PED field-research based study - Revised the approach to construct a synthetic PED curve to overcome COVID-19 travel restrictions - Customized the DST for Ethiopia and quantified health benefits (expanded scope) within contracted budget
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 - The CLTS manuscript was submitted to Environmental Science and Technology in Q4. - The MBS manuscript was submitted to Waterlines in Q1 and published in Q4. - The SPS manuscript was submitted to the American Journal of Tropical Medicine and Hygiene in Q3 and accepted for publishing in Q4. - Ad hoc as needed meetings of the Research Working Group.
Task 2.1: Assess Mechanisms for the Delivery of Sanitation Services at Scale – focus on behaviors (primarily, but not limited to CLTS)	
2.1.2: Implementation Research on CLTS	
PE Quantitative Research - Presentation of results at UNC conference - Revision of ppt summaries based on partner feedback - Prepare country briefs for implementers - Draft publication PE Qualitative Research - Calls with partners to discuss results - Qualitative data analysis - Prepare country briefs for implementers - Draft publication Joint Dissemination	PE Quantitative Research - Presented results at UNC conference, October 2019 - Revised ppt summaries based on partner feedback complete - Prepared country briefs; under final review by USAID - Submitted manuscript to Environmental Science & Technology PE Qualitative Research

Year 4 Planned Activities		Status
- Side session at UNC conference - Preparation of final report on quant and qual methods and findings CLTS + Subsidy Study Data collection - Intervention (targeted subsidy) in treatment communities - Aquaya staff in the field to manage and troubleshoot (exact timing TBD, sometime in Q2) - Light midline (exact timing TBD, sometime in Q2) Data analysis and dissemination - Presentations of baseline results at UNC conference - Draft publication on baseline findings - Mid study presentation to country stakeholders (exact timing TBD, during travel in Q2) - Analysis of midline findings		- Presented results to partners virtually via PowerPoint. - Completed qualitative analysis - Prepared country briefs; under final review by USAID - Finalized manuscript for submission to IJHEH. Joint Dissemination - Presented side session at 2019 UNC conference - Final report drafted and under final review. CLTS + Subsidy Study Data collection - Supported implementation of the targeted subsidy and collected monitoring data. WASHPaLS staff in the field January-March 2020 to manage and troubleshoot. - Conducted qualitative midline interviews with implementation stakeholders. Data analysis and dissemination - Completed analysis of baseline data; presented preliminary findings at UNC 2019 - Draft publication on baseline findings is still work in progress. - Mid study presentation to country stakeholders (delayed to Nov 2020 due to COVID) - Completed analysis of midline data (qualitative interview, monitoring data, cost data) and summarized all findings in a midline report. - Drafted a policy brief and a documentary outline on beneficiary identification. - Presented study to the IDS' Action Learning Group.
2.1.3: ICT to Aid the effectiveness of CLTS Implementation		
- Report review by USAID, Zambian CLTS implementers, UNICEF - Finalize report and communications products		Planned for Q1Y5
Task 2.2: Assess Mechanisms for the Delivery of Sanitation Services at Scale		
2.2.1: MBS desk review		
Publish journal paper		Journal manuscript published in September 2020
2.2.2: Implementation Research on MBS		
Question on enterprise viability - Publish guidance based on retrospective research findings - Finalize and release enterprise viability toolkit - Webinar and vodcast series for enterprise viability toolkit Question on market rules - Update technical user guides		Question on enterprise viability - Published three country case studies in March 2020 - Ongoing internal review of guidance based on retrospective research findings - Completed two enterprise viability and sustainability toolkits; undergoing peer-review

Year 4 Planned Activities	Status
Events - Attend UNC Water and Health conference - Attend AfWA ICE	Question on market rules - Deferred update of technical user guides until Component I Ethiopia implementation activity is complete Events - Co-hosted side-event with UNICEF at UNC Water and Health conference - Poster presentation at AfWA ICE

Task 2.3: Effectiveness of Improved Hygiene Environments for Babies and Young Children

