Executive Summary

J/P Haitian Relief Organization is implementing a project entitled “Payment for Ecosystem Services (PES) to Protect Mangroves in Bondeau, Nippes, Haiti”. According to the project document, its general objective is to “protect mangrove ecosystems in Bondeau, Nippes, Haiti through concrete support to improve fishing and agricultural livelihoods, local capacity building, and a dynamic environmental stewardship campaign”. The project strategy is an integrated approach from ridge to reef to address climate risks, in order to improve farming techniques in Paillant which has a direct effect on the mangrove and fish population in the seaside. This approach is based on the assumption that with support to improve climate-adapted fishing and agricultural livelihoods, and the mobilization of youth in an environmental stewardship campaign, coastal mangroves in Bondeau that are critical to marine ecosystems and climate resilience will be protected.

The by the end of the project we expect the following outcomes:

1. Improved governance and natural resource management;
2. Local actors have taken on the role of environmental stewardship;
3. Livelihoods of fishers and farmers in Bondeau are improved by the end of the project.

This report presents the findings of the baseline evaluation for the project. The evaluation will be retaken at the end of the project in order to evidence the extend to which it creates the expected outcomes.

***Objective of the Evaluation***

The general objective of this study is to establish baseline data for the core outcome indicators that aim to capture behavioral changes that the project seeks to induce among its beneficiaries.

More specifically, the evaluation produced evidences that can guide the project implementation efforts to focus on the most critical areas where changes need to be induced. As the evaluation followed the KAP (Knowledge, Attitude and Practice) methodology, it produced baseline values for the following three sets of outcome indicators:

**Knowledge:**

* % of local governance stakeholders who demonstrated understanding of improved governance and management of natural resources.
* % of project beneficiaries (farmers, fishers and school aged youths) demonstrated understanding of mangrove ecosystems protection practices

**Attitudes:**

* % of local governance stakeholders with positive attitudes towards improved governance and management of natural resources.
* % of project beneficiaries (farmers, fishers and school aged youths) with positive attitudes towards mangrove ecosystems protection actions.

**Practices:**

* # of activities undertaken by local governance stakeholders towards improved management of Bandeau’s natural resources.
* # of community led mangrove protection activities carried out.

***Methodology***

The evaluation methodology is based on a qualitative and quantitative approach. By the qualitative approach we obtained qualitative information such as understanding of local authorities of problems related to managing Bondeau mangroves and their willingness to improve the governance and management of natural resources of the area. Thus, we only had in-depth interviews with local authorities in Focus Group Discussion. The quantitative approach focused on measuring knowledge, attitudes and practices of the targeted students, fishers and farmers about Bondeau mangroves, mountain soil management and environment protection. The survey was carried out using multi choice test questionnaires. The results of the tests related to knowledge attitudes and practices of the beneficiaries are be aggregated to report the core outcome indicators.

***Findings***

***Conclusions and Recommendations***

# I. Introduction and problem statement

J/P Haitian Relief Organization (J/P HRO) through the Haiti Take Roots (HTR) initiative will be implementing the project titled: Payment for Ecosystem Services (PES) to Protect Mangroves in Bondeau, Nippes, Haiti, for the next 24 months. Funded by Caribbean Biodiversity Fund in the context of the Ecosystem-Based Adaptation (EbA) Program, the project aims to “protect mangrove ecosystems in Bondeau, Nippes through concrete support to improve fishing and agricultural livelihoods, local capacity building, and a dynamic environmental stewardship campaign”.

More than 70% of the tropical coastline is covered by mangrove forests (Raven et al., 2009). In the Tropical and Subtropical region, mangrove forests are the equivalent of salt marshes. They are home for many species such as Pelicans, Herons, Crabs, Egret and so on. They serve as nurseries for different species thriving in the sea and feed them when needed. They are good nesting sites for birds. In addition, mangrove ecosystem play an important role in protecting coastline against erosion and inundation (MARIO et al. 2015). They help stabilize and protect the coastline against natural hazards such as Tsunami. Mangroves ecosystems help filtering water going down into the deep sea and stop the pollutants from going further. By providing food, materials, and protection to human through its numerous ecosystem services the importance of mangroves seems undeniable. However, its global coverage is seriously decreasing in the last decades.

