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Building Climate Resilience in Water-Stressed Communities (CREST)

AID-492-G-12-00003

FINAL REPORT

August 6, 2012 – September 30, 2017

BUILDING CLIMATE RESILIENCE IN
WATER-STRESSED COMMUNITIES (CREST)

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Contents

ABBREVIATIONS & ACRONYMS

AOR	Agreement Officer Representative
AIDFI	Alternative Indigenous Development Foundation, Inc.
ARMM	Autonomous Region of Muslim Mindanao
BGDST	Biogas Digester Septic Tank
CCF	Coca-Cola Foundation
CDF	Community Development Facilitator
COP	Chief of Party
CREST	Building Climate Resilience in Water Stressed Communities
DOLE	Department of Labor and Employment
DPM	Deputy Program Manager
ESR	Environmental Screening Report
ED	Executive Director
FOLPMI	Foundation of Our Lady of Peace Mission, Inc
GAKAI	Gala Aeta Kulihig Association Inc.
GE	Green Empowerment
JSOTF	Joint Special Operations Task Force
LGU	Local Government Unit
MNLF	Moro National Liberation Front
MOU	Memorandum of Understanding
MOA	Memorandum of Agreement
MPDC	Municipal Planning and Development Council
NFI	Nagdilaab Foundation, Inc.
OEECC	Office of Energy, Environment and Climate Change
PM	Program Manager
PMP	Project Monitoring Plan
PPA	Provincial Project Associate
PPDO	Provincial Planning Development Office
PTA	Parents Teachers Association
ROW	Right of Way
RTU	Right to Use
RWHT	Rainwater Harvesting Tank
SEC	Securities and Exchange Commission
USAID	United States Agency for International Development
USG	United States Government
WAND	Water, Agroforesty, Nutrition and Development Foundation
WASH	Water, Sanitation and Hygiene
ZAMBASULTA	Zamboanga, Basilan, Sulu, Tawi-tawi

INTRODUCTION

This document reports on the final outcomes of the project "Building Climate Resilience in Water-Stressed Communities" (CREST) under USAID grant award number AID-492-G-12-00003. This Final Report gives an account of the implementation of CREST, the results achieved, and discussions about various themes and subjects that have affected implementation and outcomes. Specifically, this Final Report covers the following:

- Background of the project
- An overview of the process of CREST program implementation
- The results that CREST has achieved based on the approved performance indicators and contribution to cross-cutting issues
- The expenditures of CREST compared to the budget, a cost – benefit ratio, and cost share
- Challenges and opportunities in sustaining the benefits derived from CREST and expanding this to other key areas

Information and data used for this final report came from the following sources:

- Project documents, including reports, activity documentation, and communications
- Internal evaluation process, which consisted of interviews conducted by the staff on site, project management review and internal year-end assessments
- An external evaluation conducted by an independent public health specialist
- Author's personal notes and observations as a participant observer, covering the entire 5 years of the project

BACKGROUND

On August 6, 2012, as part of the Development Grants Program (DGP), Green Empowerment (GE) received USAID grant award number AID-492-G-12-00003 to implement the "Building Climate Resilience in Water-Stressed Communities" (CREST) program in the Leyte and Mindanao regions of the Philippines. The CREST program aimed to improve community health and resiliency by reaching 24,000 people with improved water supply, water management, sanitation and hygiene by September 30, 2017. The program also aimed to build the capacity of GE and local partner organizations and the communities they serve to sustain and scale program impact, a central focus of the Development Grants Program.

The award has undergone four modifications. Modification 1, signed on September 25, 2014, changed the award from grant to cooperative agreement. As part of this change, Modification 1 also included notification of the substantial involvement of USAID moving forward, including the submission of annual implementation plans by Green Empowerment for USAID approval.
Modification 2, signed on September 27, 2014, extended the cooperative agreement to September 30, 2017, increased the amount of USAID funding to $1,949,979 USAID, and revised the program budget accordingly. Furthermore, Modification 2 also identified site distribution for constructions: 20 sites in the Autonomous Region in Muslim Mindanao (ARMM), 3 other sites in Mindanao (non-ARMM), 26 sites in Leyte, and 1 site in Zambales.

Modification 3, signed on March 31, 2015, provided incremental funding of $600,000 USD for a cumulative obligation of $1,400,000 USD, the revision of the budget, and updated selected Mandatory Standard Provisions and Required Applicable Provisions that were changed in December 2014.

Modification 5, signed on March 17, 2017, further realigned the budget and reduced the number of sites from 50 to 39. The final distribution of sites after all the modifications is shown in Table 1, and the budget is shown in Table 2.

Table 1. Project Site Distribution

Location	Number of Sites
Leyte	19
Autonomous Region in Muslim Mindanao (ARMM)	10
Non-ARMM Mindanao (Agusan del Sur & Zamboanga City)	9
Zambales	1
TOTAL	39

Table 2. Final Approved Budget after Modification	
Budget Item	Allocated Budget (USD)
Personnel	$585,741
Fringe	$36,574
Travel	$142,980
Construction	$924,341
Training	$32,061
Other Direct Costs	$60,211
Total Direct Costs	$1,781,908
Indirect Costs	$168,071
TOTAL USAID	$1,949,979
Cost Share	$391,323
TOTAL PROGRAM	$2,341,302

On March 25, 2015, in compliance with the modification of the grant agreement, GE submitted the revised Monitoring and Implementation plan (Annex 6) that adjusted the CREST performance indicators and changed the targets to reflect the increased number of beneficiaries (Table 3). Targets for these indicators remained despite the reduction in geographic sites under Modification 5.

Table 3. Changes to CREST Indicators		
CREST Indicators	**Original GA**	**Modified**
Number of people with access to improved water source	15,000	24,000
Water quality	100%	100%
Number of people with access to improved sanitation	N/A	10,000
Number of people trained in water and sanitation construction, O&M, administration, and/or management	380	450
Number of people reached with WASH education	380	975
Number of new management practices or skills acquired by CREST staff or partners	380	240

PROGRAM IMPLEMENTATION

Program Planning Process

The implementation of CREST started off with an orientation for the implementing team. From Oregon, Program and Development Manager Dexter Gauntlett, Program Director Emily Green, and Finance Manager Amy Reaney attended the orientation. USAID was represented by AOR En Gallardo and alternate AOR Joanne Dulce. The Philippines-based team included staff from Green Empowerment, as well as staff from local partner organizations: Alternative Indigenous Development Foundation, Inc. (AIDFI), PCWS, PASALI and NAFSWELI. USAID oriented everyone about their policies regarding funding and requirements around implementation and reporting. The Green Empowerment Program and Development Manager provided an overview of the project, while the Finance Manager oriented the staff about financial policies and reporting.

A planning workshop was conducted, including risk assessment and management components (see Annex 3). Some of the mitigation measure that were identified as essential was to gather information about potential risks from local contacts and networks, and include risk identification and assessment in baseline surveys community profiles before beginning project implementation in any community.

Three (3) of the identified risks were internal to Green Empowerment. Internal organizational risks were particularly significant during the early stages of a project, when staff may still be unfamiliar with each other, the program, and to the organization. The risk of misunderstanding is high at that point as concepts and tools may have different interpretations. A key mitigation measure in this regard was for the team to get to know each other, conduct exercises to ensure shared understandings of concepts, tools, and strategies.

Project Sites

Project sites refer to villages or barangays where the local population directly benefitted from the project. When the project started, there were no pre-identified implementation sites; the target area had only been narrowed down to eight municipalities in Leyte Province, as well as ARMM and non-ARMM areas in Mindanao. Specific target sites had to be identified and selected within these provinces and municipalities. For ARMM, the team selected the islands of Basilan, Sulu and Tawi-tawi. Agusan del Sur was selected for the non-ARMM Mindanao province. These provinces were selected because partner organization PCWS already had a presence in Tawi-tawi and GE Philippines Program Manager a contact in Agusan del Sur making the introduction into the new communities easier. Zambales was added in response to a request for assistance by a non-governmental organization to provide water and sanitation services to a remote Aeta Indigenous Peoples community.

On-site Implementation Process

Site identification and selection. Implementation began with site identification and selection. In this stage, the CREST project was presented to local government units (LGUs) and local civil society organizations (CSOs) to solicit recommendations for sites that should be included in the project. Levels of LGUs varied depending on the initial contacts. In Agusan del Sur, the project was first presented to the provincial government, followed with a presentation to municipal LGUs and CSOs. In Leyte province, presentations were made to the municipal LGUs which in turn called for a meeting of barangay chairpersons where the project was also presented. In other sites, presentations were first made to the barangays. The CREST project was also presented at USAID events in the Philippines. The presentations resulted in identification of potential sites as recommended by participants. Once identified as potential sites for implementation, the communities were visited by the CREST team, starting with a meeting with the barangay council and later followed by a technical inspection and study of the water source and the community. A site was selected as suitable for inclusion into the project once the water source was deemed sufficient and construction of a water system at the site was found to be technically feasible.

Site preparation. Site preparation began with the CREST team holding meetings with the beneficiary communities to orient them about the project, inlcuding the requirements and commitments for participation. Among these requirements were legal permission from landowners to build on, use, and protect the sites for the water sources, reservoirs and filtration tanks, tap stands and pipelines. The barangay LGUs were also requested to provide counterpart support in the form of labor contributions (e.g. hauling of materials). Municipal and local governments were also asked to contribute materials and use of their trucks for hauling. For the sanitation facilities, able residents were required to commit labor for the hauling of materials and construction of their respective toilets. Environmental screening reports and Environmental Mitigation and Monitoring Plans, requirements of USAID, were also prepared to assess the impact of the project on the natural and social environment and to identify mitigation measures. Other activities included in the site preparation stage were the canvassing and procurement of construction materials.

Community mobilization. In addition to the site preparation for the construction of the systems, the CREST team provided community organizing support to make sure the local leadership was prepared to manage the project before implementation and post turnover. This process is critical to ensure effective management of systems; protect natural resources, particularly the local watershed; and encourage local government units (LGUs) to draft and enact relevant ordinances supporting these measures.

Technical study in Brgy. Tabgas, Albuera, Leyte

Zambales technical study

Pre-construction meeting in Sto Nino, Leyte with Brgy. Chairperson, council and residents

Community meeting in Talipao, Sulu

Implementation. The defining activity in the implementation stage was the actual construction and installation of water systems and sanitation facilities. WASH education activities involving local health workers, teachers, and students were conducted toward the end of this stage. Technician trainings were conducted simultaneously with the actual construction to provide hands-on education in construction and installation as well as operation and maintenance.

Green Empowerment Provincial Associate for Leyte, Rocky Peteros, kneels in front of a newly completed water reservoir in Brgy. President Garcia, Matalom, Leyte.

A completed water tank in Brgy. Sto. Niño, Hilongos, Leyte, after the community has decorated it.

A ribbon-cutting ceremony during the official turnover of the water system to the community in Brgy. Policarpo, Zambales.

Monitoring and evaluation. M&E activities were ongoing during all the stages at different levels of management, but monitoring was most frequent during the implementation phase. Progress of construction and levels and effectiveness of community participation were closely monitored in the field, and performance indicators were tracked quarterly.

Turnover. Once construction at a given site was completed, the water system, sanitation facilities and other infrastructure were formally turned over to the community through a legal instrument, usually taking the form of a Deed of Donation and Transfer of Rights to either the Barangay LGU or a water association that the project helped establish to manage the new water system moving forward. Turnover ceremonies were usually festive affairs, celebrating a milestone where communities prepare sumptuous food.

Table 4: Implementation Process

Stages	Description	Results
Site identification and selection	Project presentation w/call for sites that need water systems through meetings w/LGUs and local CSOs Meetings with Associations of Barangay Captains Site visits and initial technical inspections / studies of water sources	Sites identified and selected
Site preparation and community mobilization	Community orientations Preparation of legal documents –Right to Use and Right of Way Environmental Screening Reports Community profiling Sanitation planning Partnership building & delineation of roles, expectations, and counterpart support Canvass and procurement of materials	Sites ready for installation of water systems and sanitation facilities
Implementation	Mobilization of installation teams Actual construction and installation Training, capacity building, and WASH promotion M&E	Installation of water systems and sanitation facilities completed
Evaluation	Inspection of installed water systems and sanitation facilities	Facilities are ready for turnover to the community
Turnover	Formal ceremony and signing of Deed of Assignments	Water systems and sanitation facilities turned over to the community

Environmental Compliance

The project complied with all relevant USAID environmental regulations, identifying potential environmental impacts and adopting appropriate environmental safeguards for all activities through environmental screening reports (ESRs). The ESRs were prepared and approved by USAID before construction of water systems and sanitation facilities.

The constructions themselves were small in size and posed low risk to the surrounding environment. The project did not involve construction of high rise structures or use of heavy equipment or hazardous materials. The construction only required the use of small plots of land ranging from one (1) sq. meter for the catchment tank to twelve (12) sq. meters for reservoirs. The highest structure was only about 2 to 3 meters tall.

The environmental impacts identified are low risk and short term. Among these are soil erosion, generation of hazards and barriers, and increased noise levels. The Environmental Mitigation and Monitoring Plan (EMMP) included in the ESRs minimized or eliminated the risks and prevented accidents from occurring during the construction and other related activities.

Risk Management

Project implementation is not without risk. Among the significant risks that the project encountered were:

Conflicting claims of land ownership. Although right to use agreements with landowners were acquired during the site preparation stage, there were situations when after securing the right to use agreement, another person stepped forward claiming the ownership of the land and demanding a stop to the construction. In one site in Leyte, the new claimant demanded either payment for the use of his land or employment in the project. Having the blessing and cooperation of the Barangay LGUs turned out to be crucial in mitigating these issues, as they would usually intervene. In the case in Leyte, the municipal mayor talked to the claimant and resolved the issue. In another case, the BLGU produced documents that clarified the ownership of the land. In another case in Leyte, the BLGU sought the help of the municipal mayor, who in turn bought the right to the water source from the claimant.

Changes in water source resulting in redesign. There were also situations caused by natural disasters or shifting climate patterns when the water source that was originally chosen for a project dried up or the yield significantly reduced when construction was about to start. This required the team to look for other sources, consequently changing the entire design of the water systems. For example, in one case in Leyte, the original ram pump-powered water system was changed to a gravity-powered system when the original spring source dried up. In Balit, Agusan del Sur, the water yield of the spring source was greatly reduced when the construction was about to start. The community had previously attested that the source was stable and had never dried or shown a reduction in yield before. Although the reduced water yield was attributed to an unusually long dry season, some locals believed that the spirits that inhabit the water source were disturbed during the construction. In another case in Leyte, Typhoon Haiyan altered the course and depth of the river that was to be the source of water. As a result, the ram pump system had to be

Diversion canal for Tombo ram pump damaged by Typhoon Haiyan

changed to a solar-powered pump system.

Community interest is lacking or not sustained. Although community interest in the project during initial meetings for all sites was expressed, there were cases when the community interest waned during implementation. This was revealed in the difficulty in mobilizing community members to support construction activities, including some instances in which residents tried to demand payment for their participation. In extreme cases, for example in Taguite, Zamboanga City, the installation only went as far as completing the water system. Installation of sanitation facilities was aborted. The decision was made after locally hired workers carrying firearms demanded payment for their wages in the middle of the night, although they had previously agreed upon a schedule for payment that was just 2 days ahead. Ultimately, activities in the community were cut short by the indication that the project staff were no longer safe.

Governance of facilities: water associations or BLGUs. The new water systems at each site were initially planned to be managed by a locally-elected water association in each beneficiary community. However, following consultations with several communities, this role was later opened to BLGU-led groups in some sites on a case-by-case basis. While the original design of the project favored community-led, non-governmental management arrangements, some communities argued in favor of BLGU-run and -managed water systems. The basis of their argument was that BLGUs are permanent government organizations with a mandate to provide the community with access to basic services, including access to potable water. In addition, government authorities have the power to enact ordinances regarding water, sanitation, and natural resource protection, and the coercive power to enforce such ordinances. Furthermore, the BLGU as a government organization is accountable to the community and obligated to be transparent. As a result, when a community expressed a strong preference for a CREST system to be overseen and managed by the local Barangay LGU instead of a separate association, such requests were accommodated.

Working in conflict-affected areas of Mindanao. The risk in working in conflict-affected areas of Mindanao is very serious, as it involves the safety and lives of staff. Hiring local staff and having a strong and supportive local network was a big help in mitigating these risks. The timely and detailed security updates and advisories from USAID also provided useful information that aided travel planning. In one site in Sulu, project work was only able to continue until 3:00 PM, and a unit of the Philippines Marines had to escort the installation team during construction to ensure their safety. Unfortunately, the risk to the new infrastructure extends beyond the life of the project. In Sulu, two water systems were damaged by the Abu Sayaf Group (ASG) after the projects were completed. In another site, major repairs could not be done due to the presence of the ASG and an ongoing clan war.

Meeting MNLF prior to implementing CREST in their territory with US JSOTF and Philippines Marines in Brgy. Masola, Isabela City, Basilan

Conducting technical survey of the water source in Brgy. Masola with MNLF fighters, Philippines Marines and US forces

Disaster and Natural Calamities. Among the natural calamities that affected the project were the Super Typhoon Haiyan (November 2013) and an earthquake in Leyte (July 2017). In the case of the typhoon, the project properties were damaged, forcing a delay of a year, and the design of one water system had to be altered. The earthquake damaged the main distribution line in the Lake Danao, Leyte site.

Site appraisal in Sulu with USAID and US Military, AIDFI and Philippines Marines

GE team w/military escort in Basilan

Lake Danao water system damage by earthquake

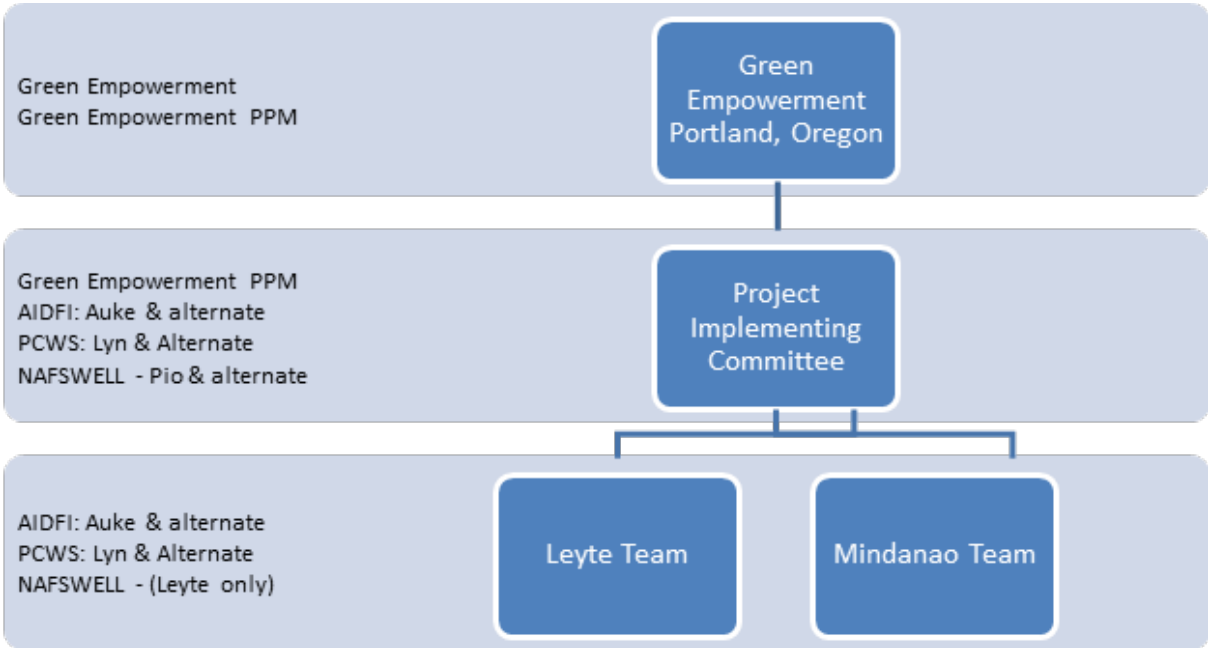
Organization and Management

The project started with only one Philippines-based staff member, directly hired by Green Empowerment and designated as Program Manager. The rest of the team consisted of several sub-grantee NGO partners: the Alternative Indigenous Development Foundation Inc. (AIDFI), responsible for the installation of hydraulic ram pump water systems; and the Philippines Center for Water and Sanitation (PCWS), for the installation of sanitation facilities. Under AIDFI's sub-grant were also included several of their NGO partners: NAFSWEL foundation (for Visayas sites) and PASALI foundation (for Mindanao.)