2.3.2 Field-Based Research

Dissemination Activities - UNC presentation - In-country dissemination - Webinar(s)-WASHPaLS, CORE, CFN - Draft and submit manuscript for publication - Brief for Implementers - Blog(s) – TBD, includes GHP, Goats & Soda, others - Post all dissemination materials to WASHPaLS website and cross-post - Workshop at FHI 360 for multi-sectoral stakeholders - Presentation at CORE Group Practitioners Meeting If Final Wave of Data Collection - Procure microbiology supplies - Field work - Analysis and writing	Dissemination Activities - UNC presentation- completed - In-country dissemination- postponed due to COVID - Webinar(s)-WASHPaLS, CORE, CFN- completed - Draft and submit manuscript for publication- accepted for publication - Brief for Implementers- pending - Blog(s) – TBD, includes GHP, Goats & Soda, others - Post all dissemination materials to WASHPaLS website and cross-post-pending - Workshop at FHI 360 for multi-sectoral stakeholders- cancelled with USAID approval - Presentation at CORE Group Practitioners Meeting- meeting postponed due to COVID If Final Wave of Data Collection - Task cancelled
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Component 3: Small Grants Program on Hygiene Behavior Change

- Identify up to two research institutions/research topics for sole-source grants - Negotiate/sign final grant agreements - Provide on-going technical monitoring and advice to 6 active grants and possible new sole sourced grants - Identify key and cross-cutting lessons from across grants, and appropriate platforms to document and disseminate	- Identified, negotiated and signed one non-competed grant (EarthEnable) - Decided with USAID not pursue a tenth sole source grant due to time remaining in the contract. A contract modification is pending to remove the requirement for the 10th grant. - Provided on-going technical monitoring and advice to 7 active grants and closed one grant (IDinsight) - Methods and finding from three grants presented at 2019 UNC Water and Health Conference: icddr,b presented findings from the mHealth formative research in a technical session, the ICDDR,B poultry management grantees presented finding from their formative research as part of the WASHPaLS Hygiene Environments session and the WaterTrust presented a poster presentation. - Side session accepted to disseminate methods and findings of four grantees as part of a
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Year 4 Planned Activities	Status
	Improving Hygienic Environments for IYC side session. (The Water Trust, Gram Vikas, icddr, b poultry, and EarthEnable) at the 2020 UNC Water and Health Conference. Identified preliminary cross-cutting themes at Year 5 planning meeting; to be further developed in Year 5.
Component 4: Support USAID's Participation in Strategic Partnerships	
<i>Partnerships</i> - Provide technical support to GHP - Provide technical support to CFN Coalition <i>Events</i> - 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	<i>Partnerships</i> Technical support provided to GHP Technical support provided to CFN Coalition <i>Events</i> - Stockholm World Water Week cancelled - GHP BC Think Tank (Manila) cancelled - Attended UNC Water and Health conference - African Sanitation conference postponed - Presented at CORE group fall meeting

APPENDIX 2: SUMMARY OF YEAR 4 DELIVERABLES AND REPORTS

TABLE A2: YEAR 4 DELIVERABLES AND REPORTS

Deliverable	Date Approved	Notes
Contractual Deliverables		
Year 4 Annual Work Plan	November 4, 2019	Draft submitted in Y3, September 5, 2019
Annual Report (Y3) (incl. Foreign Assistance Reporting)	January 15, 2020	Includes Q4 Y3 quarterly report and Annual standalone report summarizing partnership activities, results and achievements
Quarterly Reports (Including Quarterly Financial Report)	February 24, 2020 April 23, 2020 July 20, 2020	Q1 Q2 Q3
Annual Work Plan (Y5)	September 22, 2020	
Award of a minimum of 10 grants under the small grants program	April 24, 2020	1 grant was awarded in Year 4; the contract requirement will be reduced to 9 grants in an upcoming contract modification WASHPaLS-G09-EarthEnable
Presentation of CLTS research results from desk-based and field-based research at one global forum	October 10, 2019	UNC Water and Health Conference
Presentation of MBS findings to one key global forum	October 9, 2019	UNC Water and Health Conference
Submission of one paper to a peer-reviewed journal describing results of the MBS research	October 20, 2019	Published September 15, 2020 in Waterlines
Event sharing knowledge on the outcomes of the clean play spaces for young children study	May 5, 2020	WASH, Nutrition and Child Growth Webinar Series
One paper on clean play space study submitted to peer-reviewed journal	May 8, 2020	Accepted by the <i>American Journal of Tropical Medicine and Hygiene</i> September 29, 2020
Component I Deliverables		
NOURISH Final Evaluation Report	June 3, 2020	Report dissemination pending manuscript publication
Kenya RAPID IE Midline (Round II) Report	May 11, 2020	
KIWASH Final Evaluation Report	May 25, 2020	
GHP Guidance Document for Country-Level Coordination	April 14, 2020	Report published on GHP website
GHP Global Handwashing Day tools and resources developed and updated	September 31, 2020	
MHM Desk Review	February 18, 2020	
MHM Kenya Scoping Trip Report	December 13, 2019	
MHM Nepal Scoping Trip Report	January 19, 2020	
MHM Ethiopia Scoping Trip Report	February 5, 2020	
MHM Nigeria Scoping Trip Report	April 13, 2020	