Human activities such as farming in the adjacent mountain of watershed environments are among the most common factors that cause continuous degradation of downstream mangrove ecosystems. Adding to those factors, climate change is making things even worse. That is the situation of most mangrove ecosystems in Haiti where mangrove forests are destroyed for charcoal production, usage of wood as energy source, salt pans construction, beach and urbanization project, etc. The Bondeau mangroves is part of a watershed where the effects of bad use of land up stream combined with climate change effects are evident for decades. Due to uncontrolled erosion reducing soil productivity and causing continual decrease in harvests, the population of Surrounding Mountain of Bondeau move down to the sea level to find economic opportunities increasing pressure on the existing yet limited resources of the area. On the other hand, fishers are facing challenges as uncontrolled sedimentation chokes mangroves, changing the coastal ecosystem etc.

The most important factor to take into consideration in managing mountain lands is the human element. Therefore, many experiences have proven that “mechanical structures, reforestation, and other conservation practices will not achieve many benefits unless the inhabitants of these upland catchment areas are persuaded and given incentives to change from their present ecologically destructive practices such as shifting cultivation to more suitable land use” (Joshi, n.d.). Thus, the Payment for Ecosystems Services (PES) programs are incentive-based that compensate individuals or communities for undertaking actions that increase the provision of ecosystems services. Therefore, the PES to Protect Mangroves in Bondeau will articulate its intervention on an integrated approach from ridge to reef to address climate risks, in order to improve farming techniques in Paillant which has a direct effect on the mangrove and fish population in the seaside. This approach assumes that with support to improve climate-adapted fishing and agricultural livelihoods, and the mobilization of youth in an environmental stewardship campaign, coastal mangroves in Bondeau that are critical to marine ecosystems and climate resilience will be protected.

This document reports on the baseline evaluation conducted at the project launch. It provides baseline values for the project outcome indicators in such that we can verified its impact at the end of the project.

# II. project background and context

## 2.1 BONDEAU WATERSHED Description

Localization, population, cultures(crops), topography, base of the local econmy, the local dynamic….

## 2.2 Context

Due to continuous degradation of mangroves ecosystem etc….

## 2.3 BONDeau PES Project framework and approach

Project approach.

## 2.4 BONDeau PES Project theory of change (TOC)

The Bondeau mangroves are part of a watersheds with a complex ecological system where the impacts of a changing climate have already been felt for decades. Due to uncontrolled erosion reducing soil productivity and causing continual decrease in harvests, the population of Surrounding Mountain of Bondeau move down to the sea level to find economic opportunity increasing pressure on the existing yet limited resources of the area. On the other hand, fishers are facing challenges as uncontrolled sedimentation chokes mangroves, changing the coastal ecosystem etc.

J/P HRO’s participatory assessments in 2017-18 and workshops in May 2019 revealed that the community understands the importance of mangroves both as a refuge for aquatic species that are critical for fishing livelihoods and also for protection during harsh weather. However, in the face of financial hardship, people living in Bondeau frequently use the mangroves as a source of supplemental income by cutting them to make charcoal.

Thus, the PES to Protect Mangroves in Bondeau will articulate its intervention on an integrated approach from ridge to reef to address climate risk, in order to improve farming techniques in Paillant which has a direct effect on the mangrove and fish population in the seaside. This approach is based on the assumption that with support to improve climate-adapted fishing and agricultural livelihoods, and the mobilization of youth in an environmental stewardship campaign, coastal mangroves in Bondeau that are critical to marine ecosystems and climate resilience will be protected.