The Project Implementing Committee (PIC) included all of the organizations listed above, and was responsible for planning and coordinating implementation, sharing experience and knowledge, and building capacity in the implementing teams. Policies, systems and procedures were formulated by the PIC to facilitate and systemize implementation, communication and coordination. Operating under the direction of the PIC were two teams – the Leyte Team and the Mindanao Team – who were responsible for implementing the project in their respective areas. The Leyte team is composed of AIDFI, PCWS, and NAFSWELL while the Mindanao team is composed of AIDFI, PCWS, and PASALI (see Fig. 1).

Figure 1. CREST Organizational Structure 2012 - 2014

In the course of program implementation, the management structure evolved to changing circumstances. The partnerships with AIDFI and PCWS were terminated. AIDFI pulled out of the project as a partner due to disagreements with USAID and Green Empowerment over policies and project requirements. In the case of PCWS, Green Empowerment terminated the partnership as a result of significant and numerous concerns



over the quality of project implementation, challenges which were ultimately judged to be insurmountable. Likewise, AIDFI terminated its partnership with PASALI and Nafswell due to political differences. However, AIDFI continued to be involved throughout the duration of the project on a contract basis as a supplier of ram pump technology.

The changes in the CREST management structure required Green Empowerment to hire additional staff to implement the project directly. This team was composed of the Program Manager, the Deputy Program Manager, Finance and Admin Manager and the WASH Technology Officer. Provincial Program Officers were also engaged to coordinate program activities from on-site, except in Agusan Del Sur. The Provincial Program Officers worked with community partners, mostly local government authorities such as LGUs.

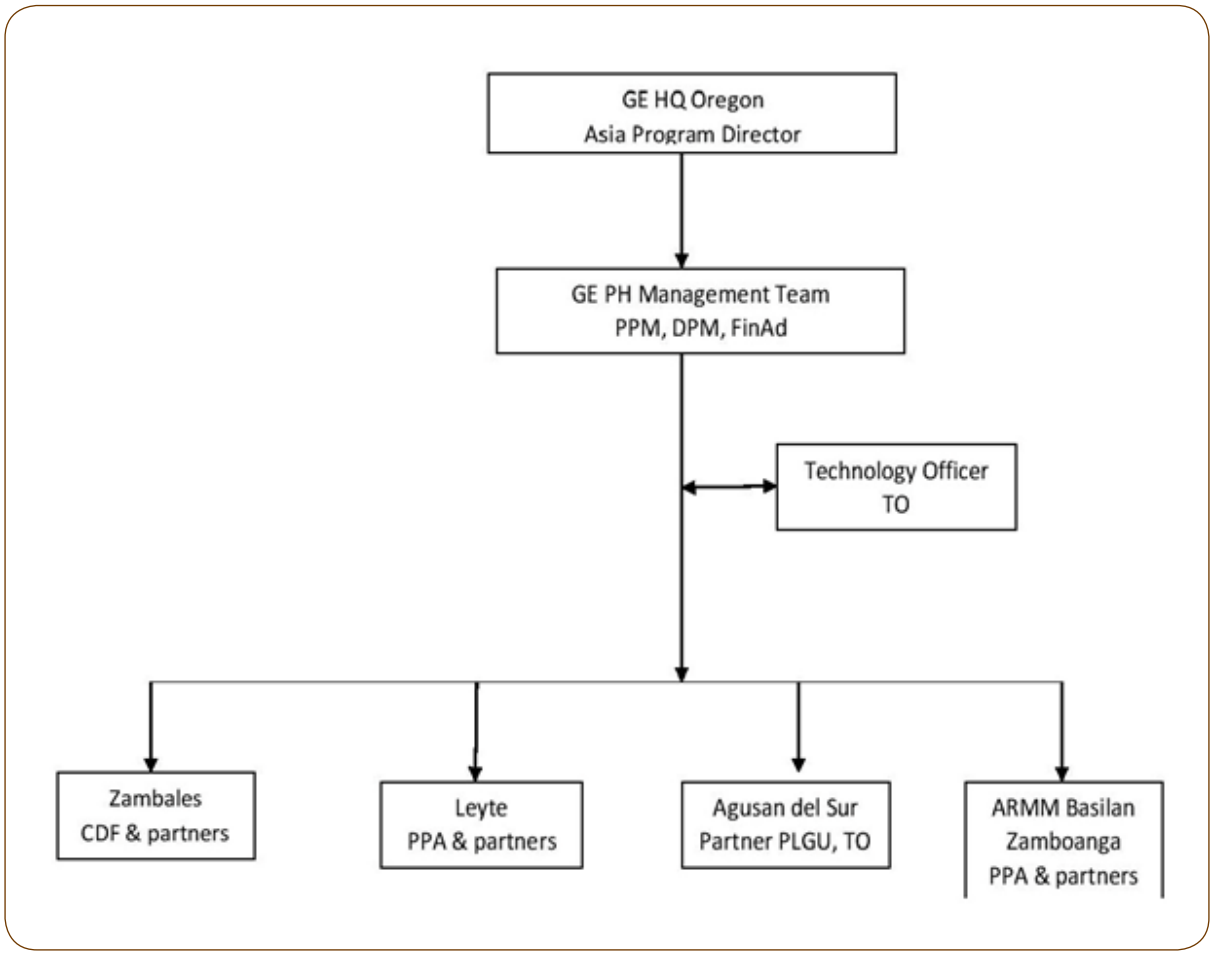
The WASH Technology Officer supervised the installation and construction of water systems and sanitation facilities by conducting technical studies and overseeing construction. The diagram below illustrates the organizational structure of CREST project beginning in 2014 and throughout the remainder of the project's duration (see Fig. 2).

Above the Philippines-based management team is Green Empowerment headquarters in Oregon, USA, which provided oversight and strategic guidance and direction in addition to other operational support like report preparation and financial management.

Figure 2. CREST Organizational Structure 2014 - 2017

Organizational Processes and Activities

Assessment and planning. Assessment and planning were regularly conducted twice every year. Near the end of each year an internal year-end assessment was conducted, followed by annual planning for the upcoming year of the project. In between these annual activities were midterm assessments and planning. The purpose of the assessment was to determine the progress of the project and to identify any ongoing or upcoming risks with accompanying mitigation strategies. These activities were attended by all GE Philippines-based staff.



Monitoring and evaluation. Monitoring and evaluation took place throughout all stages of the project. Activity schedules were frequently monitored to prevent delays, and obstacles were brought to the attention of the appropriate level of management as soon as possible to ensure that they were addressed in a timely fashion. Performance indicators were tracked quarterly. Project finances and expenditures were also closely monitored by the Finance and Administration Manager throughout the implementation phase to ensure efficient and transparent use of funds.

Beneficiary Testimonial: Leonista Baclay, Area Leader

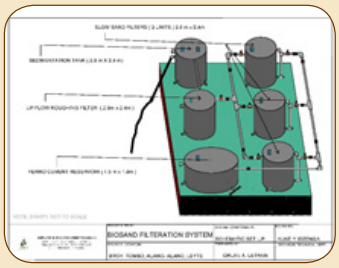
The project improves the health of our community. Before the arrival of Green Empowerment here in Sitio Gala, we used to defecate anywhere and everywhere as long as we can cover ourselves. Since water is a big problem here, we used dry leaves, paper or bark of woods to clean after.

In 2011, toilets were built at the community, however there are only 2 toilets per phase [area] and we have to share it among ourselves. In the morning, there is a line for those who wants to use the toilet and because we have no regular source of water, we were not able to maintain the toilet, later on we stop using it. These toilets are no longer working, some used it for storage, others as goat house.

We are very thankful for the water system and the toilets, now our children, especially the girls can take a bath in a covered place. When we were kids, we only take a bath at the river, the problem is when there is heavy rains-flood, men, women, boys, girls, were in the same spot in the river, there is no privacy at all. We have to walk home from the river wet as it is difficult to change clothes due to lack of privacy.

Being one of the collector for the water association (Gala Aeta Water Association, GAWA), I am proud and happy to have my share in making this water system a success. A 20 pesos per month collection is a small amount compared to the difficulties that we've been through when we have no water.

We do encountered problems related to the water system and sanitation every now and then, like when one of the major pipe was damaged by a tree during heavy rains, when we have no water for almost 2 days-but we were able to resolve the problem on our own. •



Risk Management
The case in Brgy. Tombo, Alang-alang, Leyte

The ram pump installation in Tombo proved to be a daunting challenge, as it involved management of risks and adoption of new technologies and strategies. Following the advice of the municipal LGU, CREST sourced its water from the river. To address the e-coli contamination and deliver safe water, a community-level filtration system was designed by scaling up household model filtration systems. When the ram pump installation was almost completed, Super Typhoon Yolanda / Haiyan struck the province of Leyte and destroyed the diversion canal from the river. The level of the river bed dropped by 3 meters and changed its course farther away from the ram pump.

While preparing a new design for water diversion, the project team also pursued construction of the filtration system until it was completed. This design would extract water from the river by building a weir upstream to compensate for the loss in elevation and a new diversion canal. Further risk analysis, however, showed that the weir and the diversion canal in the riverbank would be vulnerable to another typhoon or flooding. Consequently, the strategy of sourcing water from the river was determined to no longer be feasible due to high vulnerability to climate change.

The next design was to extract water from a creek and relocate the ram pump. Upon validation of the design and the water source, however, empty bottles of pesticide were found near the creek, indicating chemical contamination. The newly completed filtration system, while sufficient for typical filtration needs of the community, was not capable of filtering toxic chemicals.

In December 2014, following an assessment of all identified options, the CREST team opted to use a solar system to address the challenges of this site. From January to March 2015 negotiations were made with One Renewable Energy Enterprise Inc. (OREE), followed by a series of activities: conduct of a technical study and preparations of legal documents, conduct of community consultations, and mobilization of construction materials and labor. Actual construction started in September 2015 and was completed in December of the same year. •

RESULTS

Performance Indicators

Based on the revised March 2015 Monitoring Plan, GE has exceeded the targets for five out of the six performance indicators (see Table 5). For example, the target for people reached with WASH education was 975 people. By the end of the project, 2,573 people were reached, exceeding the target by an additional 163.73%. Regarding the number of people with access to improved sanitation, the number achieved was nearly double the target. The target for the number of people receiving access to an improved water source was also exceeded by 63.73%. Unfortunately, full data for the water quality indicator was unable to be collected and analyzed for all of the sites at the end of the project.

Table 5. Performance Indicator Accomplishment

Performance Indicators	End of Project Targets	TOTAL End of Project	Percent
Number of people with access to improved water source	24,000	39,294	163.73
Water quality (number of sites testing negative for the presence of e-coli)	100% (39)	N/A*	N/A*
Number of people with access to improved sanitation	10,000	19,682	196.82
Number of people trained in water and sanitation construction, O&M, administration, and/or management	450	700	155.56
Number of people reached with WASH education	975	2,573	263.90
Number of new management practices or skills acquired by CREST staff or partners	240	310	129.17

*See "Water Quality" section below for additional explanation.

Access to Improved Water Source

In addition to the performance indicators, the project also exceeded the target number of sites with access to improved water sources – from 39 sites to 41 sites (see Table 6). The two additional sites in Agusan del Sur and Zamboanga contributed significantly to the increased number of beneficiaries. In the case of Agusan del Sur, a neighboring village that shared the same water source with the Sitio Guitas site requested the installation of a filtration tank for their existing system. In the case of Zamboanga, GE made the decision to build two separate systems for the community with separate water sources and reservoirs, as it was determined that the original water source would not enough to supply the entire barangay on its own.

Young women walk long distances to fetch water from the spring in Maligue, Basilan

Women fetching water from the spring while construction of the impounding tank is ongoing

The external evaluation report and other sources also cited benefits beyond the numbers:

- Easy accessibility to water - Considering the topography, many residents in the project site expressed appreciation of having easier access to a water supply compared to their previous means of getting water. Before CREST, most households had to walk long distances to fetch water from streams or other sources, and carry heavy containers back to their homes for use. Others had to purchase jugs of water from stores, sometimes requiring travel to other communities. The technology utilized in the CREST project made such trips unnecessary, as it could effectively convey potable water from lower elevation sources to upland communities. In project sites where the water source is located in higher elevation than the community, distribution pipelines and water reservoirs provided water supply by gravity to tap stands near the households.
- Assurance that water is fit to drink - Improvement and protection of water sources, including the provision of water filtration systems in some sites, helps to ensure that community domestic water supplies are safe and potable. In interviews conducted for the external evaluation, residents noted the difference this had made in their health. In a site in Zambales, for example, beneficiaries expressed that since the community began using the water system, they don't feel stomach rumblings in the evening. Health workers also attested to the significant reduction of diarrhea and other waterborne diseases. Although some sites did not pass the water quality testing, there have been no reports of any outbreaks of diarrhea in project sites.
- Saved funds from purchasing water - Some communities reported purchasing jugs of water as their primary water source prior to the project. Increased access to a local water supply enables them to save money and use it for other basic needs of the family. For example, at an average of PHP 10/day/person spent on buying water for drinking and cooking, a family of five saves the amount of PHP 1,500 ($30 USD) per month. Though this is a relatively small amount in US dollars, with an average monthly income of PHP 6,000 per month for a farming family, the amount saved is equivalent to 25% of monthly income. That amount is enough to buy a month's supply of rice, the staple food of Filipinos. In addition, the time saved by no longer needing to fetch water can now be used for other productive activities by the adults, and allows more time for children to study and play. Further savings come from families having to spend less on medicines for waterborne diseases, which are now less prevalent due to increased access to clean water and improved sanitation.

- Maintain personal hygiene – The availability of water enabled members of the family, especially the females, to maintain personal hygiene regularly and privately.
- Ease in performing household chores, especially laundry and cooking - Mothers who traditionally perform basic household chores experience comfort and save time in undertaking laundry, cooking and cleaning tasks. Mothers also reported having more time in serving the other needs of the children and family.

Access to Improved Sanitation

The 96.82% increase in the sanitation indicator result beyond the target was possible due to a shift in program strategy. At the start of the project, communal and demo toilets were planned to be installed. However, after observing and learning, the program team decided that in order to make a significant impact in the area of improving sanitation and hygiene in the beneficiary communities, the objective needed to be zero open defecation. To accomplish this, instead of just providing a few toilets in each site, the project target shifted to providing "a toilet in every home". The target number of sites for this project component was also exceeded, from 39 projected sites to 40 total sites (see Table 6).

In the absence of toilets or latrines, open defecation is practiced in most rural communities supported by CREST. Building just a few communal or shared toilets in each community does not make much impact, is not gender sensitive, and is far less sustainable as a strategy for accomplishing hygiene-related behavioral changes. According to beneficiaries, teachers, and LGU officials, the "toilet in every home" approach significantly reduced the practice of open defecation in CREST beneficiary communities. Furthermore, unlike before CREST when women had to endure the embarrassment and risk of exposing themselves by defecating and bathing in the open, women have now reported feeling safer and more empowered with the control of their own toilets.

Table 6. Water System and Sanitations Facilities Completed

Province	Target # Sites	# Sites w/ completed water system	# Sites w/completed sanitation facilities
Leyte	19	19	19
ARMM	10	10	11
Zamboanga City	4	5	4
Agusan del Sur	5	6	5
Zambales	1	1	1
TOTAL	39	41	40

Gender segregated twin cubicle toilet with handwashing facility at Sto Nino school in Leyte

Household sanitation facility in Alegria, Bato, Leyte

The toilets in schools and daycare centers also increased the number of beneficiaries. Although not a particular target, the GE CREST team realized that if people were to be trained in proper sanitation and hygiene, the education should focus on children as a way to ensure that such knowledge and practices are passed down to future generations, and schools are the best place to reach them. Teachers also pointed out that for female high school students, the toilets were a way to reduce absenteeism when girls were menstruating.

Water Quality Testing

Data for the water quality test performance indicator is incomplete, providing only a partial picture. At each site that was tested, samples were taken from the nearest and the farthest tap stands from the reservoir. 3M E-coli / Coliform Petri film test kits were used.

Of the 41 water sites, only 20 sites were successfully tested at the end of the project. For the other 21 sites, tests were either not conducted or the results of tests were invalid (Table 7).
Of the 20 sites successfully tested at the end of the project, 14 sites were negative of E-coli, three were positive and three had mixed results or one of the two samples was positive. Most of the sites with E-coli bacteria were suspected to have been caused by cracks and leaks in the distribution pipeline. In the case of Maljo in Leyte, after the new system was turned over to the community, they connected water from the old reservoir directly into the CREST constructed reservoir instead of to the filtration tank, against the advice of the CREST team and without their knowledge.

Tests in 21 sites were either invalid or not conducted for various reasons (see Annex 8). Two sites were still under construction at the time of testing. Ten of the sites are in the conflict-affected ARMM areas of Mindanao, five of which were no longer functioning (largely due to damages from armed groups) while the other five were inaccessible due to safety and security concerns during the conduct of the water quality testing. In Leyte, water quality tests were not conducted in six sites as these were under repair during the testing period. (These systems suffered from minor pipe leaks, which GE was in the process of helping the communities to repair.) In the case of

Table 7. Water Quality Test Result

Site Distribution	# Sites	E-coli Negative	E-coli Mixed Result (50/50)	E-coli Positive	No test conducted or test conducted but w/ invalid results
Location					
Leyte	19	10	2	1	6
ARMM	10				10
Zamboanga City	5	1	1	2	1
Agusan del Sur	6	2			4
Zambales	1	1			
TOTAL	41	14	3	3	21

Water quality test in Tabgas

Water quality test in Imelda, Bato, Leyte

the three invalid tests, testing was conducted but the results were unclear because the samples were contaminated, or the test was not properly handled, or the kit used had some defect. The water quality tests in Leyte were done during rainy weather, which may have affected the results. However, all results were conveyed to the water associations and barangay LGUs at each site for further follow up. Those found to be E-coli positive and those with invalid results were advised to seek the help of the municipal government to do confirmation testing and to inform consumers about the risk. There were no reported outbreaks of diarrhea in any of the sites.

Education and Capacity Building

One of the biggest areas of accomplishment for the CREST project is in disseminating water, sanitation and hygiene (WASH) education. While the target was reaching 975 people with WASH education, the actual achievement of CREST was far greater at 2,573 people, or 163.9% above target. This increase is largely due to targeting school children. To further increase the effectiveness of the training, WASH promotion materials such as poster and stickers (Annex 9) were posted in schools and households, and hygiene kits were distributed to children. The WASH education component consisted of the following activities:

- WASH Promotion and Planning Workshops: The main topics discussed in this education activity were the interconnection of WASH to community health and the natural environment, the pathways of contamination (F-diagram), protecting water sources from contamination, handwashing, and best practices in sanitation and hygiene. The last part of the activity is a planning workshop on how the participants will promote WASH in their communities. Participants are school teachers, barangay health workers, members of the water association, and BLGU officials. The project funded up to Php 5,000 for the implementation of the resulting WASH promotion plans of the teachers and the barangay health workers. The teachers' plan targets school children, while the health workers' plan targets the households, families, and women of their communities. Some teachers' plans included giving out hygiene kits to children. The WASH promotion for children conducted by teachers increased the number of beneficiaries of WASH education (see Annex 10).