Deliverable	Date Approved	Notes
MHM Formative Research Plan	June 9, 2020	
MHM Metrics Landscaping Report	July 29, 2020	
MHM Nepal Field Research Inception Report	September 17, 2020	
Ethiopia DST Inception Report	February 24, 2020	
Mozambique Inception Report	June 17, 2020	

APPENDIX 3: YEAR 4 DISAGGREGATED RESULTS

This appendix contains disaggregated results for performance indicators results in Year 4. 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 ¹¹ ; Type of Institution ¹² ; Topic area; Version (draft, final); Level of influence (strong, medium, weak)	Google Forms (Quarterly)/KIs 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; Topic area; Institution; 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)
I.1	Number of technical assistance assignments and technical reports produced by WASHPaLS team (Custom) [OUTPUT]	Type of TA ¹³ ; Recipient; Country; Topic area; Status (ongoing, complete)	Google Forms and Technical Assistance Tracker (Quarterly)
I.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)

¹¹ 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.

¹² 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.

¹³ Types of technical assistance include impact evaluation, performance assessment, and other.

N°	Performance Indicator [and Type]	Disaggregation	Data Collection Method (Frequency)
2.1	Number of local partners actively participating in research activities designed and implemented by WASHPaLS (Custom) [OUTPUT]	Topic area; Type of local partner ¹⁴ ; Type of engagement ¹⁵ ; 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 ¹⁶	Google Forms and WASHPaLS Activity Reports (Quarterly)
3.1	Number of grants awarded to behavior change innovators (Custom) [OUTPUT]	Value of grant ¹⁷ ; 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)

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 4 Results	2	1	1	2	6	18
C1A: Type of Guidance	Q1	Q2	Q3	Q4	Year	To Date
Policy, Procedure or Strategy	1	1	0	1	3	11
Training Materials	1	0	1	0	2	5
Solicitation Design	0	0	0	1	1	1
Other	2	2	0	0	4	8
Subtotal	4	3	1	1	9*	18*
C1B: Institution	Q1	Q2	Q3	Q4	Year	To Date
USAID	1	1	0	1	3	5
Other Donor	0	0	0	0	0	3
Implementing Partner	1	0	1	0	2	5
Local Government	0	0	0	1	1	1
Community-based or Civil Society Organization	0	0	0	0	0	0

¹⁴ 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.

¹⁵ Types of engagement by local partners include research design, data gathering, reporting/dissemination of findings, or implementing activities based on findings

¹⁶ Types of peer-reviewed publications include: Technical report, scientific journal, conference proceedings.

¹⁷ Proposed grant tiers for disaggregation: 0 to \$100,000 USD; \$100,000 to \$250,000; and greater than \$250,000 USD.

Indicator C1	Q1	Q2	Q3	Q4	Year	To Date
Private Sector	0	0	0	0	0	0
Research Institution	0	0	0	0	0	2
Other	0	0	0	0	0	2
Subtotal	2	1	1	1	5	17
CIC: Topic Area	Q1	Q2	Q3	Q4	Year	To Date
CLTS	1	0	0	0	1	6
Sanitation Marketing	3	3	1	1	8	19
Pathways of Fecal Contamination in Infants	0	0	0	0	0	0
Hygiene Behavior Change Communication	0	0	0	1	1	1
Gender and Social Inclusion	0	0	0	0	0	0
Other	0	0	0	0	0	0
Subtotal	4	3	1	1	9*	26*
CID: Level of Influence	Q1	Q2	Q3	Q4	Year	To Date
Strong	2	2	0	1	5	9
Medium	2	0	1	1	4	6
Weak	0	0	0	0	0	8
Subtotal	4	2	1	1	8*	23*