## 2.5 BONDeau PES Project activities

| Table 1: OUTCOMES, ASSOCIATED OUTPUTS AND ACTIVITIES | | |
| --- | --- | --- |
| Outcomes | OUTPUTS | MAIN ACTIVITIES |
| *SO1. Local actors have taken on the role of environmental stewardship* | *ER1.1 Stakeholders are mobilized and sensitized about natural resource management.*  *ER1.2 Stakeholders understand existing regulations and laws* | * Act.1.1.1 Identify key stakeholders for the project * Act 1.1.2 Sensitization/mobilization meeting with stakeholders * Act 1.1.3 Conduct baseline/Endline surveys * Act.1.1.4 Provide technical support/training to stakeholders * Act 1.2.1. Primer and training on relevant policies, laws & conventions * Act1.2.2 organization of workshops to educate local stakeholders |
| *SO2. Livelihoods of fishers and farmers in Bondeau are improved by the end of the project.* | ER.2.1 Young people become leaders in action for environmental protection.  ER2.2 A participatory protection and management plan is adopted for the Bondeau mangroves.  ER2.3 Ongoing public education changes the narrative about the environment  ER2.4 Improvement in socio-economic resilience of people exposed to the effects of climate change, due to EbA Facility interventions. | * Act 2.1.1 Establish environment clubs in schools * Act 2.1.2 Develop research projects in Paillant & Bondeau * Act 2.1.3 Students provide ongoing M&E through observation at sites * Act 2.1.4 Convene stakeholders to dialogue on best practices/lessons learned * Act 2.2.1 Hold conferences with working sessions to plan the development of protection & management plan. * Act 2.2.2 Realize participative workshops to elaborate the management plan for the Bondeau mangrove. * Act 2.2.3 Capacity building & accompaniment for key actors in plan. * Act 2.3.1 Develop regular meeting schedule & support collaboration among actors. * Act.2.4.1 Conduct Kwoledge,Aptitude and Practice survey (KAP) * Act.2.4.2 Conduct socio-economic Survey. |
| *SO3. Increased hygiene practices* | *ER3.1 Capacity of local fishers is strengthened*  *ER.3.2 Farmers benefit from supplemental income and sedimentation in mangroves is reduced* | * Act 3.1.1 Participatory assessment of existing fisher associations * Act 3.1.2. Establish cooperative of associations with shared goals & resources. * Act 3.1.3 Determine priority material resources and co- financing mechanism. * Act 3.1.4 Technical support/training & exchanges. * Act 3.2.1 Identify farmers or property owners on targeted lands. * Act 3.2.2 Provide trainings on nursery production and establish a tree nursery to produce moringa seedlings in Paillant. * Activity 3: Sign PES agreement, provide seedlings and PES until end of project. * Activity 4: Connect farmers to Acceso for sale of leaves * Act3.1.3 Provide continuous technical support. |

III. evaluation purposes, evaluation questions and evaluation use

The objective of this final evaluation was to evaluate the impact of the WPA in the Cabaret communities. The evaluation allowed us to address the following two common objectives:

✓ To understand whether the WPA activities have been effective towards improving the key outcome indicators. In addressing this objective, the evaluation team seek to measure and understand Living Water’s contribution to change for the first two intended outcomes as listed in the table above. Specifically, the evaluation will seek to answer the following overarching evaluation questions:

**EQ1: To what extent has access to and use of safe water increased? How have WPA activities contributed to this change?**

**EQ2: To what extent have sanitation and hygiene practices improved? How have WPA activities contributed to this change?**

✓ To understand the contribution of Living Water’s partnership model to the sustainability of program outcomes. This objective is based on Living Water’s emphasis on sustainability and learning about the WPA implementation mode. To address this second objective, the evaluation team seek to answer the following questions:

**EQ3: To what extent have local churches and CBOs engagement in community WASH development increased?** **How have WPA activities contributed to this change?**

**EQ4:** **What is the likelihood that results will be sustained? How does the involvement of, and partnership between, local officials, local churches, and communities, contribute to the sustainability of outcomes?**

As mentioned in the evaluation TOR, the final evaluation of Cabaret will reach out to two different types of audiences:

Internal audiences: country office and program team, regional service team, global service team, and finance and development teams. All together will have an opportunity to evaluate the synergy of working together for the same goal, through lessons learned and evaluation of the efficiency and effectiveness of the Cabaret WPA.

External audiences such as: local government and WASH entities, church partners, other development organizations, water management bodies, communities, key donors, students, WASH conferences, etc.

# IV. evaluation design and rationale

Like the mid-term evaluation the final evaluation used a mixed-methods (quantitative and qualitative) design to address the two evaluation objectives and the four evaluation questions. For evaluation objective 1, the qualitative methods provided narrative around unexpected or dramatic results from quantitative surveys or help place them within the relevant context. For evaluation objective 2, the emphasis was put on the qualitative methods to assess outcomes that cannot be quantified. Given this approach, the optimum sequencing of the research was to conduct the Focus Groups and the Key Informants interviews after the quantitative methods have been completed and preliminary findings produced. This allowed the validation of the quantitative data collected through the qualitative methods.