WASH Promotion for Children through Storytelling: Another activity that boosted the impact of WASH promotion and further widened the pool of beneficiaries was storytelling that highlighted the value of sanitation and hygiene to school children. This activity included reading books to classes, handwashing demonstrations and practice, and poster making. Books used in the storytelling were left with the school library, teachers and school children for future use (see Annex 7).

Promoting WASH to school children

Teaching proper handwashing to school children

700 people, or 55.56% more than the target of 450 people, received training in water and sanitation construction, operations and maintenance (O&M), administration, and/or management. The training provided consisted of the following:

- On-the-job training on water system and sanitation facility construction, where local residents are trained on how to construct and repair the new infrastructure. Tools for this work are given to technicians for future use.
- Sustainability Analysis and Planning Workshop: This activity was conducted during the last quarter of CREST and attended by WASH management bodies coming from LGUs, teachers, and water associations. The activity includes a seminar on the sustainability of WASH projects, a workshop analyzing the sustainability and vulnerabilities of the CREST project at each site, and action planning (Annex 5). Result of the workshop is discussed in the next section.

For organizational capacity building, staff attended the following trainings:

- USAID training on environmental compliance
- Training on participatory project management from the University of the Philippines
- Training on solar power
- Construction hazard and safety management training
- Training on managing USAID grants and cooperative agreements

CREST Impacts on Cross-Cutting Thematic Issues

Addressing the Concerns of Women and Children

The water systems and household toilets have greatly impacted women. The improved access to clean water significantly reduced the burden on women in fetching water and caring for children sick with waterborne diseases. Women are also empowered by having their own toilets right in their homes, freeing them from the risk and humiliation of open defecation. According to teachers, school absences of girls during their menstruation period has been significantly reduced because of gender segregated toilets and access to water in schools. For one site, feminine hygiene was included in WASH education and promotion. Feedback from this site was positive, indicating that future WASH projects should always include educational components addressing feminine hygiene.

Children were also significantly impacted. In interviews and focus groups conducted during the independent evaluation, beneficiaries with children noted that time that children had previously been spent fetching water is now used for study and play. The toilets and handwashing stations in schools and daycare centers plus the training of teachers in WASH promotion have ensured that the children of the beneficiary communities learn the value of clean water and proper sanitation and hygiene practices early, and that the learning is reinforced regularly. Teachers have observed that since the water system and sanitation facilities were installed, children come to class smelling and looking clean. The toilets at home have also helped the children to avoid risking snake and animal bites, a significant danger when open defecation was the only option. Incidence of waterborne diseases, which affect children the most, was also observed to have declined.

Tree planting at the water source in Basilan with Dani Newcombe of USAID

Tree planting at Basilan water source with Philippines Army soldier

Environmental Protection

The CREST project has also contributed to protecting the natural environment. It utilized renewable energy to power water systems instead of traditional grid-connected or diesel-powered pumps, thereby reducing carbon emissions. Tree planting around the water sources was also done at some sites, and some Barangay LGUs have banned tree cutting in the watershed area. In general, WASH projects like CREST have significant potential in promoting environmental protection. For example, future WASH projects could require local governments to enact and enforce local legislation or ordinances regarding environmental protection and conservation in exchange for water system and sanitation facilities. Because these water systems rely on the health of the local watersheds for optimal functioning, the beneficiary communities would have a strong motivation to protect the natural environment in order to maintain their water access.

Technological Innovation

Household biosand filter

Scaled-up biosand filter beside the reservoir

One of the biggest challenges CREST encountered was how to provide access to clean water to communities whose only source of water is surface water. One option that was considered was to provide each household with a biosand filter. However, this option was determined to be unsustainable as a long-term solution, as biosand filters require consistent maintenance in order to remain effective, and most people tend to use it only for a short period time before letting the maintenance lapse. A more effective and sustainable alternative was to scale-up the biosand filter to the community level and locate it at the source or reservoir, so that only clean water flows in to the reservoir and flows out of the individual tap stands. This was judged to be a suitable solution, as such regular maintenance on the water system was already included in the responsibilities of the water associations/BLGUs and the local technicians. Throughout the CREST project, this innovation was continually being improved. For example, in Agusan del Sur, a filtration chamber was added to the impounding tank at the water source. With this innovation, a lot of communities with surface water as only source have better opportunities to access clean water, despite surface contaminants.

Election of officers of Hampangan water association in Leyte

Water management officers attended the sustainability seminar workshop

Community Organization

Training and support in strengthening community organization and leadership was also a key part of the CREST project. Each community that received a new water system also received training, guidance, and assistance in setting up and implementing a fair and sustainable tariff system to collect funds from households for water use, managed by a community-elected water committee. Collected funds are used to pay local technicians to maintain the systems, to cover the cost of any needed repairs, and to reinvest in other community projects. The leadership, management and organizing skills developed within beneficiary communities as a result of participating in this process provide a useful foundation to address other challenges.

Overall Effectiveness- Results of the External Evaluation

Based on the findings of the external independent evaluation, improvements in community health and hygiene in the project sites have been achieved and the implementation arrangements were effective. Collaboration with local partners like LGUs and networks were supportive of project activities and processes. Project sites included in the evaluation were observed as geographically inaccessible and depressed areas (GIDA), where typical government WASH projects would be difficult to include due to its geographic location. The CREST project was instrumental in providing these areas with basic WASH interventions, including access to clean water, and successfully demonstrated its importance and benefits to the people and leaders in the community.

Water and sanitation technologies such as ram pumps, water filtration, rainwater collection tanks, handwashing facilities and pour flush toilets used in the project were found to be appropriate and acceptable to the community.
Since the implementation of the project, beneficiaries have been utilizing the WASH interventions provided in the communities. Although most of them use the level 2 potable water systems provided by the project, some households that are located in remote outskirts of the barangays still use other sources of water.

Beneficiaries report regular use of the toilet facilities in their households. Most are now accustomed to using the facilities and hygiene and sanitation practices. However, there are still few who refuse due to old habits and customs.

WASH training and hygiene promotion activities have been reported by beneficiaries as effective. As a result of the training, they have learned best practices handwashing, use of toilets, and the importance of personal hygiene and cleanliness of surroundings, and they report incorporating this knowledge into their daily lives. Improvement in community health was observed by all respondents as a result of the project. The people generally have reported being healthier, citing a decrease in the number of diarrhea cases, skin infections, and other WASH-related diseases.

A challenge identified for the CREST project is in terms of operation and maintenance. Some community and school WASH facilities were observed to be non-functional due to poor maintenance and repair. If these facilities are not maintained by the communities, the initial gains of the project in terms of behavior change and health improvement cannot not be sustained. Another challenge lies in the required periodic cleaning of filtration tanks, when trained local operators must go inside the tanks to manually clean the sand filter. Though necessary, if not done with proper care this procedure may introduce a risk of contamination of the filter media and the water that passes through it.

Result of the Sustainability Analysis and Planning Workshop

In the sustainability analysis and planning workshop conducted towards the end of the project, thirty water systems out of the forty-one were self-rated as sustainable at different levels (levels 1, 2, and 3). Of the forty-one, eight systems were rated as unsustainable, six of which have completely

Table 8. Levels of Sustainability of CREST Water Systems							
Sites	Level 1	Level 2	Level 3	Level4	Level 5	NA	TOTAL
Leyte	2	11	4	1	1		19
Agusan del Sur		2	1	1		2	6
Zamboanga, Basilan, & Sulu	1	5	3		5	1	15
Zambales		1					1
TOTAL	3	19	8	2	6	3	41

ceased operations. Three sites were still under construction when the sustainability workshop was conducted.

The participants adapted the definition of sustainability of OECD as:

> "A development project is sustainable when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from an external donor is terminated." (OECD)

Levels of sustainability are classified based on the definition of sustainability. Level 1 and 2 (and in some cases Level 3) are considered to represent sustainability. (Hodgkin 1994:6)

- Level 1: Benefits exceed end-of-project levels through system expansion or replication; this ideal is rarely achieved.
- Level 2: Benefits continue for the original target group at or about the same end-of-project levels.
- Level 3: Benefits drop down to a stable level somewhat below the end-of-project levels.
- Level 4: Benefits drop below an acceptable level and continue to decline.
- Level 5: Benefits have ceased completely.

Of the thirty sites rated as sustainable, three sites were rated level 1 in the sustainability scale. This means that the benefits derived from the project have exceeded benefits derived when the project was completed through expansion of service areas and an increased the number of beneficiaries. Reasons cited are:

- Regular collection of monthly tariffs, strong community support, and functioning management bodies and systems
- Strong and stable water sources that allowed system expansion
- Water associations with strong support from Barangay LGUs through ordinances and resolutions
- Presence of water technicians with monthly allowances or honorarium, enabling regular maintenance and inspections

The nineteen water systems rated at level 2 have maintained the level of benefits that was present immediately following the completion of the project. Factors cited are the regular collection of monthly tariffs and the presence of functional management bodies either by the BLGU or a water association with strong support from the BLGU. Another factor is the presence of a stable water source, though not enough to expand the system.

The eight sites that had decreased benefits (though considered stable and still sustainable) cited reduced yields from the water sources, weak management bodies, and low collection of tariffs.

Six water systems have ceased to function – four in Sulu, one in Tawi-tawi, and one in Leyte. The sites in Sulu and Tawi-tawi are in conflict-affected areas. Of the four systems in Sulu, two were destroyed by the Abu Sayaf, and one was damaged but could not be repaired due to ongoing armed conflict. In the case of the last Sulu system, the land owner of the water source has taken it back for his water selling business. Although the use of the water source by the community is covered by a formal right-to-use agreement, the Barangay chairman opted not to contest the claim of the owner to avoid armed confrontation, a regular practice in Sulu to resolve conflict. The system located in Tawi-tawi was damaged by corrosion when the location of the ram pump was flooded with seawater during unusually high tides. The one in Leyte has a low water source. A system in Agusan was not working when the workshops were conducted; however, it was repaired before CREST ended and is now operating at level 2 of sustainability.

Among the threats and vulnerabilities to sustainability identified by the participants are:

- Social and political conflict in the community where residents are divided over local politics, or leadership and policies on water use and management
- Limited management capacity of water associations and the Barangay LGUs
- Non-payment or low collection of water fees
- Climate change and natural calamities such as typhoons, earthquakes and prolong dry seasons that may damage the water systesm or reduce water yield
- Armed conflict, particularly in conflict-affected areas of Mindanao

To further strengthen sustainability, the following measures were adapted by the participants:

- Strengthening capacity of water associations and BLGUs in managing the water systems
- Strengthening cooperation and unity of the communities towards sustaining the water systems
- Protection of the water sources
- Conduct of regular maintenance work
- Strengthening partnerships with municipal governments to provide technical and logistical support

Participants analyzing the sustainability of their water system

Sustainability Analysis and Planning Workshop in Leyte

FINANCE AND ADMINISTRATION

The total cost of the CREST project is $2,433,109 USD, consisting of $1,948,219 of USAID grant funds and $484,890 cost share from Green Empowerment and partners. In total, the project has benefitted 39,294 people with access to potable water, 19,682 people with access to improved sanitation facilities, and 3,273 people with training and WASH promotion. The project benefitted over 40,000 individuals at a cost of $31.13 USD per beneficiary using USAID funds. Overall for the total cost of $2.43M, cost per beneficiary was $38.88.

Table 9. CREST FINANCIAL PERFORMANCE AS OF SEPT 30, 2017 (USD)

Budget Line	Approved Budget	Amount Spent*	Remaining Budget in Dollars	% Variance
Personnel (including subs)	$585,741	$593,223	($7,482)	-1.28%
Fringe	$36,574	$37,306	($732)	-2.00%
Travel	$142,980	$146,594	($3,614)	-2.53%
Construction	$924,341	$908,091	$16,250	1.76%
Training	$32,061	$33,148	($1,087)	-3.39%
Other Direct Costs (GE+subs)	$60,211	$61,786	($1,575)	-2.62%
Total Direct Costs	$1,781,908	$1,780,148	$1,760	0.10%
Indirect Costs	$168,071	$168,071	$0	0.00%
TOTAL USAID	$1,949,979	$1,948,219	$1,760	
Cost Share	$391,323	$484,890	(93,567)	
TOTAL PROGRAM	$2,341,302	$2,433,109	($91,807)	

*All funds drawn from USAID were fully utilized for the project. Quarterly SF425 reports were submitted on a regular basis that detailed the amount of draws per quarter. The final draw for the CREST project was done on November 7, 2017 after all expenses were reconciled. Additional draw down details can be confirmed upon request.

Cost Share

The total cost shared has exceeded GE's commitment to the CREST project by 23.91%, from $391,323 to $484,890. The biggest contributor to cost sharing is the Coca-Cola Foundation Philippines through AIDFI, which contributed $382,382, or 79.07% of the total cost share. The Coca-Cola Foundation's cost share was in the form of funding twenty-two ram pump water systems. Local government partners contributed a total of $32, 846.99, or 7.67% of the total cost share. The LGUs' contribution was in the form of construction materials, use of trucks, and funding other miscellaneous activities. For example, the Talipao municipal government contributed 200 bags of cement to the project, while the municipality of San Luis contributed toilet bowls, use of trucks, personnel time and funding WASH education activities.

Table 10. Cost Share

Contributor	Value /Amount (US$)
Shining Hope for WAND / GE direct	17,333.24
Christadelphian Australia / GE direct	3,730.20
Sunchild / GE indirect	12,693.33
WAND	9,331.00
AIDFI / Coca Cola Foundation Philippines	382,382.00
NFI	8,713.70
LGU partners	32,846.99
Others including community cost share	17,859.58
Total Cost Share	484,890.04

Administration

Green Empowerment obtained license to do business in the Philippines during the life of the project. It has registered with the Securities and Exchange Commission in the Philippines as a representative office.

MOVING FORWARD: CHALLENGES AND OPPORTUNITIES

The Challenge: Sustaining and Expanding the Benefits

The CREST project has achieved significant victories – more than 39,000 people in 41 communities have gained access to clean water and improved sanitation. CREST has contributed to improving community health, empowered women, and included children and Indigenous Peoples communities. The biggest challenge is sustaining the benefits gained, and extending and expanding to communities that are still in dire need of WASH facilities and services.

Opportunities

The technology CREST employed is environmentally friendly, more affordable, and suited to the conditions of the community. CREST used renewable energy to power the water systems and the scaled up biosand filters. This provides communities whose only source of water is surface water with contaminants an opportunity to access clean, affordable water for the first time.

Green Empowerment, as the primary CREST implementer, has developed enhanced capacity to implement such large-scale WASH projects. As a result of CREST, the organization now has in place the staff, management and administration systems, policies, and processes to efficiently manage this scale of WASH project, opening up opportunities to expand the benefits to additional communities in need.

Moving forward

In the Philippines, water system infrastructure investment in rural communities is very limited due to budget constraints. Investment in water systems tend to focus on urban town centers, leaving rural villages to fend for themselves. Rural communities lack the capacity to develop WASH proposals needed to access financing on their own, and do not have the requisite skills to implement such projects. Investment in sanitation facilities is also a low priority for households in these areas due to poverty, traditional open defecation, and lack of access to water. Unfortunately, women and children are most affected by this situation, because they are most vulnerable to the consequences of these deprivations, and are usually responsible for fetching water. High rates of waterborne diseases and parasitism plague these communities, mostly affecting children. However, women and mothers are particularly burdened because they are traditionally responsible for the care of sick children. Entire households are kept trapped in cycles of poverty as a result, because household funds and time which may otherwise be invested in income generating activities or education must instead be used for medical care.

With the need for access to clean water and improved sanitation still very high amongst rural Filipino communities, there is a clear call to continue and scale up support to WASH projects such as CREST. In addition to seeking funding for further project implementation, Green Empowerment is also planning to expand its technical assistance in support of sustaining these types of projects. In particular, this involves dissemination of repair and maintenance manuals for ram pump, gravity- and solar-powered water systems, and additional training for the water system management bodies and municipal local government staff who are tasked to assist the water system management bodies. •

APPENDICES

Annex 1
Final Water System Completed

PROVINCE	SITE / LOCATION	SYSTEM	STATUS	REMARKS
Tawi-tawi (1)	Buan, Panglima Sugala	Ram pump	Non-operational	Ram pump submerged in the sea due to beach erosion and rising tides
Sulu (5)	Mampallam, Talipao	Ram pump	Non-operational	Owner took back the water source for his own water selling business, disregarding the right-to-use agreement
	Ajid, Indanan	Ram pump	Operational	
	Upper Laus, Talipao	Ram pump	Non-operational	System could not be repaired due to ongoing armed conflict in the site
	Bandang & Kiutaan, Talipao	Ram pump	Non-operational	Abu Sayaf Group destroyed the water system
	Silangkan, Parang	Solar	Non-operational	Abu Sayaf Group took the solar panels and control box
Basilan (4)	Upper Maligue, Isabela City	Ram pump	Operational	
	Sitio Trece, Maligue, Isabela City	Ram pump	Operational	
	Brgy. Masola Proper	Gravity	Operational	
	Brgy. Masola Purok 5	Gravity	Operational	

PROVINCE	SITE / LOCATION	SYSTEM	STATUS	REMARKS
Agusan del Sur (6)	Mahayahay, San Luis	Ram pump	Operational	
	Balit, San Luis	Ram pump	Operational	
	Don Alejandro, San Luis	Ram pump	Operational	
	Policarpo, San Luis	Ram pump w/Filtration	Operational	
	Sitio Guitas, Bunawan Brook, Bunawan	Gravity w/ Filtration	Operational	
	Sitio Simulao, Bunawan Brook, Bunawan	Gravity w/ Filtration	Operational	
Leyte (19)	Amagos, Bato	Ram pump	Operational	
	Mahayahay, Ormoc (RWHT)	RWHT	Operational	
	Butason Dos, Tabango	Ram pump	Non-operational	Water yield of the spring source greatly reduced, rendering the ram pump inoperative
	Lanauan, MacArthur	Ram pump	Operational	
	Cagbuhangin, Ormoc	Ram pump	Operational	
	Pres. Garcia, Matalom	Ram pump	Operational	
	Ipil, Ormoc	Ram pump	Operational	
	Brgy. San Agustin, Bato	Ram pump	Operational	
	Alegria Bato, Leyte	Ram pump	Operational	
	Imelda, Bato, Leyte	Ram pump	Operational	
	Dumagocdoc, Bato,	Ram pump	Operational	
	Ormocay, Mayorga	Ram pump	Operational	
	Gimeranat East, Lapaz, Leyte	Ram pump	Operational	
	Maljo (Hubasan), Inopacan,	Gravity w/ Filtration	Operational	
	Lake Danao, Ormoc, Leyte	Gravity	Operational	
	Sto Nino, Hilongos, Leyte	Ram pump	Operational	
	Tombo, Alang-alang	Solar w/ Filtration	Operational	
	Hampangan, Hilongos	Ram pump	Operational	
	Tabgas, Albuera, Leyte	Gravity	Operational	
Zambales (1)	Sacatihan, Subic	Gravity w/ Filtration	Operational	

PROVINCE	SITE / LOCATION	SYSTEM	STATUS	REMARKS
Zamboanga (5)	Taguiti,	Gravity	Operational	
	Sinubong	Gravity	Operational	
	Lapaz	Gravity	Operational	
	Limpapa	Gravity	Operational	
	Sinubong proper	Gravity	Operational	