*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 4 Results	1	0	3	0	4	18
C2a: Type of Guidance	Q1	Q2	Q3	Q4	Year	To Date
Policy, Procedure, or Strategy	1	1	0	0	2	6
Law/Regulation	0	0	0	0	0	1
Agreement	0	0	0	0	0	0
Knowledge Product	0	0	2	0	2	11
SUBTOTAL	1	1	2	0	4	18
C2B: Stage	Q1	Q2	Q3	Q4	Year	To Date
Proposed	2	1	0	0	3	15
Adopted	1	0	3	0	4	18
C2C: Location	Q1	Q2	Q3	Q4	Year	To Date
Global	1	0	2	0	3	13
Cambodia	0	0	0	0	0	2

Indicator C2	Q1	Q2	Q3	Q4	Year	To Date
Mozambique	0	0	0	0	0	1
Ghana	0	0	0	0	0	1
West and Central Africa	0	0	0	0	0	1
Uganda	0	0	0	0	0	1
Niger	0	0	1	0	1	1
Subtotal	1	0	3	0	4	20*
C2D: Level of Influence	Q1	Q2	Q3	Q4	Year	To Date
Strong	0	0	3	0	3	7
Medium	0	0	0	0	0	1
weak	1	0	0	0	1	10
Subtotal	1	0	3	0	4	18

*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 4 Results	788	541	569	27	10,425*	19,866
C3a: Modality	Q1	Q2	Q3	Q4	Year	To Date
Event	435	281	517	27	1,260	3,468
Product	353	260	52	0	665	1,964
Online Material Downloads	N/A	N/A	N/A	N/A	3,553	8,372
Blog and Webinar Views	N/A	N/A	N/A	N/A	4,947	6,062
Subtotal	788	541	569	27	10,425	19,866

*Total includes the total annual exposure numbers from online views and downloads.

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 4 Results	13	6	12	3	34	79
C5a: WASHPaLS Participation	Q1	Q2	Q3	Q4	Year	To Date
Organized	1	3	3	2	9	10
Co-organized	0	0	1	0	1	12
Presented	12	3	8	1	24	57
Subtotal	13	6	12	3	34	79
C5b: Topic Areas	Q1	Q2	Q3	Q4	Year	To Date
CLTS	6	2	6	1	15	33

Indicator C5	Q1	Q2	Q3	Q4	Year	To Date
Sanitation Marketing	1	3	3	0	7	23
Pathways of Fecal Contamination in Infants	3	2	3	2	10	22
Hygiene Behavior Change Communication	2	1	4	0	7	8
Gender and Social Inclusion	1	1	5	0	7	9
Other	0	0	0	0	0	1
Subtotal	13	9	21	3	46*	96*

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

TABLE A8: INDICATOR I.1 - NUMBER OF TECHNICAL ASSISTANCE ASSIGNMENTS AND TECHNICAL REPORTS PRODUCED BY WASHPaLS TEAM [OUTPUT]

Indicator I.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 4 Results	1	1	5	0	7	14
I.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	3
Report	0	1	2	0	3	3
Other	1	0	2	0	3	3
Subtotal	1	1	5	0	7	11
I.1b: Recipient	Q1	Q2	Q3	Q4	Year	To Date
USAID/E3	0	1	0	0	1	3
USAID/KEA	0	0	0	0	0	6
USAID/Ghana	0	0	1	0	1	1
USAID/Mozambique	0	0	0	1	1	1
USAID/DC	0	0	0	0	0	1
USAID/Ethiopia	1	0	0	0	1	1
USAID/RFS/CW	0	0	1	0	1	1
Subtotal	0	1	4	0	7	14
I.1c: Country	Q1	Q2	Q3	Q4	Year	To Date
Cambodia	0	0	1	0	1	2
Kenya	0	1	3	0	4	6
Ghana	0	0	0	0	0	1
Mozambique	0	0	0	0	0	1
Ethiopia	1	0	0	0	1	1
Global	0	0	1	0	1	3
Subtotal	1	1	5	0	7	14