## 4.1 Quantitative methods and approaches

### 4.1.1 Household survey

A household survey was conducted to obtain data surrounding various WASH outcome indicators. This evaluation used the same sampling frame, sampling size and method of selection of the households that were used in the mid-term evaluation.

The sampling frame was comprised of the total of households in the three communal sections comprised of the Cabaret WPA communal section: First Boucassin, Second Boucassin, and Source Matelas.  The sample size was determined based on one of the outcome indicators of the project: "proportion of the population using an improved source of water throughout the year" with Po equal to 48 % (0.48) and P1 estimated at least 65% (0.65). The formula used for calculating the sample size was:

***C= 1+ (Z α/2 +Zβ)2[P0 (1-P0 )/n +P1 (1-P1 )/n + ĸ2 (P02+ P12)]/( P0 - P1)2*** Where

 P0: is the proportion of households with or without the required characteristics at baseline

P1: is the proportion of households with the required characteristics at end line

n: is the number of households per cluster / SD'E

k: is the coefficient of variation between clusters (0.25)

Z α / 2: is the level of significance (95%)

Zβ: is the statistical power (80%)

A two-stage cluster sampling method was used to collect household survey data. The SDE constituting the basic sampling units were selected according to the PPT (Probability Proportional to Size) method. The selection of households surveyed was done in two parts: 1) compiling a list of all SD'E or basic sampling units in the WPA area, with the approximate number of households per SD'E; 2) Development of a sampling frame to calculate the sampling interval and determine the number of households per area of implementation. As in the mid-term evaluation, 400 households were selected across 20 clusters and this sample of households was found statistically representative of the Program Area with a 95% confidence interval and a statistical power of 80%

### 4.1.2 water point observation

The evaluation team collected observational data of WASH at different water points and information related to usage of the facilities. Use of photographs to show the condition of WASH facilities at all levels were used as much as possible.

4.2. qualitative methods and approaches

### 4.2.1 document review

During this phase, the evaluation team conducted a desk review of all relevant available documents. This involves reviewing key internal and external documentation to begin to answer some of the sub-evaluation questions. Such documents included: the mid-term evaluation, the baseline report, the WPA end-line evaluation research plan, the LWI baseline community report, the LWI strategic plan 2016-2021 revised and the program design proposal. These reviews helped gather background information on the Cabaret WPA, understand the context in which the Cabaret WPA was planned, implemented and monitored. These reviews helped also identify possible interviewees for KIIs and participants for FGDs, develop questions for interviews and focus groups, strengthen the theoretical and technical understanding of the WASH sector.

### 4.2.2 key informant interviews and focus groups discussions

key Informants Interviews and Focus Group Discussions were used to gather information from people who have particularly informed perspectives on an aspect of the Cabaret WPA. Those Interviews and discussions were used and analyzed to provide information on how the WPA contribute to a change. The table below shows the number of KIIs and FGDs by type of stakeholders conducted to address the five sub-evaluation questions below. Overall, there were 12 Key Informants Interviews and 8 Focus Group Discussions planned for the final evaluation.

**Table 2: Key Informants Interviews and Focus Group Discussions**

|  |  |  |
| --- | --- | --- |
| Sub-Questions | *Key Informants Interviews* | *Focus Group Discussions* |
| EQ1 | * KII with community leaders (2) * KII with local officials (2) * KII with Cabaret WPA staff (2) | * FGDs with community members (3) * FGD with ACUSH (1} |
| EQ2 | * KII with community leaders (2) * KII with local officials (3) * KII with Cabaret WPA staff (2) | * FGDs with community members (3) * FGD with ACUSH (1} |
| EQ3 | * KII with community leaders (2) * KII with local officials (2) * KII with Cabaret WPA staff (2) * KII with church leaders (6) | * FGDs with community members (3) * FGD with ACUSH (1} |
| EQ4 | * KII with community leaders (2) * KII with local officials (2) * KII with Cabaret WPA staff (2) * KII with church leaders (6) | * FGDs with community members (3) * FGD with OLEC (1} * FGD with Community Water (1) management Committees (CWMCs) * FGD with Local Water Association (1) |