Annex 2
Sanitation Facilities Completed – End of Project

PROVINCE	SITES
Tawi-tawi (1)	1. Buan, Panglima Sugala
Sulu (4)	2. Mampallam, Talipao 3. Ajid, Indanan 4. Upper Laus, Talipao 5. Silangkan, Parang (Solar)
Basilan (6)	6. Upper Maligue, Isabela City 7. Sitio Trece, Maligue, Isabela City 8. Brgy. Masola Proper 9. Brgy. Masola Purok 5 10. Binuangan, Isabela City 11. Sunrise, Isabela City
Agusan del Sur (5)	12. Don Alejandro, San Luis 13. Mahayahay, San Luis 14 Balit, San Luis 15. Policarpo, San Luis, ADS 16. Sitio Guitas, Bunawan Brook, Bunawan

PROVINCE	SITES
Leyte (19)	17. Amagos, Bato 18. Mahayahay, Ormoc (RWHT) 19. Butason Dos, Tabango 20. Lanauan, MacArthur 21. Cagbuhangin, Ormoc 22. Tombo, Alang-alang 23. Capiz, Alang-alang 24. San Isidro, Alang-alang 25. Maljo (Hubasan), 23. Inopacan 26. Lake Danao, Ormoc 27. Brgy. Alegria Bato, 28. Sto Nino, Hilongos 29. Brgy. San Agustin, Bato 30. Brgy. Dumagocdoc, Bato 31. Brgy. Imelda, Bato 32. Pres. Garcia, Matalom 33. Hampangan, Hilongos 34. Tabgas, Albuera 35. Marao, Inopacan
Zambales (1)	36. Sacatihan, Subic
Zamboanga (4)	37. Sinubong 38. Lapaz 39. Limapapa 40. Sinubong proper

Annex 3

Risk Assessment and Management

Building Climate Resilience in Water-stressed Communities Project (CREST)

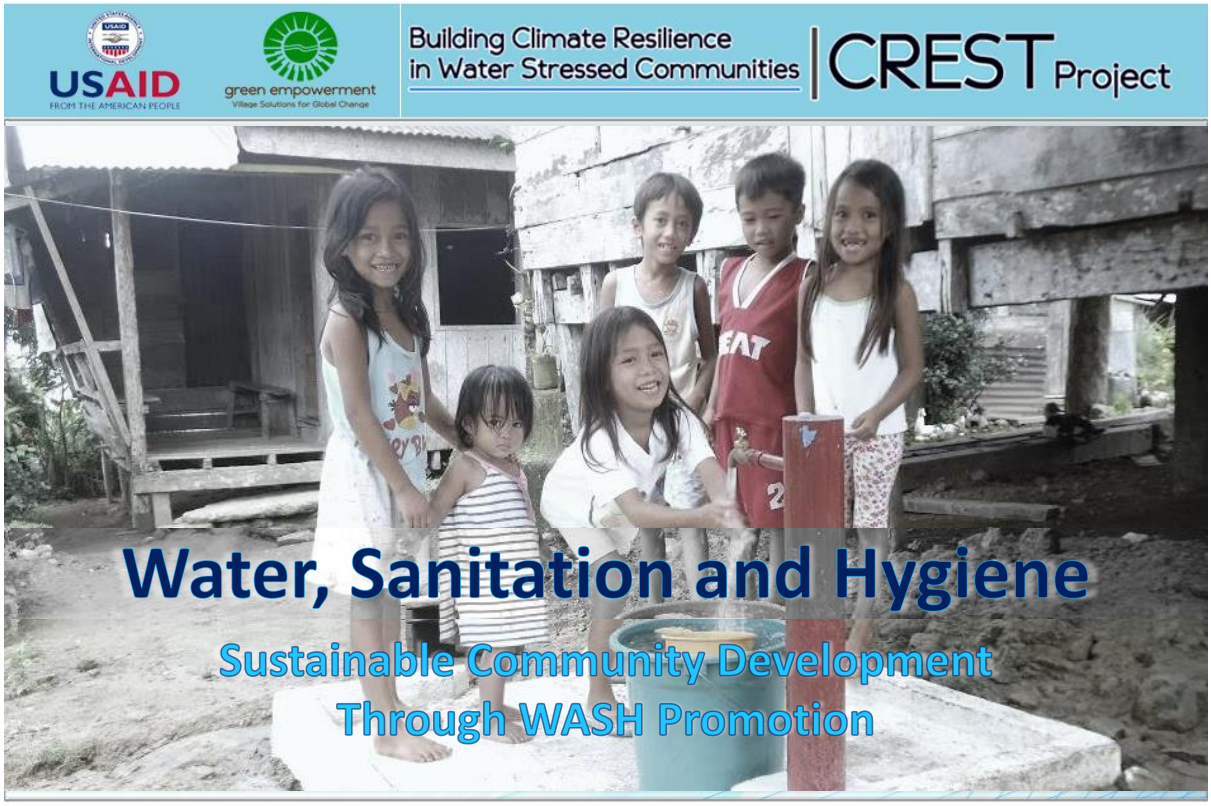
The table below summarizes the identified risks that could have affected the project, and the accompanying mitigation measures that were utilized. One mitigation measure that applied to all risks was to gather information from local contacts and networks, and to include risk identification and assessment in baseline surveys and community profiles. Advance knowledge of risks enhanced the comprehensiveness and efficacy of mitigation measures.

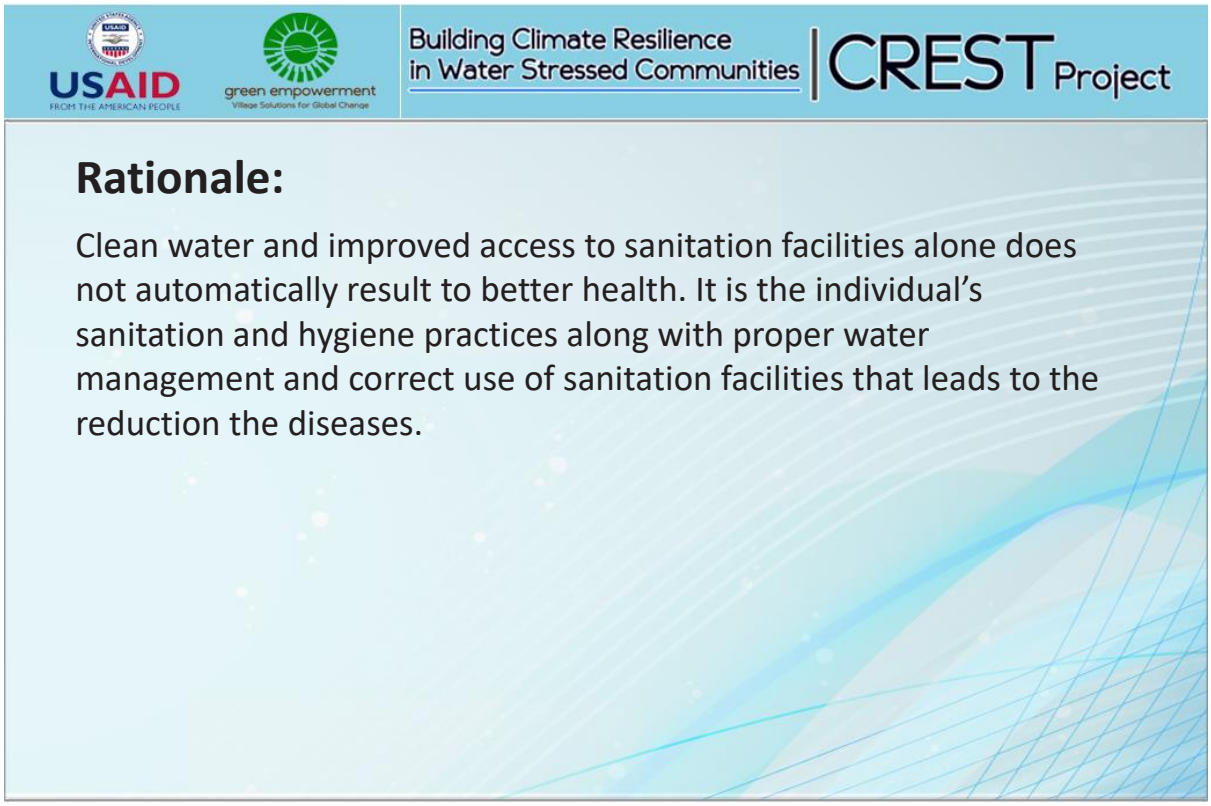
RISK	DESCRIPTION	IMPACT TO PROJECT	MANAGEMENT
Conflict and lawlessness	• Presence of armed conflicts at the sites as a result of political disputes, electoral violence, clan war (rido), land disputes, extremism, lawless elements • Theft & burglary	• Loss and/or damage to project assets • Evacuation of beneficiaries • Loss of life and injuries to project staff	• Use private transport only • Travel only during daytime and be back at base before sunset • Inform partners' offices about travel itineraries, contact and time of return • Coordinate travel w/local partners, USAID • Avoid armed escorts • Ensure adequate communication equipment is on hand • Courtesy call with community leaders and elders • Include risk assessment in baseline studies or community preparations • Local community ownership of materials from beginning • Don't travel with lots of cash • Secured place for equipment and materials • Use different travel routes
Land ownership / land use dispute	• Right of way for pipes and land for tanks, ram pumps and WASH facilities	• Can delay the project if legal use of land is not secured • Loss of project assets if land owner claims the land where ram pump and WASH facilities are located	• Secure use through legal instruments – deeds of donation • Gather information from communities • Coordinate with land owners • Identify possible land conflicts during pre-surveys • Coordinate w/ both parties in cases of dispute

RISK	DESCRIPTION	IMPACT TO PROJECT	MANAGEMENT
Local elections & politicization of project	• Politicians might use the project for election campaigns • Newly elected officials may not honor the commitment of previous LGU officials to the project • Newly elected officials may stop projects associated with the incumbent • Armed conflict among opposing parties	• Delays or stoppage of project	• Local partners must not get involved in electoral campaigns • Local partners running as candidates must resign from the project • Project staff must avoid joining political rallies • Secure LGU commitments through LGU legislative council resolutions • Strengthen community ownership of the project/ management structure to withstand changes in government
USAID marking could invite violent opposition	• USAID marking may attract extremist or anti-American groups to sabotage the project or destroy properties	• Suspension of project • Damage to project assets • Discourage people from participating	• Assess risk during social preparations and baseline studies • Seek wavers from USAID as needed
Unstable / seasonal source of waters	• Site has unstable source of water, making the pump idle during low water periods	• Seasonal operation of ram pumps	• Technical studies should look into the stability of sources • Seasonal mapping with communities • Technical modifications as needed
Disasters and natural calamities	• Earthquakes, landslides, flooding, droughts, and typhoons	• Damage to project properties • Damage or disruption to water sources	• Include vulnerability assessments in site selection and technical studies • Include mitigation and DRR components
Accidents and other health risks	• Exposure to infectious diseases • Snail fever in Leyte	• Delays in project implementation • Risks to staff health and safety	• Avoid contaminated areas, like bodies of water for snail fever infection • Coordinate with local health authorities • Wear protective gear • Staff vaccinated against common diseases in project sites

RISK	DESCRIPTION	IMPACT TO PROJECT	MANAGEMENT
Delayed release of project funds	• Project funds do not arrive when needed	• Delays in project	• Ensure timely submission of reports and other requirements to facilitate fund transfers • Timely submission of financial requests • One month advance budget • Bridging fund • Follow policies and systems from beginning, ensure all team members understand policies • Review and update detailed work plan as needed • Establish effective and regular communications regarding project progress and needs
Ineffective communication	• Misunderstanding of concepts, plans and targets, policies, or SOPs • Weak coordination • Absence of communication service, facilities, and equipment • Project staff not united on project strategy and plan	• Project delays • Staff put at risk • Project staff moving in different directions	• Regular team meetings • Strong coordination by PPM • Ensure adequate communication equipment is on hand • Satellite phone used in the field
Limited capacity of project team and local partners	• Limited or inadequate knowledge and skills • Differences in understanding of concepts	• Project delays • Misunderstanding among the project team members • Delayed or inadequate reporting	• Training needs analysis • Facilitate training • File sharing (e.g. Dropbox) • Ask for help • Overshare; don't hold back information • Trainings, knowledge exchanges • Capitalize on comparative advantages of team members • Sharing lessons learned and best practices • Regular staff meetings and team building exercises

Annex 4
WASH Promotion and Planning Workshop





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Goals and Objectives:

The goal of the WASH Education and Promotion (WEP) is to enhance the outcome of the water systems that will be installed in selected community by

- Showing the interconnectedness of water supply, sanitation and hygiene to our health.
- Improving sanitation and hygiene practices of the community through education and promotion.

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Topics to be discussed:

1. WASH: The interconnectedness of water supply, sanitation and hygiene to the community
   - ✓ Sources of Water
   - ✓ Primary uses of water in the households
   - ✓ Importance of WASH to the Community
   - ✓ Obstacles to WASH
2. F-Diagram: The pathways of contamination
   - ✓ Sanitation and Hygiene: Barriers of Contamination

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Topics to be discussed:

3. Sanitation and Hygiene: Technologies and Practices
   - ✓ Toilets and Washing: Key to Breaking the Pathways of Contamination
   - ✓ Personal hygiene: Male, female, and children
   - ✓ Food hygiene
   - ✓ Home sanitation
4. Promoting Sanitation and Hygiene in Your Community
   - ✓ Key actions and activities

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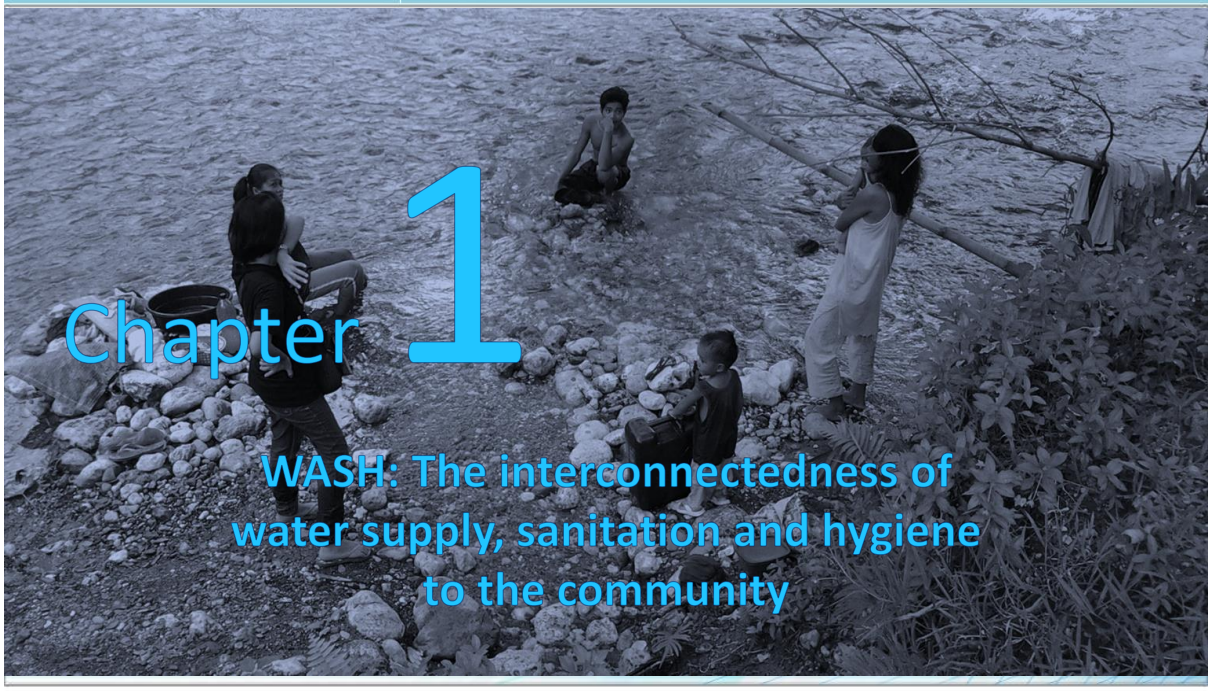

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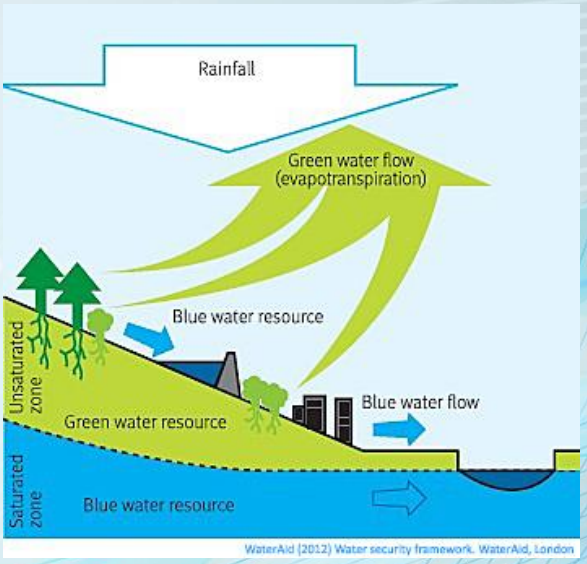
Sources of Water

When rain falls onto land it can be evaporated back into the atmosphere or pass into rivers, streams, lakes, the soil and aquifers. These water resources can be classified into two broad groups.



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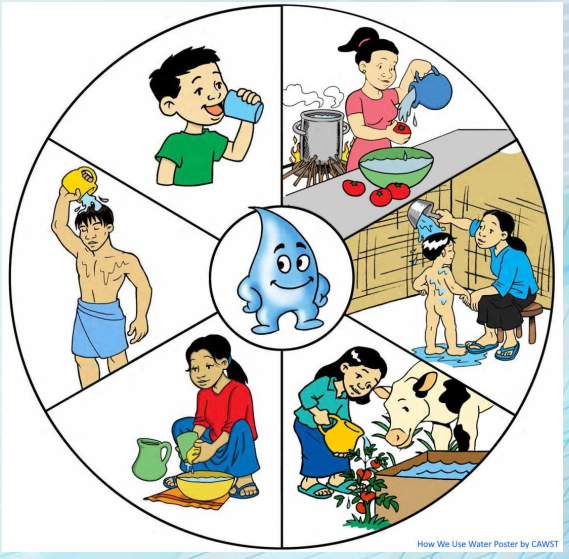
Primary uses of water in the households

- Drinking water
  - human
  - animals
- Food preparation
- Personal hygiene
  - Bathing and hand washing
  - Anal cleansing
- Household cleaning
- Laundry
- Watering of garden



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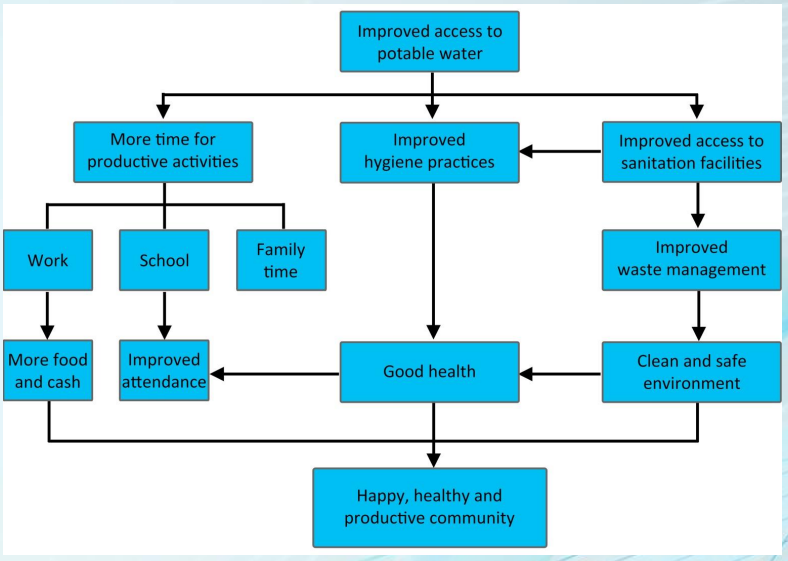
Water and the community



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Common Causes of Water Source Contamination

The factors that influences the quality of our water sources are normally caused by natural and human activities. Where they exist, the nature and human-generated risks to source water present difficult challenges to the community and may impact human and environmental health.