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 4 Results	NA	NA	8	NA	8	8
1.2a: Country	Q1	Q2	Q3	Q4	Year	To Date
Kenya	NA	NA	NA	NA	NA	8
Ghana	NA	NA	8	NA	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 4 Results	1	0	1	0	2	26
2.1a: Research Activity	Q1	Q2	Q3	Q4	Year	To Date
CLTS (2.1.2)	0	0	0	0	0	5
ICT in CLTS (2.1.3)	0	0	0	0	0	1
Market-based Sanitation (2.2.2)	0	0	0	0	0	6
Clean Play Spaces (2.3)	0	0	0	0	0	4
Grants (3)	1	0	1	0	2	12
Subtotal	1	0	1	0	2	28
2.1b: Local Partner	Q1	Q2	Q3	Q4	Year	To Date
USAID Local Implementing Partner or Collaborating Organization	0	0	0	0	0	8
Community-based or Civil Society Organization	0	0	0	0	0	5
Private Sector	0	0	0	0	0	1
Research Institution	1	0	1	0	2	3
Local Government (National/Subnational)	0	0	0	0	0	9
Subtotal	1	0	1	0	2	26
2.1c: Engagement Level	Q1	Q2	Q3	Q4	Year	To Date
Research Design	1	0	1	0	2	9
Sharing Existing Data	0	0	0	0	0	9
Gathering Data (Primary or Secondary)	1	0	0	0	1	5
Dissemination of Results	1	0	0	0	1	5
Implementation of Activities Based on Findings	0	0	0	0	0	4
Review of Findings or Reports	0	0	1	0	1	10
Other	0	0	0	0	0	2
Subtotal	3	0	2	0	5*	44*

Indicator 2.1	Q1	Q2	Q3	Q4	Year	To Date
2.1d: Country	Q1	Q2	Q3	Q4	Year	To Date
Zambia	0	0	0	0	0	2
India	1	0	0	0	1	2
Cambodia	0	0	0	0	0	3
Nigeria	0	0	0	0	0	1
Ghana	0	0	0	0	0	3
Liberia	0	0	0	0	0	1
Ethiopia	0	0	0	0	0	7
Uganda	0	0	1	0	1	3
Philippines	0	0	0	0	0	2
Bangladesh	0	0	0	0	0	2
Subtotal	1	0	1	0	2	26*

*Greater than total results as some partners engage multiple ways and/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 4 Results	0	0	0	1	1	2
2.2a – Status	Q1	Q2	Q3	Q4	Year	To Date
Submitted	1	0	1	1	3	5
Published	0	0	0	1	1	2

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 4 Results	0	1	0	0	1	9
3.1a: Topic Area	Q1	Q2	Q3	Q4	Year	To Date
WASH-related behavior change	0	0	0	0	0	6
Pathways of Fecal Contamination in Infants	0	1	0	0	1	2
Gender in WASH	0	0	0	0	0	1
Subtotal	0	1	0	0	1	9
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	0	0	0	0	0	2
India	0	0	0	0	0	2

Indicator 3.1	Q1	Q2	Q3	Q4	Year	To Date
Uganda	0	1	0	0	1	2
Philippines	0	0	0	0	0	1
Subtotal	0	1	0	0	1	9
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	1	0	0	1	6
100,001–300,000	0	0	0	0	0	3
>300,000	0	0	0	0	0	0
Subtotal	0	1	0	0	1	9

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

Indicator 4.1	Q1	Q2	Q3	Q4	Year	To Date
Total Year 4 Results	0	2	0	0	2	8
4.1a: Type of Partner	Q1	Q2	Q3	Q4	Year	To Date
Donor	0	0	0	0	0	1
Civil Society	0	0	0	0	0	0
Implementing Partner	0	2	0	0	2	2
Private Sector	0	0	0	0	0	0
Other	0	0	0	0	0	6
Subtotal	0	2	0	0	2	7
4.1b: Level	Q1	Q2	Q3	Q4	Year	To Date
Global	0	1	0	0	1	8
National	0	1	0	0	1	1
Local	0	0	0	0	0	0
Subtotal	0	2	0	0	2	9



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