CHASE’s approach to Focus Group Discussions was to have three-team researchers by Focus Group. One researcher (the moderator or facilitator) lead the discussion by asking participants to respond to open-ended questions – that was, questions that required an in-depth response rather than a single phrase or simple “yes” or “no” answer. A second researcher (the note-taker) took detailed notes on the discussion. A third researcher observed and recorded the Focus Group sessions as they yielded a large amount of information over a relatively short period of time. CHASE produced a Focus Group Report after each Focus Group session. The facilitator was responsible to write the FG report with the help of the other team’s members. To that end, CHASE deployed two Focus Group teams comprised of a total of six persons to carry out the qualitative data collection.

CHASE is abided by some general ethic rules when conducting qualitative research using Focus Group as data collection method. As the purpose of the focus group shall be explained within the larger context of the study, CHASE was aware that its FG researchers shall always be truthful and straightforward about the objectives of the evaluation and the anticipated risks and benefits to the individual participant and the community and that they shall not create false expectations or making false promises in order to obtain a participant’s cooperation. Therefore, Prior to all FGDs, participants were asked to consent and sign a consent form.

CHASE ensured that data are of good quality during all the data collection process: facilitator and note-taker training and translation; pretesting and pilot. CHASE Field Supervisor ensured that the Focus Group sessions were well managed and Focus Group notes were taken in a professional manner. He also ensured that focus group reports are done and submitted to the CHASE server in a timely manner, communicated to CHASE project manager and informed CHASE of any issues arise during the data collection field work. His other duty included: 1) check-in with the researcher teams to review any challenges faced and providing feedback to the team; 2) ensuring that facilitators review their team notes before submitting them to CHASE server; daily team debrief to review any challenges faced and to allow any needed clarifications, and feedback to the wider group.

## 4.3. data analysis

This report used a descriptive analytic approach. Results were tabulated with the analytic variables presented as rows and the comparison groups, including the three corridors and setting (urban/rural), as columns. Most data were presented as column percentages, means or medians, carried out to one decimal point.

The report authors created all computed variables, including simple variable (age, sex, marital status, etc.) and composite indicators. International standards were used whenever available to compute WASH variables and indicators.

Handling of missing values for calculating indicator values were done based on the approach usually adopted for all small-scale surveys like the WPA Cabaret final evaluation. Our approach was to recode all “don’t know” responses as missing data and to not include the missing values in the numerator or denominator for any indicator.

## 4.4. methodological limitations

The field work was implemented at the end of April amid political instability in Haiti reflected by many street protestations in Port-au-Prince and its surroundings, limiting CHASE interviewer's mobility. Given the political atmosphere prevailing during this period, it was sometimes inappropriate to organize any type of gatherings that could be interpreted as a political rally. Therefore, a limited number of Focus Groups were conducted: 2 FGDs with community members, one with church leaders and one with Community Water (1) management Committees (CWMCs).

Regarding the Key Informants interviews, many of them were conducted as planned: the KIIs with LW staff, local officials and with Community Leaders were conducted as planned but only 5 out of 6 KIIs with church leaders were carried out.

Regarding the quantitative survey, we should note that the mid-term household data included both drinking water and non-drinking water while the end-line data was about drinking water only. Therefore, in comparing the two set of data, one should account for this type of bias.

# V. Findings

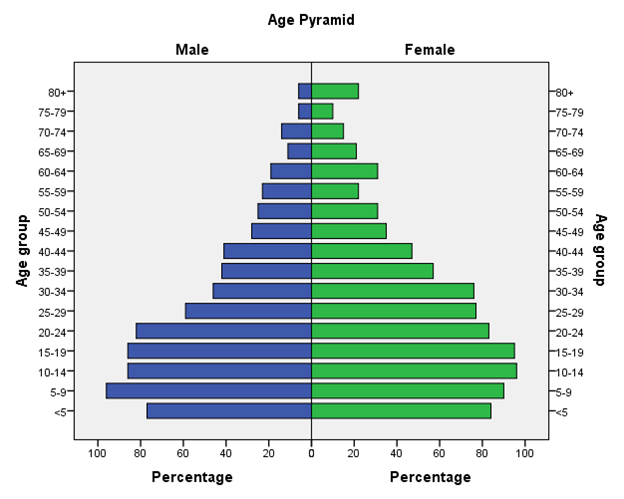
## 5.1 Household population, shelter and infrastructure

The focus of this chapter is to describe the environment in which the survey population lives. It provides information about the sociodemographic characteristics of the Cabaret WPA project beneficiaries. Gender and age structure, household size and composition, housing characteristics are analyzed and, taken together, present a global picture of the beneficiaries’ profile.