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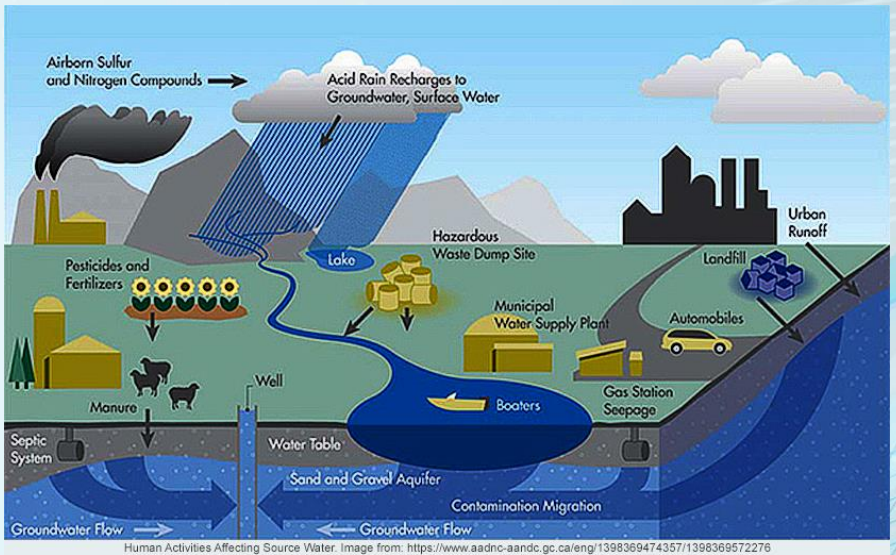
Pathways of Contamination of Water Sources



Human Activities Affecting Source Water. Image from: https://www.aadnc-aandc.gc.ca/eng/1398369474357/1398369572276

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Water Contamination from Natural Factors

- **Water Contamination from Natural Factors** may contribute to drinking water contamination if left unchecked. Wildlife, for example, contains microorganisms such as bacteria, parasites and viruses that may cause diseases in humans. Ongoing changes to the natural environment such as wildfire, storm events, flooding and erosion can also introduce risk to source waters.
- **Human Related Water Contamination** degrades the quality of source water by negatively impacted by past and present land use activities that introduce a risk to human and environmental health. Agriculture and other human activities at home also introduce potential risks to source water such as domestic animals, sewage disposal systems and landfills.

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Water contamination in the community

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Types of Drinking Water Contaminants

Water contamination is the term used to describe hazardous substances that are polluting a source of water. There are five types of contaminants that degrades the quality of the water sources and may cause risks to the health of the community and the environment if taken for granted. These are:

- Physical
- Microbial
- Inorganic
- Organic
- Radioactive

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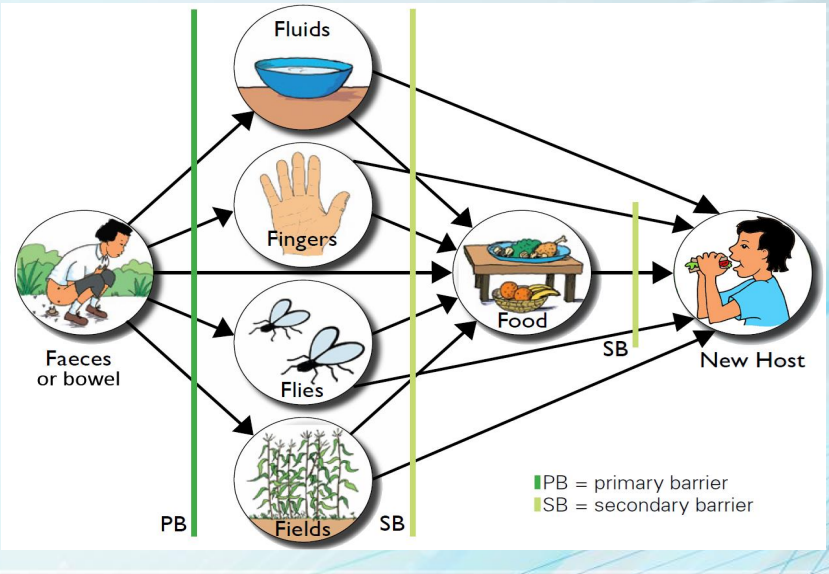
The F-diagram



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Barriers of Contamination

- **Sanitation** – Sanitation literally means measures necessary for improving and protecting health and well being of the people. Sanitation is any system that promotes proper disposal of human and animal wastes, proper use of toilet and avoiding open space defecation.
- **Hygiene** – Personal and household practices that serve to prevent infection and keep people and environments clean.

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"The close relationship between surface and groundwater means that one cannot be affected in isolation of the other. If a water source becomes contaminated, there is a good possibility that the pollutants will eventually make their way into, and potentially contaminate, another water source."

Pollution Probe – The Source Protection Primer 2004

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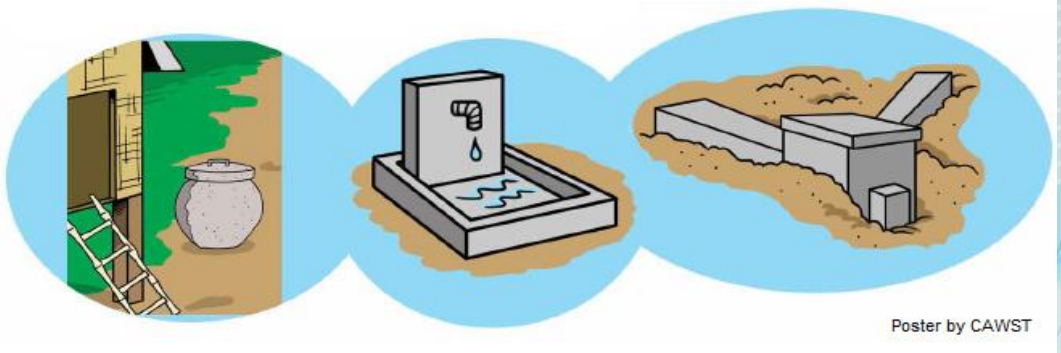
Protecting Our Water Sources



Water resources must be protected and managed in a sustainable way to maintain its beneficial uses and to ensure the safety of the community and the environment.

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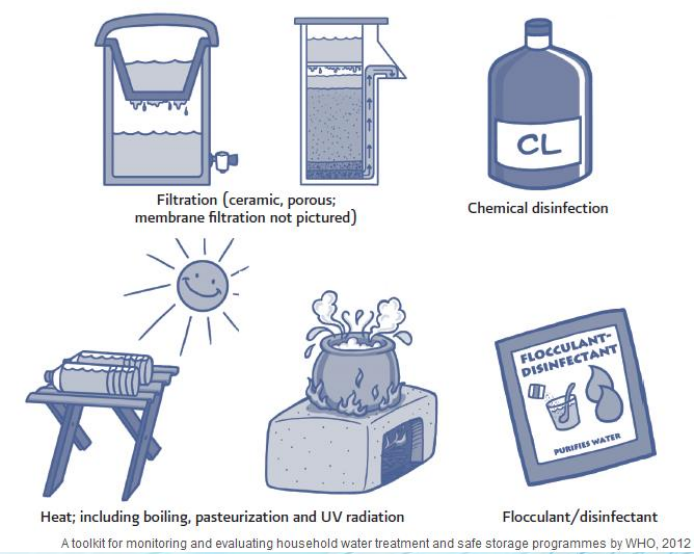
Household Water Treatments

Sources of drinking water are subject to contamination and require appropriate treatment to remove disease-causing contaminants. Contamination can occur in the source water as well as in the distribution system and at home.



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Protecting our water at home

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Personal Hygiene

Men, women and children of all ages are likely to be affected in different ways by inadequate water, sanitation and hygiene conditions in the community.

This may also contribute to unequal learning and employment opportunities. More often, women are more affected than men because the lack of sanitary facilities means that they cannot attend school or job during menstruation.

Images of Hygiene Practices from CAWST

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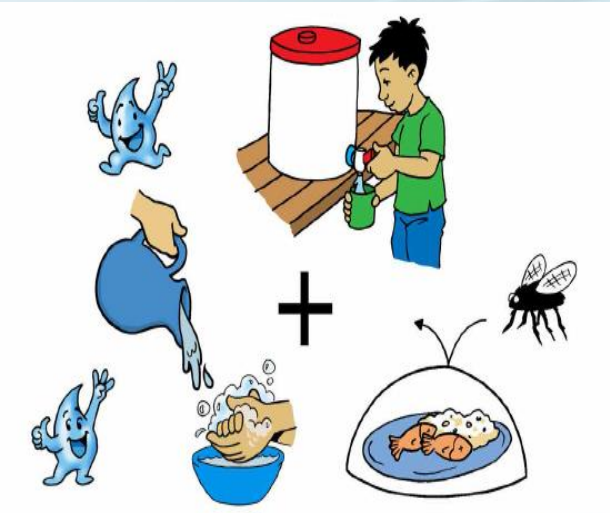
Food Hygiene

Eating healthy food is essential for the well-being and survival of each human being. Eating “contaminated” food (also known as “food poisoning”) can cause serious health problems and sometimes lead to death.



Poster by CAWST

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Home Sanitation

The health benefits of improved household sanitation are broad in scope, ranging from reductions of diseases and infections, through reduced risk of accidents and/or sexual harassment, to enhanced psycho-social well-being afforded via such factors as improved dignity and social standing. The provision and consistent use of sanitation at home mitigates the risks that may harm the family.

Household sanitation can be as simple as maintaining the cleanliness of the different parts of a house such as the bedrooms, living room, kitchen, dining area, bathroom and toilet.

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Benefits of Sanitation and Hygiene in children

Children are the hope of the future. By focusing on school aged children, giving them tools and knowledge to change behaviors today, future generations will be better prepared to care for their families and communities' own health and clean environment.


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SAVE
WATER
every dr
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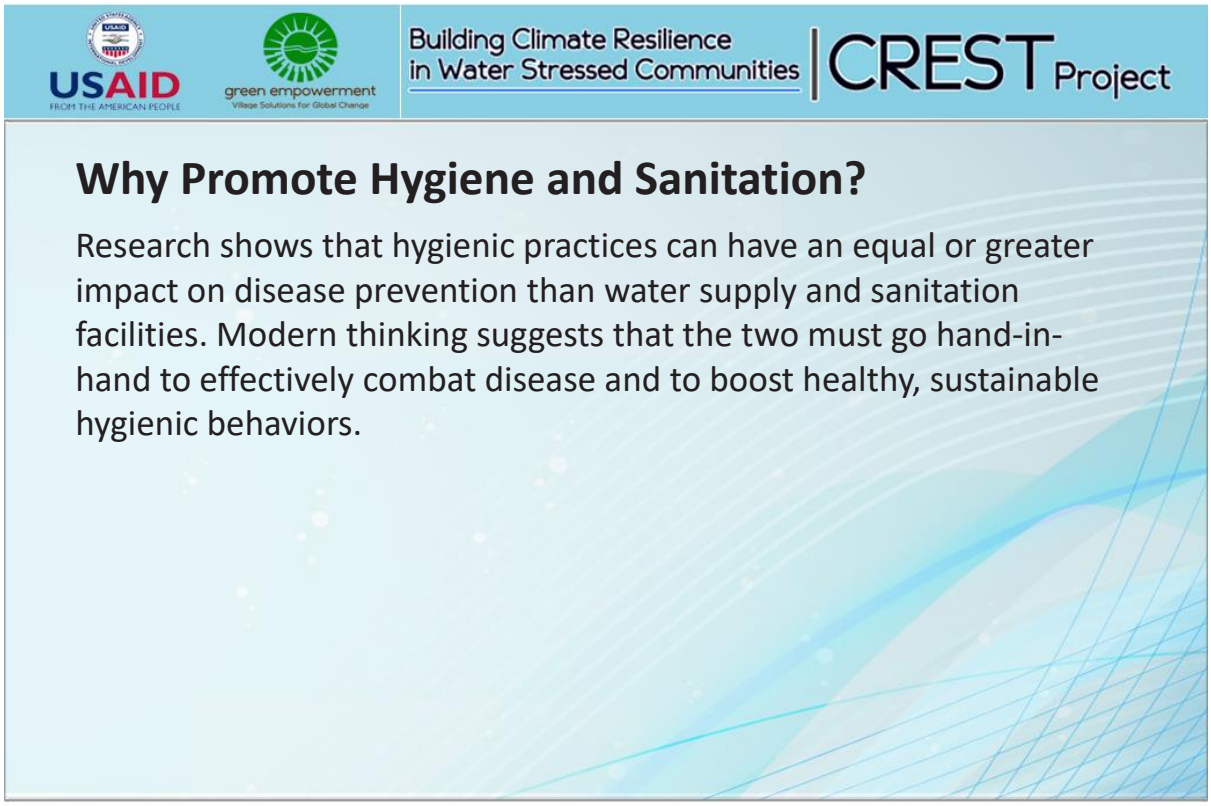
Chapter 4
Promoting Sanitation and Hygiene
in Your Community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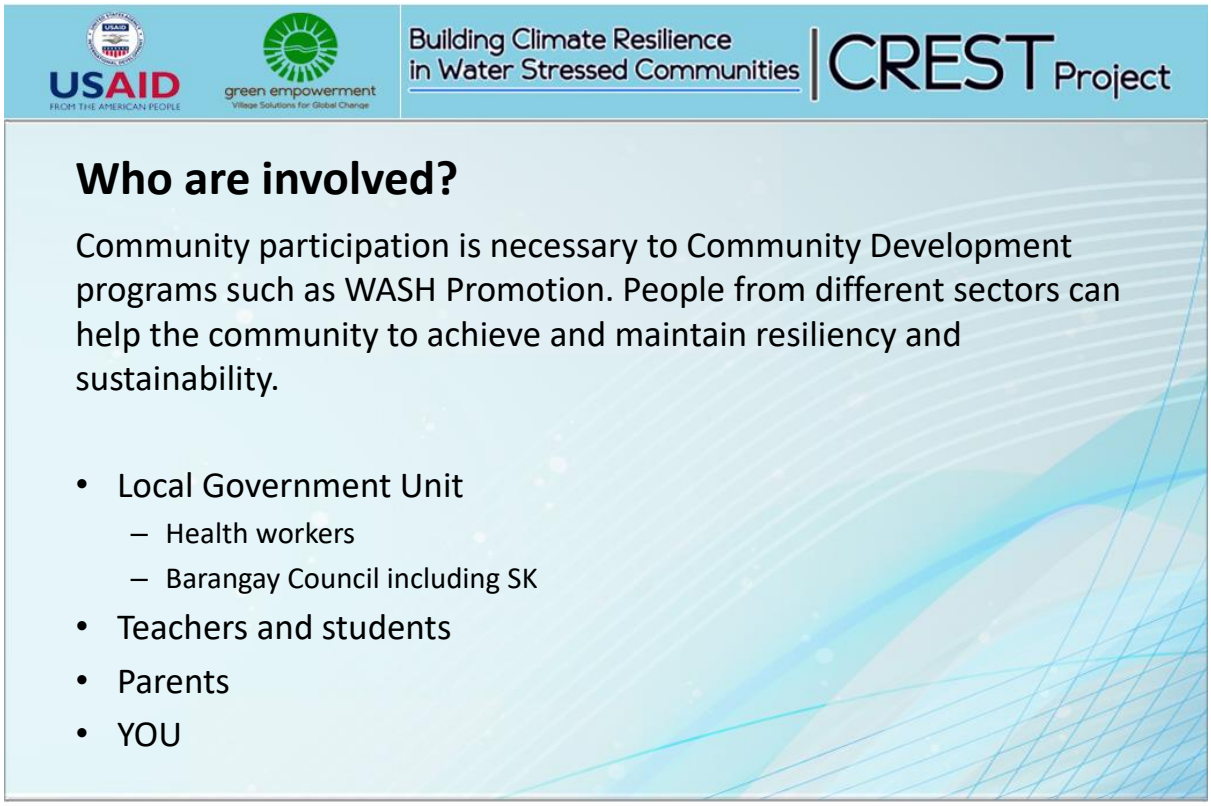
Why Promote Hygiene and Sanitation?
Research shows that hygienic practices can have an equal or greater impact on disease prevention than water supply and sanitation facilities. Modern thinking suggests that the two must go hand-in-hand to effectively combat disease and to boost healthy, sustainable hygienic behaviors.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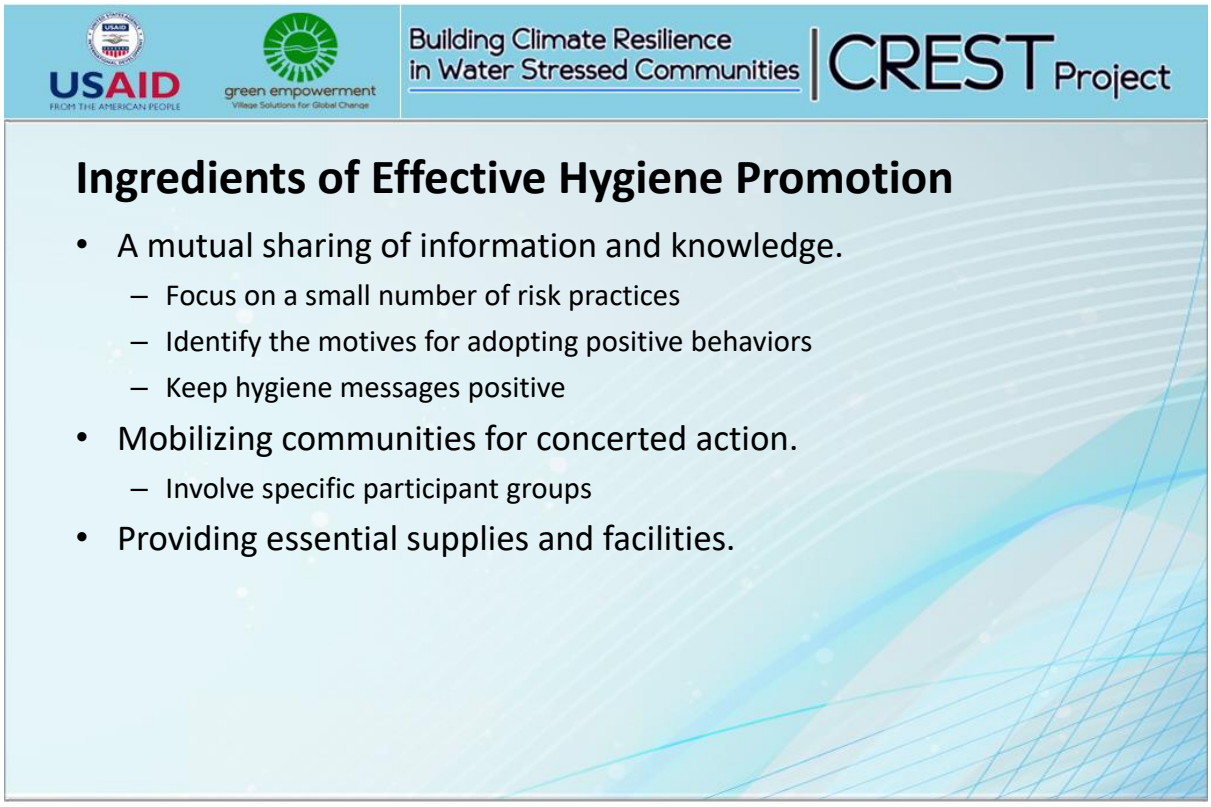
Who are involved?
Community participation is necessary to Community Development programs such as WASH Promotion. People from different sectors can help the community to achieve and maintain resiliency and sustainability.
• Local Government Unit
– Health workers
– Barangay Council including SK
• Teachers and students
• Parents
• YOU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Ingredients of Effective Hygiene Promotion
• A mutual sharing of information and knowledge.
– Focus on a small number of risk practices
– Identify the motives for adopting positive behaviors
– Keep hygiene messages positive
• Mobilizing communities for concerted action.
– Involve specific participant groups
• Providing essential supplies and facilities.