### 5.1.1 GENDER AND AGE STRUCTURE

Graph 1 and Table 3 show the distribution of the surveyed population by age group. As we can see, the pyramid structure is similar by many accounts to the national population pyramid. A global 10 percent is under 5 years and 33 percent between 5 to 19 years old. The largest group is the population between 5 to 24 years of age, which accounts for 43 percent of the total WPA beneficiaries. The population between 25 to 49 is 31 percent and the population over 50 years represents only 16 percent. This finding is important as it reveals the age groups that should be targeted for messages aiming at behavior changes regarding water and sanitation.

**Graphic 1. Age Pyramid**



### 5.1.2. Respondents Education Level

The household composition usually affects the allocation of resources available to household members. A slight majority of households in the survey areas are headed by women (53 percent). This is particularly the case in urban areas (57 percent). By contrast, male-headed households are more frequent in rural areas (57 percent).

The household mean size within the beneficiary population is 4.0, which is the size that one would expect for a community in the vicinity of Port-au-Prince. Over 43 percent of the household surveyed have 1 to 3 members and twenty-two percent of the households have over 4 members. Household heads were defined as female-only and male-only depending on the presence or not of a spouse. A slight majority of households in the survey areas are headed by men (58 percent). Female headed households account for 42 percent.

**Table 4: Household Composition**

5.1.3. housing type and characteristics

Housing characteristics can be used as a measure of the socioeconomic status of household members. More than half of all households (56 percent) reported having access to electricity at home. Most homes have concrete, cement or brick floors (68 percent). Charcoal (66 percent) and wood (23 percent) still represent the main source of fuel for cooking.

## **5.2. Evaluation question (eq) 1. To What Extent has access to and use of safe water increased? How have wpa activities contributed to this change?**

### 5.2.1. Access and use of safe water and LWI contribution

The source of drinking water is an indicator of whether it is suitable for drinking. Sources that are considered likely to be of suitable quality are listed under “Improved source,” and sources that may not be of suitable quality are listed under “Non-improved source.” The categorization into improved and non-improved is proposed by the WHO/United Nations Children’s Fund (UNICEF) Joint Monitoring Program (JMP) for Water Supply and Sanitation. Although the JMP has not officially endorsed tanker water truck as an improved source, this survey considers that all households using tanker water truck as households using an improved source.

Other type of improved water sources includes piped water into the dwelling, piped water into the yard, public tap/standpipe, tube well, protected well, protected spring and rainwater. Table number 3 presents data on the sources of drinking water in the WPA Cabaret. The three most cited primary drinking water sources are water tank truck, unprotected spring and protected wells.

A proportion of 73.3 percent of the households have access to an improved water source (Table 7). 46 percent have access to a water tank truck, 15 percent to a protected dug well and 6 percent to a public tap (Table 6). During the last two years, we observed a great shift in the way people in the WPA Cabaret get access to water. A significant number of people used water tanker truck for drinking water and less and less people are making use of unprotected spring, public taps or wells in general (see data limitation).

This result is a great improvement compared to the fact that access to improved water in rural area is generally low (45% in 2006) and reflects also LWI awareness campaign about drinking safe water. From the inception of the WPA Cabaret, LWI activities focused on drilling and rehabilitating new and dysfunctional wells. The emphasis was put on water accessibility and reliability rather than water quality. This fact may explain in part why only 6 percent and 15 percent of households are relying on public taps and protected dug wells respectively despites LWI efforts in the WASH sector. As reported by many key informants and focus group participants, the quality of the water from protected wells and public taps seems represent the main reasons why people are getting their drinking water from the small water tanker truck while using water from public taps and wells for cooking and other household needs.