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Principles for Promoting Sanitation and Hygiene

Sanitation and Hygiene promotion is best guided by the following Community Development Principles:

- Empowerment
- Participation
- Inclusion, equality of opportunity and anti-discrimination
  - Age
  - Gender
  - Culture
- Self determination
- Partnership

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Scopes of Hygiene Promotion

- Reducing high-risk hygienic practices.
- Promoting appropriate use and maintenance of facilities.
- Promoting participation in programs.
- Such a multi-pronged approach should enable the affected community to practice hygienic behaviors and stay healthy.

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Hygiene Improvement Framework

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Key Hygiene Impact Behaviors

1. Safe use of toilets and urinals
2. Personal hygiene and infant care
3. Promotion of hand washing with soap
4. Female and male hygiene
5. Waste management and water drainage
6. Water treatment, handling and storage
7. Food hygiene


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WORKSHOP


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Thank you
for your participation!

Annex 5
CREST Sustainability Analysia & Planning Workshop

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GREEN EMPOWERMENT - PHILIPPINES

BUILDING CLIMATE RESILIENCE IN WATER STRESSED COMMUNITIES (CREST) PROJECT

SUSTAINABILITY ANALYSIS AND PLANNING WORKSHOP

Presented by:
Jojo Fajardo

OUTLINE

I. Concepts and Definitions of Sustainability
II. Post Project External Support
III. Levels of Sustainability
IV. Critical Issues Affecting Sustainability
V. Factors Affecting Sustainability of Community WASH Projects
VI. Climate Change & the Risk to WASH

Building Climate Resilience in Water Stressed Communities (CREST) Project

I.

Concepts and Definitions of Sustainability

Sustainability Defined

- To keep in existence; to maintain (The American Heritage)
- Capacity of any system or process to maintain itself indefinitely (Bedřich Moldan and Arthur Dahl)
- "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundlant Report "Our Common Future", 1987)

Sustainability Defined

- The ability of an organization to develop a strategy of growth and development that continues to function indefinitely. (Dorothy A. Johnson Center for Philanthropy & Leadership)
- A development project is sustainable when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from an external donor is terminated" (OECD)

Sustainability Defined

- Definitions of sustainability make reference to the continued flow of benefits or services after the withdrawal of external support or outside assistance.

II.

Post Project External Support

Post Project External Support

- Sustainable not necessarily preclude access to continuous, external back-up support.
- External follow-up critical to post-project sustainability - technical problems, organizational difficulties and the resolution of social conflict.

Post Project External Support

- **Technical Assistance**: providing advice and guidance on a range of topics in support of the community management structure, as well as providing independent advice in cases where some form of arbitration may be necessary.
- **Training**: on-going training of the relevant committee members in a variety of disciplines from physical operation and maintenance to bookkeeping and hygiene promotion; capacity building at the community level.

Post Project External Support

- **Principal Functions of External Support**
  - Monitoring and Information Collection: regular monitoring of system performance and feedback of information for remedial action.
  - Coordination and Facilitation: helping to establish linkages between community management structures and external entities, either from the state or private sector.

Source: Lockwood, 2002:22

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III.

Levels of Sustainability

Levels of Sustainability

- ***Level 1***: benefits exceed end-of-project levels through system expansion or replication; this ideal is rarely achieved.
- ***Level 2***: benefits continue for the original target group at or about the same end-of-project levels.
- ***Level 3***: benefits drop down to a stable level somewhat below the end-of-project levels.
- ***Level 4***: benefits drop below an acceptable level and continue to decline or cease completely.

Note: from this definition, classes I and II (and in some cases III) can be considered to represent sustainability.
Source: Hodgkin 1994:6]

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IV.

Critical issues affecting sustainability

Critical issues affecting sustainability

Pre-project issues	Post-project issues
Community participation	Finance and tariff collection
Demand-responsive approaches	User satisfaction
Empowerment	Capacity of water committees
Technical design	Definition of roles and responsibilities for system management
Construction quality	On-going training
Gender and poverty focus	
Training	

V.

Factors affecting sustainability

Two broad sets of issues which can lead to problems after WASH project implementation

- ***Internal*** - community dynamics, political or social conflict, lack of cohesion, lack of capacity (technical, managerial etc.), lack of financial resources
- ***External*** - lack of spare parts supply, lack of supportive policies and legislation or the lack of long term support to help communities through major repairs, conflicts and other problems with extension and upgrading

Internal Factors or conditions which impact sustainability in the post-project phase

- ***Preventative maintenance*** of facilities, including both communally managed water supply infrastructure and household level latrines.
- ***Tariff collection and cost recovery*** to cover routine operation and maintenance of water supply infrastructure.
- ***Adequate capacity*** (technical, financial, administrative etc.) within the community necessary to manage a system, or to engage with an external party to operate and manage the system on its behalf.

Internal Factors or conditions which impact sustainability in the post-project phase

- The continued involvement of community women, along with men, in all aspects of system management and maintenance.
- Adequate levels of social cohesion, or social capital, required to achieve system management and the motivation, or willingness, to contribute resources, time and money.

External Factors or conditions which impact sustainability in the post-project phase

- Access to, or availability of, spare parts, tools and equipment for the community to carry out repairs.
- The availability of some form of external follow-up support, which can be provided in many different ways and by a range of institutions; this includes two other important factors, relating to continued training and support of community management structures and individual households for hygiene promotion and behaviour change.

External Factors or conditions which impact sustainability in the post-project phase

- The presence and strength of private sector companies and entrepreneurs providing goods and services and skilled technicians to carry out complex repairs.
- The existence of a supportive policy environment, legal frameworks underpinning the legitimacy of water committees, and clearly defined roles for operation and maintenance.
- A system source that continues to produce water of sufficient quantity and quality to satisfy users.

Factors affecting sustainability (IFAD 2006a)8

- ***Political sustainability*** – government commitment, an enabling policy environment, stakeholder interests, strong lobby groups and political influence/pressure;
- ***Social sustainability*** – social support and acceptability, community commitment, social cohesion;
- ***Ownership*** – whether or not communities, local government and households accept and own the outcomes of the project in ways that are sustainable;
- ***Institutional sustainability*** – institutional support, policy implementation, staffing, recurrent budgets;

Factors affecting sustainability (IFAD 2006a):

- ***Economic and financial sustainability*** – resilience to economic shocks, financial viability, reduced household vulnerability and increased capacity to cope with risk/shocks;
- ***Technical sustainability*** – technical soundness, appropriate solutions, technical training for operations and maintenance, access to and cost of spare parts and repairs;
- ***Environmental sustainability*** – projects' positive/negative contributions to soil and water preservation and management, resilience to external environmental shocks. (IFAD)

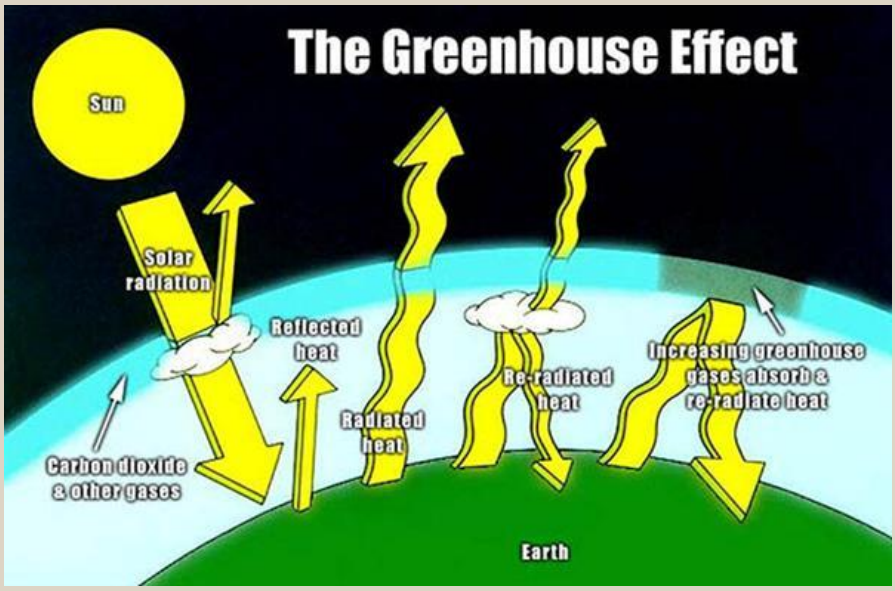
Determinants of sustainability

- Technical factors, including design, performance and maintenance issues
- Community and social factors, including willingness to support projects
- Institutional factors, including policy and external follow-up support
- Environmental factors, including the sustainability of the water source
- Financial factors, including the ability to cover recurrent costs
- Health factors, including the need to continue the provision of hygiene education to affect long-term behavior changes

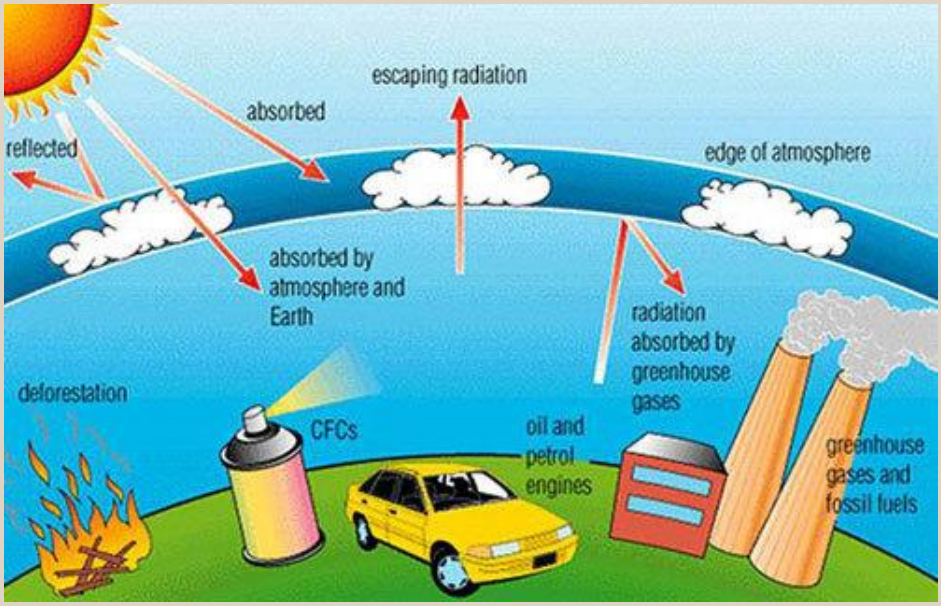
VI.

Climate change & the risk to WASH

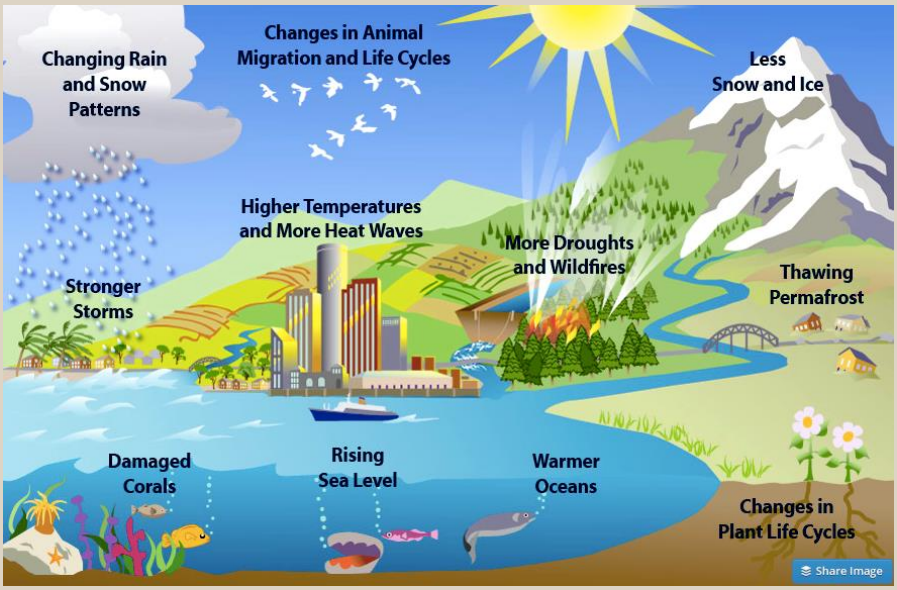
GLOBAL WARMING



GREENHOUSE GAS



EFFECTS



RISK TO WATER, SANITATION & HYGIENE

- Water scarcity due to prolonged drought
- Water contamination due to heavy rains, flooding and sea level rise
- Health risk due to contaminated drinking water and increase exposure to pathogens during flood
- Failure of sanitation facilities due to flooding and drought
- Health risk due to behavioral change in sanitation and hygiene practices

ADAPTATION

ADAPTATION MEASURES

- Use of renewable energy
- Rainwater harvesting
- Reforestation in water source areas
- Protection through local ordinances – watershed declaration
- Capacity building on system maintenance

Building Climate Resilience in Water Stressed Communities (CREST) Project

Daghang salamat!

Building Climate Resilience in Water Stressed Communities (CREST) Project

Workshop 1: Sustainability Analysis

WORKSHOP 1: SUSTAINABILITY ANALYSIS

- What is the level of sustainability of your WASH project?
- What are the factors that resulted to the current sustainability level of your project?
- What are the risk that could pull down the sustainability of your Wash project?

SUSTAINABILITY ANALYSIS WORKSHOP

Site	
Sustainability Level	
Factors that contributed to the current level of sustainability (Unsay mga hinungdan nga nakaingon sa kahimtang sa proyekto)	**Risk that will pull down the sustainability (Mga umaabot nga kakuyaw nga mahunong o dili magmalungtaron ang proyekto)**
Group members:	**Designation / position**

Building Climate Resilience in Water Stressed Communities (CREST) Project

Workshop 2: Sustainability Planning

SUSTAINABILITY PLANNING WORKSHOP

- What are the key / strategic (top 3) issues that need to be addressed that will improve level of sustainability?
- What are the key activities that you need to do to address the issues?
- What resources and support are needed to implement the key activities?
- What is the timeline to complete the activities?

PLANNING WORKSHOP

Key / strategic issues	key activities	Resources and support	Timeline

Annex 6
CREST M&E Plan

Building Climate Resilience in Water Stressed Communities (CREST)

AID-492-G-12-00003

Monitoring & Evaluation Plan

Submitted October 1, 2012

Revised March 25, 2015

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ABBREVIATIONS & ACRONYMS

AIDFI	Alternative Indigenous Development Foundation, Inc.
ARMM	Autonomous Region of Muslim Mindanao
CCF	Coca-Cola Foundation
CREST	Building Climate Resilience in Water Stressed Communities
GE	Green Empowerment
LGU	Local Government Unit
M&E	Monitoring & Evaluation
USAID	United States Agency for International Development
USG	United States Government
WAND	Water, Agroforesty, Nutrition and Development Foundation
WASH	Water, Sanitation and Hygiene

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CONTENTS

BACKGROUND

On August 6, 2012, as part of the Development Grants Program (DGP), Green Empowerment (GE) received USAID grant award number AID-492-G-12-00003 to implement the Building Climate Resilience in Water Stressed Communities (CREST) program in the Leyte and Mindanao regions of the Philippines. The CREST program aims to improve community health and resiliency by reaching 24,000 people with improved water supply, water management, sanitation and hygiene by September 2017. Implemented by a team of NGOs that specialize in low-cost, locally manufactured water and sanitation technologies, the program also aims to build the capacity of local organizations and the communities they serve to sustain and scale program impact, a central focus of the Development Grants Program.

Pursuant to section A.5.2 of the original grant agreement, Green Empowerment submitted a Performance Monitoring Plan (PMP) for USAID approval on October 1, 2012, and received approval of said plan on November 21, 2012. This document outlines revisions to that plan that reflect CREST's extended timeframe, expanded deliverables, lessons learned to date, and deteriorating security conditions in Mindanao. These factors have combined to result in the revised and refined performance indicators presented below that we feel are the most relevant to our project objectives, attributable to our activities, and realistically measured and verified with a small program staff operating across dispersed project sites.

CREST PERFORMANCE INDICATORS

Cornerstone to CREST's M&E plan is the tracking of six results indicators Green Empowerment has identified in consultation with its local partners, NGO counterparts, public health specialists, WaSH literature, and best practices shared from other USAID WaSH programs. These indicators measure the successful achievement of Green Empowerment's two overall program objectives. CREST's objectives, program activities, and expected outcomes are summarized in the logframe analysis presented in Attachment 4 of the original grant agreement's Program Description "Detailed Life of Project Implementation Plan-Matrix." The indicators presented herein result from that framework, with some refinement of program outcomes.

The two overarching objectives of the CREST program are to:

1) Improve community health and hygiene in Mindanao and Leyte through increased supply of potable water and accompanying WaSH facilities;
2) Build capacity of Green Empowerment, its partners, and beneficiary communities to improve and scale up ram pump technology, sustainably manage and monitor water use, and effectively undertake USAID programs.

Three indicators correspond to Objective 1 and three to Objective 2. These indicators are each summarized in the Performance Indicator Summary Table below and described in detail in Annex I, which includes precise definition, calculation, rationale, data sources, collection method and timing, any data quality issues and mitigation measures, baselines and target values. Additional indicators may be added upon beneficiary, USAID, or local government request depending on feasibility. Green Empowerment believes these indicators are those that best capture program results while remaining grounded in the logistical and financial realities constraining data collection and analysis.

The principle of "significant contribution" – i.e., activities can be logically argued to contribute to an expected result, was utilized to develop the proposed indicators. It should be noted that this M&E plan does not claim to demonstrate a scientifically proven relationship between project activities and impact.

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Performance Indicator Summary Table

Indicator	Unit	Indicator Definition	Info Source	Collection Method	Data Collection	Base -line	Target (2017)
OBJECTIVE 1: WASH Delivery							
1.1 Number of people with access to improved water sources	# of people	Sum of all community members with access to improved water sources. In this case access is defined as within 500 meters of the home. Improved water sources are defined as Level 2 water connections (communal taps) by the Philippines Department of Health.	Beneficiary communities' barangay development plan or census	70% of total community population	Ongoing, as completed	0	24,000
1.2 Water quality	%	Percentage of community water sources that do not contain E.Coli bacteria as determined by a presence/absence test.	Principal water taps and tanks in each beneficiary community.	Water quality home testing kits (IDEXX Colilert)	Before and after installation; biannually	TBE	100%
1.3 Number of people with access to improved sanitation	# of people	Total number of people with access to improved and shared sanitation facilities constructed in beneficiary communities during project timeframe with USG funds, or leveraged funds from other donor funds, local governments, or by residents themselves. Improved sanitation facilities are defined by the WHO as facilities that ensure hygienic separation of human excreta from human contact. These include pit latrines, ventilated improved pit (VIP) latrines, and pit latrines with slabs.	Beneficiary communities	Direct observation, verification, and recording by field staff.	Ongoing, as completed	0	10,000
2.1 Number of people trained in water and sanitation	# of people	Total number of individuals receiving training in the fabrication, installation, operation and maintenance, administration and/or management of	Beneficiary communities	Participant lists; WASH Committee logs;	Ongoing, as completed	0	450

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construction, O&M, administration and/or management		water or sanitation facilities made possible by USG funds.		reporting by field staff			
2.2 Number of people reached with WaSH education	# of people	Total number of individuals attending WaSH trainings, workshops, and seminars made possible by USG funds. While a training of training approach is used with the expectation of reaching additional beneficiaries, only direct beneficiaries are counted here.	Beneficiary communities	Participant lists	Ongoing, as completed	0	975
2.3 Number of new management practices or skills acquired by CREST staff or partners	# of skills/ practices	Number of new management practices introduced or skills acquired by Green Empowerment staff, its subgrantees, or other local partners as a result of USG assistance. "Management practices or skills" are defined as expertise, methods, practices and systems that help users plan, organize, manage, monitor, evaluate and/or improve upon their technical or administrative area of work. These may include data collection, monitoring, and analysis, organizational structure, administrative and financial management, human resource management, information management, strategic planning, communication/conflict resolution/decision making skills, meeting facilitation, etc. It also the acquisition of new technical skills or expertise.	Green Empowerment, subgrantees, local governments, and any other partners	Training session participant lists and staff records/reports	Ongoing, as acquired	0	240

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DATA COLLECTION AND REPORTING

Performance Indicator Reporting

Data for all of CREST's indicators with the exception of 1.2 are collected on an ongoing basis as installations, construction, or trainings occur over the life of the program, and added to a running, cumulative total. The running totals for these indicators are reported to USAID via Green Empowerment's Quarterly Program Reports. Water quality testing, indicator 1.2, is conducted at any existing community water sources before the installation of Level II water systems. It is then conducted upon project completion, as well as biannually thereafter.

All indicators and corresponding data will be tracked and shared amongst project partners via an Indicator Reporting Tracker, a management tool that facilitates staff monitoring, reporting, and serves as the repository of all data for all communities. In addition to receiving updates on all 6 of CREST's performance indicators as they become available in quarterly program reports, Green Empowerment can provide USAID with specific information on any given indicator upon request (pending data availability). GE will also be responsible for processing and analyzing raw data received from field monitoring to provide useable, readable data back to project partners, beneficiaries, or other interested parties and to communicate program successes to broader audiences.

Program Reporting

In addition to monitoring the specific performance indicators described above and in Annex I, routine staff and partner reporting, formal and informal beneficiary feedback will also be consistently incorporated into the day-to-day management and strategic approach of the CREST program over its 5 year lifetime. CREST staff communicate regularly with beneficiary communities during site assessments, feasibility surveys, installations, monitoring visits, and during the provision of ongoing technical assistance to CWAs and other community members, either telephonically or in person. All Green Empowerment subgrantees are required to submit quarterly program reports that detail these interactions and any feedback received therein, describe activities undertaken, progress against workplans, challenges or concerns, and activity plans for the following quarter, as well as provide an updated indicator reporting tracker and photographs of program activities (including before and after for construction and rehabilitation sites. The Green Empowerment Philippines Program Manager is required to submit a similar report every month. Furthermore, subgrantees submit financial reports on a monthly basis to Green

Empowerment so that it may regularly monitor the financial viability and management capabilities of its partners and quickly troubleshoot any issues that may arise.

Combined with the indicator tracking process described above, Green Empowerment amalgamates this variety of information and feedback to communicate overall program progress and financial standing to USAID via Quarterly Program Reports. Any adjustments to the workplan or M&E Plan determined necessary as a result of these quarterly reviews is also considered at that time and discussed with USAID.

Evaluation

In addition to the monitoring discussed above undertaken by Green Empowerment and its partners over the lifetime of the program and regularly reported to USAID, GE has budgeted for a final evaluation to be conducted upon the conclusion of the CREST program. An external, independent evaluator will be hired to evaluate the performance of Green Empowerment and its partners in executing the workplan and associated activities laid out in the grant's Program Description, results achieved per the present M&E Plan, and overall program impact. The final evaluation will likely take place in July 2017 and will serve to capture important lessons learned to inform future Green Empowerment and USAID programming.

Annex 1—CREST Performance Indicator Reference Sheets

CREST Performance Indictor Reference Sheet
Indicator 1.1: Number of people with access to improved water sources.
DESCRIPTION
Precise definition: The number of community members accessing Level 2 water connections (communal taps) as defined by the Philippines Department of Health. We are defining access as 500 meters away from the home, as this is still a considerable reduction in distance for many households based on our experience to date with water access in remote Philippines communities.
Unit of measure: Number of people
Calculation: Sum of all individuals across all communities.
Disaggregated by: Gender; community
Activity Area: Ram pump, storage tanks, piping and biosand filter installation
Indicator justification: Access to improved water sources has tremendous potential health impacts. The WHO estimates that access to improved water sources alone can reduce diarrhea morbidity by up to 21%. It is one of the primary indicators tracked at both the global and national level to determine progress toward the MDG target for water and sanitation which is to "halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation." Given that CREST will be working in "waterless" communities as identified by the National Anti-Poverty Commission of the Philippines and prioritized by USAID, tracking the number of people that have access to improved water sources is essential.
PLAN FOR DATA ACQUISITION
Data collection method: Barangay population multiplied by a discount factor of .7 to account for distant dispersed homes not within reach of a tap stand.
Data source: Barangay development plan or national census
Collection Timing: Ongoing, as water system installations are completed
Data reported to USAID: This indicator will be tracked as water systems are installed and therefore the cumulative, running total will be reported to USAID in each quarterly program report.
Baseline: 0
Target: 24,000 people
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): The use of secondary data multiplied by a discount factor, is an estimate rather than exact count. Furthermore, it does not consider whether the households within a tap stand radius are actually *using* the water from that source, just that they could access it.
Mitigation measures planned: We're using a very conservative discount factor so as to not overestimate beneficiaries. Given the concentration of households in many Philippines communities, even in rural areas, most of our Level II water systems have tap stands within reach of more than 70% of households.

CREST Performance Indictor Reference Sheet
Indicator 1.2: Water quality
DESCRIPTION
Precise definition: Percentage of community water sources that do not contain E.Coli bacteria as determined by a presence/absence test.
Unit of measure: Percentage
Calculation: Total number of community water sources testing negative for E.Coli divided by the total number of community water sources tested.
Disaggregated by: Community
Activity Area: Ram pump, storage tanks, piping and biosand filter installation
Indicator justification: The presence of *Escherichia coli* (E. coli) in drinking water is the primary indicator used by the international public health community, the World Health Organization (WHO), and the Philippine National Standards for Drinking Water (2007) to determine bacteriological contamination of water sources. E. coli is intestinal bacteria commonly carried by warm blooded animals and is the predominant cause of human illness resulting from drinking water. The presence of E. coli, defined by the WHO as E.coli per 100 milliliters of water greater than 1, indicates that the water contains fecal contaminants and furthermore is generally assumed to indicate the presence of other bacteria, viruses, or contaminants that also make water unfit for human consumption.
PLAN FOR DATA ACQUISITION
Data collection method: Water quality home testing kits (IDEXX Colilert or equivalent)
Data source: Principal water taps and tanks in each beneficiary community.
Collection Timing: Biannually.
Data reported to USAID: Biannually via the relevant quarterly program report.
Baseline: TBE
Target: 100%
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): Contamination of sample and/or inadequate sampling technique; seasonal variation
Mitigation measures planned: Adequate training for use of water quality testing kits and testing during both wet and dry seasons.

CREST Performance Indictor Reference Sheet
Indicator 1.3: Number of people with access to improved sanitation
DESCRIPTION
Precise definition: Total number of people with access to improved and shared sanitation facilities constructed in beneficiary communities during project timeframe with USG funds, or leveraged funds from other donor funds, local governments, or by residents themselves. Improved sanitation facilities are defined by the WHO as facilities that ensure hygienic separation of human excreta from human contact. These include pit latrines, ventilated improved pit (VIP) latrines, and pit latrines with slabs.
Unit of measure: Number of people
Calculation: For household facilities: sum of number of new latrines constructed, multiplied by 5 (average household size). For school facilities: number of students enrolled.
Disaggregated by: Community
Activity Area: Latrine installation & WASH trainings
Indicator justification: The WHO estimates that "improved sanitation reduces diarrhea morbidity by 37.5%" and therefore adequate sanitation facilities are critical to achieving the health impacts anticipated from this program. This indicator also monitors progress toward the MDG target for water and sanitation which is to "Halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation." Furthermore, securing cost share, local government investment, and community ownership are important goals of the CREST program because it helps to ensure sustainability beyond completion of USAID-funded activities.
PLAN FOR DATA ACQUISITION
Data collection method: Direct observation, verification, and recording by field staff.
Data source: Beneficiary communities
Collection Timing: Ongoing, as completed
Data reported to USAID: Running, cumulative totals reported via quarterly program reports.
Baseline: 0
Target: 10,000
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): Does not speak to the quality or cleanliness of the facility or its actual use.
Mitigation measures planned: WASH education and proper training on the operation and maintenance of sanitation facilities (indicators 2.1 and 2.2) attempt to address these issues.

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CREST Performance Indictor Reference Sheet
Indicator 2.1: Number of people trained in water and sanitation construction, O&M, administration and/or management
DESCRIPTION
Precise definition: Total number of individuals receiving training in the fabrication, installation, operation and maintenance, administration and/or management of water or sanitation facilities made possible by USG funds.
Unit of measure: Number of people
Calculation: Sum of all individuals attending each training or workshop, summed for all trainings.
Disaggregated by: Gender
Activity Area: Latrine installation & WASH trainings
Indicator justification: That users have the knowledge and skills to properly operate, maintain, and manage their water and sanitation infrastructure is critical to ensuring its sustainability, and reaping the health benefits they provide over the long-term. Similarly, building the capacity of local communities and organizations to construct and improve WASH facilities will ensure that their benefits are extended to additional Filipinos without requiring USG funding.
PLAN FOR DATA ACQUISITION
Data collection method: Training participant lists
Data source: Beneficiary communities
Collection Timing: Ongoing, as completed
Data reported to USAID: Running, cumulative totals reported via quarterly program reports; Trainet.
Baseline: 0
Target: 450
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): Does not speak to the quality or efficacy of the trainings provided, only their occurrence.
Mitigation measures planned: Routine, continued monitoring of the status of CREST infrastructure, water quality, and WASH committees in part speaks to the efficacy of capacity building efforts.

CREST Performance Indictor Reference Sheet
Indicator 2.2: Number of people reached with WASH education
DESCRIPTION
Precise definition: Total number of individuals attending WaSH trainings, workshops, and seminars made possible by USG funds.
Unit of measure: Number of people.
Calculation: Sum of all individuals attending each training or workshop, summed for all trainings.
Disaggregated by: Gender.
Activity Area: Latrine installation and WaSH trainings.
Indicator justification: The positive health impacts derived from safe drinking water and adequate sanitation facilities are maximized when complimented with education regarding proper hand washing, personal hygiene, latrine use and maintenance, water treatment and storage, etc. Such practices are critical to reducing disease transmission and the contamination of food and drinking water.
PLAN FOR DATA ACQUISITION
Data collection method: Training participant lists.
Data source: Beneficiary communities
Collection Timing: Ongoing as completed.
Data reported to USAID: Running, cumulative totals reported via quarterly program reports; Trainet.
Baseline: 0
Target: 975
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): Does not speak to the quality or efficacy of the trainings provided, only their occurrence.
Mitigation measures planned: Routine, continued monitoring of the state of CREST infrastructure and water quality in part speaks to the efficacy of such trainings.

CREST Performance Indictor Reference Sheet
Indicator 2.3: Number of new skills or management practices introduced/acquired.
DESCRIPTION
Precise definition: Number of new management practices introduced or skills acquired by Green Empowerment staff, its subgrantees, or other local partners as a result of USG assistance. "Management practices or skills" are defined as expertise, methods, practices and systems that help users plan, organize, manage, monitor, evaluate and/or improve upon their technical or administrative area of work. These may include data collection, monitoring, and analysis, organizational structure, administrative and financial management, human resource management, information management, strategic planning, communication/conflict resolution/decision making skills, meeting facilitation, etc. It also the acquisition of new technical skills or expertise.
Unit of measure: Number of skills/management practices
Calculation: Sum of all new skills/management practices introduced across all program staff and partners. The skill/practice will be counted for each individual acquiring it, so the same practice could be counted multiple times for different people, or one person could acquire multiple skills/practices, and each would be counted.
Disaggregated by: Type of skill/management practice; gender
Activity Area: Capacity building and training
Indicator justification: This indicator seeks to quantify the knowledge transfer and capacity building component of program activities, important aspects of Objective 2 and the Development Grants Program more broadly. Greater technical and/or management expertise of CREST's implementing organizations and partners will better position both entities to continue program activities beyond the conclusion of USAID support as well as to initiate similar programs elsewhere.
PLAN FOR DATA ACQUISITION
Data collection method: Training session participant lists, and staff records/reports.
Data source: CREST staff and local partners
Collection Timing: Ongoing, as introduced/acquired
Data reported to USAID: Running, cumulative totals reported quarterly via quarterly program reports; Trainet.
Baseline: 0
Target: 240
Primary Partner(s): All
Location of data storage: Indicator Reporting Tracker (Excel)
DATA QUALITY ISSUES
Known data limitations and significance (if any): N/A
Mitigation measures planned: N/A

Annex 7
Sanitation & Hygiene Promotion for School Children
Building Climate Resilience in Water-Stressed Communities (CREST) Project

Brief Background

Clean water and improved access to sanitation facilities alone does not automatically result to better health. It is the individual's sanitation and hygiene practices along with proper water management and correct use of sanitation facilities that leads to the reduction of waterborne diseases.

The Building Climate Resilience in Water-stressed Communities or CREST Project is a five-year project that provides access to clean water and improved sanitation facilities to thirty-nine (39) waterless communities and to effect lasting behavioral change in sanitation and hygiene practices. Now on its fifth year, Project CREST has completed level 2 water system and sanitation facilities in thirty-five (35) communities including Indigenous Peoples (IP) communities.

The CREST Project specifically aims to: 1) improve community health and hygiene in Mindanao and Leyte through increased supply of potable water and accompanying WASH facilities; and, 2) build capacity of Green Empowerment, its partner, and beneficiary communities; Its main components are: 1) installation of level 2 potable water system; 2) installation of toilets in every homes and toilets, hand washing stations, rainwater harvesting tanks in schools and daycare center; and 3) training on water system management and operations and sanitation and hygiene promotion.

Sanitation & Hygiene Promotion Objectives

The promotion activities aim to provide schoolchildren tools and knowledge to change behaviors today so that future generations will be better prepared to care for their families and communities' health and environment. Water is the basic material for sanitation and hygiene while the toilets in every home and in schools will address open defecation. The toilets and handwashing station in schools will help teachers train schoolchildren in using toilets and handwashing. Focusing sanitation and hygiene promotion and training school teachers and village health workers will ensure continuous promotion of best hygiene practices.

The following will be the key sanitation and hygiene messages:

- ✓ pathways of contamination or the F-diagram;
- ✓ handwashing and other hygiene practices; and
- ✓ Proper use of sanitation facilities.

Methodology

The sanitation and hygiene will be promoted through storytelling and will cover the beneficiary public schools in Mindanao, Leyte and Zambales. The target audience are 80 to 100 Grades 4-6 schoolchildren. The activities per school will run from one (1) hour and thirty (30) minutes to two (2) hours.

Storybooks to be used are the following:

1) *Just Add Dirt (Adarna House) by* Becky Bravo
2) *Ayan Na Si Bolet Bulate (OMF Literature Inc.)* by Luis P. Gatmaitan

The method is briefly described as follows:

Storytelling

1) Introducing the Story – question and answer
2) Telling proper – actual telling demonstration, encourage schoolchildren's participation, highlight parts to focus on the key messages
3) Conclusion of the story – review the story, encourage schoolchildren to say the key messages they learned
4) Post-storytelling activities – actual handwashing, arts and crafts or writing activity

Copies of the storybooks will be donated for each school.

Timeframe

Major Activities	Timeframe
Leyte	September 4 – 12, 2017
Zamboanga and Basilan	September 18 – 22, 2017
Agusan del Sur	September 25 – 27, 2017
Zambales	September 29, 2017

Annex 8
Water Quality Test Results

	PROJECT SITE	WATER SAMPLING		
	Barangay	Nearest tap stand from reservoir	Farthest tap stand from reservoir	Remarks
	Leyte	E. coli	E. coli	
1	Brgy. Tabgas, Albuera	0	0	
2	Brgy. Alegria, Bato	0	0	
3	Brgy. Amagos, Bato	0	nv	
4	Brgy. Domagocdoc, Bato	0	0	
5	Brgy. Imelda, Bato	0	nv	
6	Brgy. San Agustin, Bato	0	0	
7	Brgy. Hampangan, Hilongos	N/A	N/A	Water system under repair
08	Brgy. Sto. Niño, Hilongos	2	0	
09	Brgy. Maljo, Inopacan	5	nv	Water from the old reservoir directed to new reservoir instead of connecting it to the filtration tank
10	Brgy. Gimeranat East, La Paz	N/A	N/A	Water system under repair
11	Brgy. Lanawan, MacArthur	N/A	N/A	Water system under repair
12	Brgy. President Garcia, Matalom	2	0	Broken pipe
13	Brgy. Ormocay, Mayorga	0	0	
14	Brgy. Cagbuhangin, Ormoc City	N/A	N/A	Water system under repair
15	Brgy. Danao, Ormoc City	0	0	
16	Brgy. Ipil, Ormoc City	0	nv	
17	Brgy. Butason II, Tabango	N/A	N/A	Water system non-functioning due to reduced water yield from the source

18	Brgy. Tombo, Alangalang	0	0	
19	Brgy. Mahayahay, Ormoc City	N/A	N/A	Water system under repair
	Zambales			
20	Brgy. Aningway Sacatihan, Subic	0	0	
	Zamboanga City			
21	Brgy. La Paz	1	0	
22	Brgy. Taguite	0	nv	
23	Brgy. Sinubong	2	nv	
24	Brgy. Limpapa	1	nv	
25	Brgy. Sinubong Proper	N/A	NA	Water system under construction when water testing was conducted
	Agusan del Sur			
26	Brgy. Mahayahay	nv	nv	
27	Brgy. Don Alejandro	nv	nv	
28	Brgy. Policarpo	0	nv	
29	Brgy. Balit	nv	nv	
30	Sitio Guitas, Brgy. Bunawan Brook,	0	0	
31	Sitio Simulao, Brgy. Bunawan Brook	N/A	N/A	Water system under construction when water testing was conducted
	Isabela City, Basilan			
32	Upper Maligue, Isabela City	N/A	N/A	Water test not conducted due to security situation in the site
33	Sitio Trece, Brgy. Maligue	N/A	N/A	Water test not conducted due to security situation in the site
34	Brgy. Masola Proper	N/A	N/A	Water test not conducted due to security situation in the site

35	Brgay Masola Purok 5	N/A	N/A	Water test not conducted due to security situation in the site
	Sulu			
36	Brgy. Mampalam, Talipao	N/A	N/A	Water system non-functional due to land owner having taken back the water source
37	Brgy Ajid, Indanan	N/A	N/A	Water system functioning, but security situation prevented conduct of water quality test
38	Brgy Upper Laus, Talipao	N/A	N/A	Non-functional water system; repair could not be done due to security situation
39	Brgy. Bandang & Kiutaan, Talipao	N/A	N/A	Water system destroyed by ASG
40	Brgy. Silangkan, Parang	N/A	N/A	Water system non-functional; solar panel taken by ASG
	Tawi-Tawi			
41	Brgy. Buan, Panglima Sugala	N/A	N/A	Water system non-functional; ram pump location inundated by sea water

N/A – Test not conducted

nv - Not valid, sample did not produce result

* At each site that was tested, samples were taken from the nearest and the farthest tap stands from the reservoir. 3M E-coli / Coliform Petri film test kits were used. A score of zero (0) indicates that no E-coli colonies were detected by the test.

Annex 9
WASH Posters - English

Water is life..

Every drop counts. Conserve water.

Building Climate Resilience in Water Stressed Communities (CREST) Project
A project by Green Empowerment. Supported by the United States Agency for International Development (USAID).