55 percent of households reported having access at least 2.5L of water available per day from an improved water source (Table 6). The average usage per person/household/day (2.5 liters) is way below the recommended the WHO/SPHERE standards (15 liters/person/day) for water usage in an emergency. However, it should be noted that the average 2.5 liters includes only water intake (drinking water) not water for cooking and personal hygiene which are usually taken from public taps, wells or piped water on premises according to key informant interviewee or focus group participants.

Another issue related to water access is the number of hours water is available. This issue is linked to the right based approach promoted by UNICEF which stipulates that water supply should not be subjected to arbitrary disconnection. According to the quantitative survey, water is available at least during 28 days in the last month preceding the survey. Among the surveyed households (41.4 percent) experienced an interruption no more than two days during the last 30 days. This represents a notable improvement and the key informants' interviewees corroborate this fact as they also reported that water from wells and public taps are available on a current basis and that people in the WPA Cabaret area don’t have to walk up to one hour or two anymore to fetch for water from their home. In fact, a significant number of households (85.3 percent) reported spending less than 30 minutes to fetch for water (Table 4).

**Table 6: Primary Water Source**

| **Source of Water** | **Mid-Term Evaluation** | **End line Evaluation** | |
| --- | --- | --- | --- |
| **%** | **N** | **%** |
| *Water Tanker Truck* | 7.0 | 184 | 46.0 |
| *Unprotected Spring* | 27.8 | 78 | 19.5 |
| *Protected Dug Well* | 35.3 | 60 | 15.0 |
| *Small Tank; Drum* | - | 7 | 1.8 |
| *Bottle Water* | - | 7 | 1.8 |
| *Public Taps; Standpipes* | 13.0 | 24 | 6.0 |
| *Public Unprotected Well* | 0.0 | 8 | 2.0 |
| *Rainwater* | 0.3 | 1 | 0.3 |
| *Piped Water on Premises* | 10.8 | 8 | 2.0 |
| *Other* | 5.8 | 30 | 7.6 |
| **Total** | 100.0 |  | 100.0 |

**Table 7: Percent of Households with Access and Use of Safe Water**

|  |  |  |
| --- | --- | --- |
|  | *Mid-Term Evaluation*  *(2017)* | *End Line Evaluation*  *(2019)* |
| Sample Size | **400** | **400** |
| Margin of Errors (approximate) | **5%** | **5%** |
| ***% of households using an improved water source (WA1)*** | *71.9* | *73.3* |
| ***% households spending 30 minutes or less to collect water (WA2)*** | *89.0* | *85.3* |
| ***% households with at least 20L available per day from improved water source (WA3)*** | *42.1* | *47.5* |
| ***% households reporting an average use of 2.5L water per person per day from an improved water source.*** | *N/A* | *55.5* |
| ***% of households reporting downtime of greater than one day in last two weeks (WA5)*** | *73.2* | *41.4* |
| ***% respondents satisfied with primary water source quality (WA7)*** | *42.4* | *72.3* |
| ***% households practicing correct use of recommended household water treatment technologies (WA10)*** | *98.9* | *98* |

Regarding water treatment, the data show that the majority of surveyed household used either chlorine (96%) or boiled water (2 %) as water treatment method. The percentage of households practicing correct use of recommended water treatment technologies represent 98 percent (Table 7). This result can be considered as a great achievement when considering that only fifty six percent of households nationally don’t usually use any kind of treatment methods according to EMMUS VI. This result surely reflects the effort done by LWI to consistently sustain the water quality issues through awareness campaign and his result remains consistent with the mid-term evaluation data that showed that 91 percent of the households used chlorine as a method of water treatment.

Much more households (72.3%) reported being somewhat satisfied or very satisfied with the quality of the water provided by their primary water source and only 27.8% reported being unsatisfied (Table 8). This big jump in number of people being satisfied with their water quality may be explained in part by the fact that more and more people are getting their water from the water tank truck instead of wells, unprotected springs or public taps whose water quality is viewed as very poor by many key informants and Focus Group participants. In fact, the water quality in many water points is a concern for most of the population living in the WPA Cabaret. People mentioned the taste of the water, its brown color and its high level of minerals as factors affecting its quality and usage as drinking water by the WPA households.