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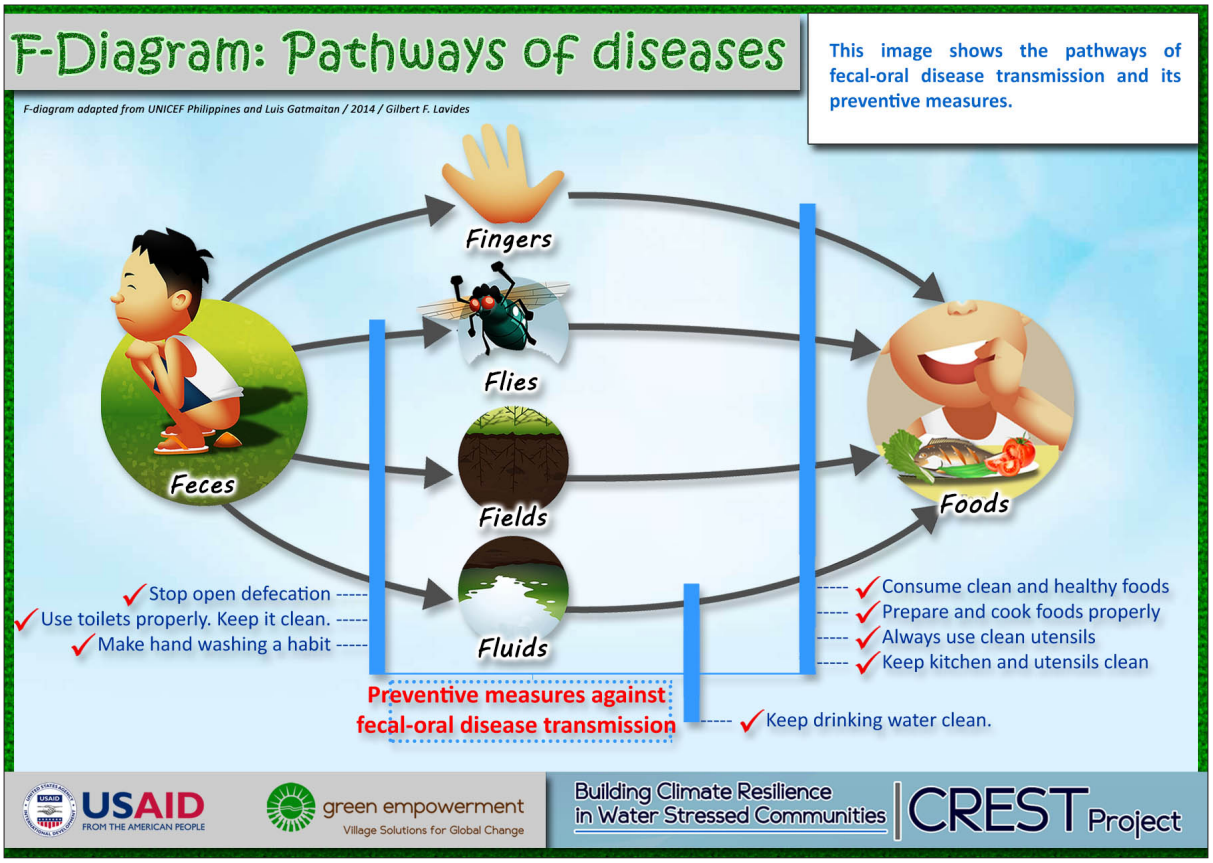
F-Diagram: Pathways of diseases
F-diagram adapted from UNICEF Philippines and Luis Gatmaitan / 2014 / Gilbert F. Lavides
This image shows the pathways of fecal-oral disease transmission and its preventive measures.
Fingers
Flies
Feces
Fields
Foods
Fluids
✓Stop open defecation -----
✓Use toilets properly. Keep it clean. -----
✓Make hand washing a habit -----
Preventive measures against fecal-oral disease transmission
✓Consume clean and healthy foods
✓Prepare and cook foods properly
✓Always use clean utensils
✓Keep kitchen and utensils clean
✓Keep drinking water clean.
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CREST Project


How to wash hands properly?
1
Wet hands
2
Use soap to kill germs
3
Rub hands together for soap to spread
4
5
6
Scrub between fingers and under fingernails
7
Rinse thoroughly
8
Dry hands with clean towel
When to handwash?
• Before and after food preparation
• Before and after eating
• After using the toilet
• After doing household chores
• After touching pets and other animals
• After holding garbage
• After working
• After visiting a sick friend or relative
Credits: Images adapted from World Health Organization (WHO)
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Annex10
Hand Washing Promotion

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HOW TO HANDWASH?

A Step-by-step Guidelines

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Importance of Handwashing

Handwashing is one of the most effective means of preventing diarrheal diseases, along with proper disposal of human wastes and having an adequate household water supply. Evidence suggests that improved handwashing can have a major impact on public health in any country and significantly reduce the two leading causes of childhood mortality – diarrheal disease and acute respiratory infection.

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How to wash your hands properly?

Handwashing is the most basic personal hygiene method an individual can perform to prevent the spread of diarrheal diseases. The best handwashing practice is to have the means to wash hands with soap or an alternative (such as ash) after using toilets, after cleaning the bottom of a child who has been defecating, and before eating and preparing food.

Duration of handwash (steps 2-7)	**15-20 seconds**
Duration of the entire procedure	**40-60 seconds**

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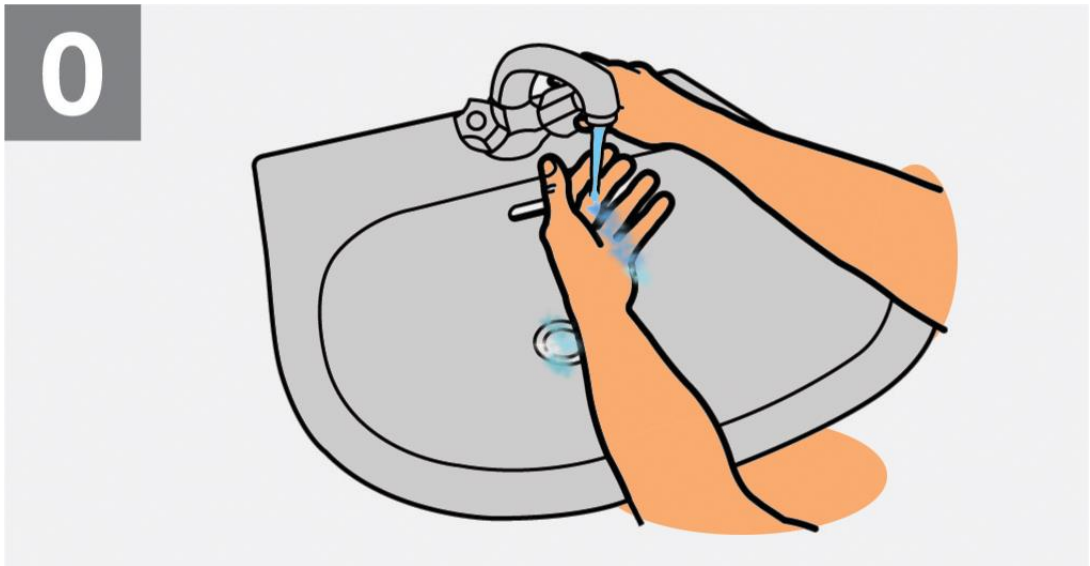
Wet hands with water



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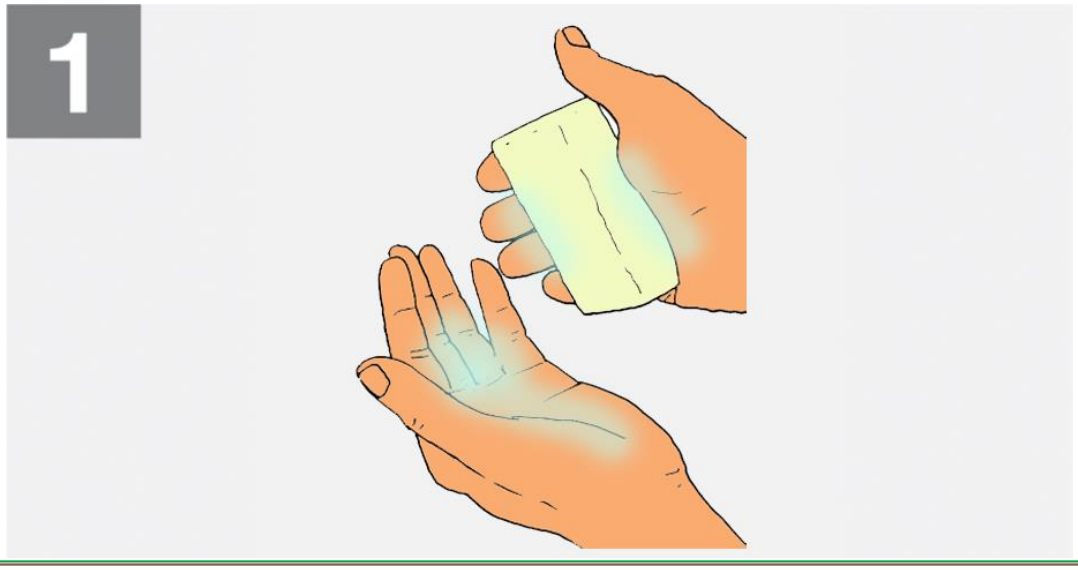
Apply enough soap to cover all hand surfaces

1



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Rub hands palm to palm

2

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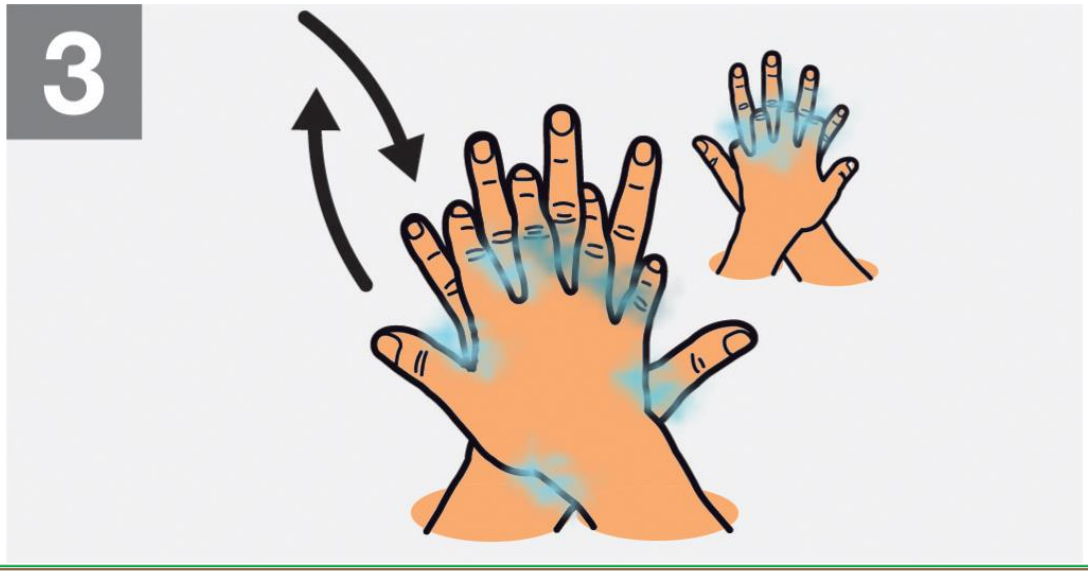
Right palm over left dorsum with interlaced fingers and vice versa



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Palm to palm with fingers interlaced

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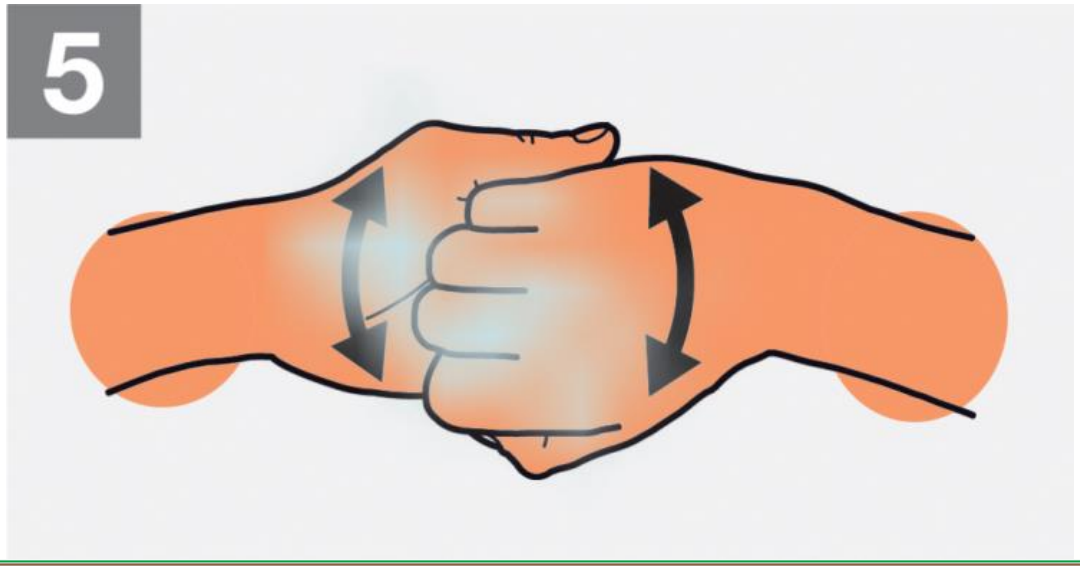
Back of fingers to opposing palms with fingers interlocked



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Rotational rubbing of left thumb clasped in right palm and vice versa

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Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

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Rinse hands with water

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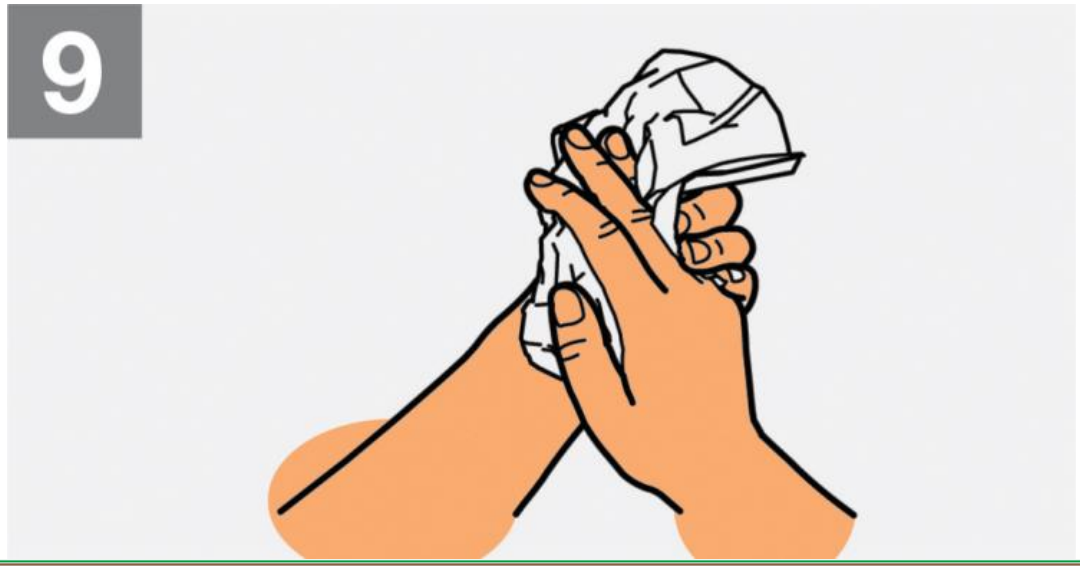
Dry hands thoroughly with clean towel



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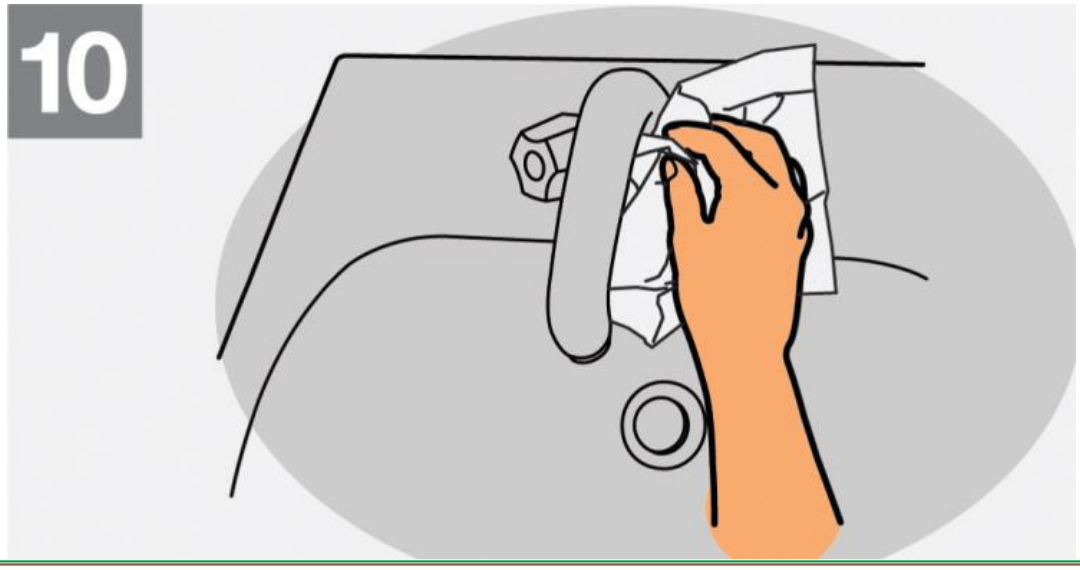
Use towel, elbow or back of hand to turn off faucet



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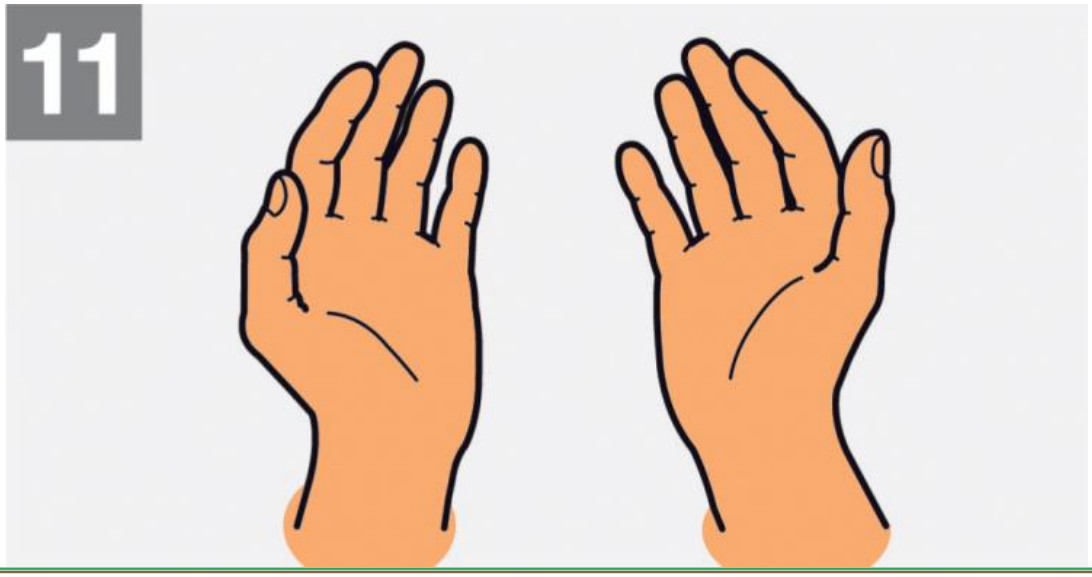
Good job! Your hands are now clean and safe.



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Thank you!

Guidelines adapted from:

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean **Your** Hands

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FINAL REPORT

August 6, 2012 – September 30, 2017