**Table 8: Reported satisfaction with quality of water.**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Source of Water*** | ***Satisfaction (% of Households)*** | | |
| ***Very Satisfied*** | ***Satisfied*** | ***Unsatisfied*** |
| *Water Tanker Truck* | 4.3 | 79.9 | 15.8 |
| *Unprotected Spring* | 0.0 | 47.4 | 52.6 |
| *Protected Dug Well* | 1.7 | 60.0 | 38.2 |
| *Bottle Water* | 14.3 | 85.7 | 0.0 |
| *Public Taps; Standpipes* | 4.2 | 58.3 | 37.5 |
| *Public Unprotected Well* | 12.5 | 50.0 | 37.5 |
| *Rainwater* | 0.0 | 100.0 | 0.0 |
| *Piped Water on Premises* | 0.0 | 50.0 | 50.0 |
| **Total** | **3.5** | **68.8** | **27.8** |

## 5.3. EQ 2. To what extent have sanitation and hygiene practices increased? How have wpa activities contributed to this change?

### 5.3.1. Sanitation Practices and LWI contribution

The definition of an improved sanitation facility is one that hygienically separates human excreta from human contact (WHO/UNICEF, 2015). Several sanitation solutions fall within this category: the flush toilet, piped sewer system, sceptic tank, flush/pour flush to pit latrine, ventilated improved pit latrine, pit latrine with slab and a composting latrine. As shown by the data, 65.5 percent of the households interviewed affirmed having a latrine at home. These latrines are often shared with other families in 54 percent of cases. When asked about the type of latrines used, most of the households surveyed affirmed they used a traditional latrine (48.5) and a ventilated pit latrine (42.7%). Flush toilets are used in 8.4 percent of cases and open defecation. However, open defecation is still widely used. 50 percent of households with no latrines used open defecation as a mean to get access to latrine.

**Table 9: Access and Type of Latrines**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Households with private latrines (n=262)*** | | ***Households with no latrines (n=138)*** | |
| *End-Line* | 65.5% | *End-Line* | 34.5 |
| *Mid-Term* | 65.4 | *Mid-Term* | 34.6 |
| ***Households sharing latrines (n=120)*** | | ***Evidence that Household Latrine has been used recently (n=262)*** | |
| *2 to 3 families* | 63.3% | Oui | 92.0% |
| *3 to 5 families* | 25.0% | Non | 8.0% |
| *More than 5 families* | 10.8% |  |  |
| ***Type de Latrines (n=262)*** | | ***Evidence that household Latrine is clean (n=262)*** | |
| *Flush Toilet* | 8.4 | Oui | 17.6 |
| *Ventilated Improved Pit Latrine* | 42.7 | Non | 82.4 |
| *Traditional latrine (not ventilated)* | 48.5 |  |  |
| ***Household practicing open defecation (n=69)*** | | | |
| *Open defecation* | 50.0 |  |  |

Observation made during the survey, shows that 92 percent familial latrines were recently used hours before the survey, 77 percent have reliable access to sanitation facilities and 11.7 percent spent less than 10 minutes to travel to a public shared facility. However, most of these sanitation facilities were unclean as only 17.6 percent of households have shown evidence of adequate cleanliness. This situation reflects the fact that a large percentage of these facilities (88.3) are shared between two to five families. Finally, on average, latrines were located less than 10 minutes from a public shared facility for only 12 percent of households in the WPA communities.

**Table 10: Access to Sanitation Facility**

|  |  |  |
| --- | --- | --- |
|  | *Mid-Term Evaluation*  *(2017)* | *End Line Evaluation*  *(2019)* |
| **Sample Size** | 400 | 400 |
| **Margin of Errors (approximate)** | 5% | 5% |
| **% of households with access to sanitation facility shared by no more than 5 households (SAN1)** | 36.6 | 88.3 |
| **% households showing evidence of use of available sanitation facility (SAN2)** | N/A | 92.0 |
| **% households with reliable access to sanitary facilities (SAN4)** | N/A | 77.0 |
| **% households with sanitary facilities that practice adequate cleanliness to encourage use (SAN5).** | N/A | 17.6 |
| **% of households spending less than 10 minutes to travel to public shared facilities (SAN8)** | 38.5 | 11.7 |

### 5.3.2. Hygiene Practices and LWI Contribution

According to several systematic reviews and studies, handwashing with soap has a significant effect on health and reduced diarrhea. Therefore, training on hygiene topics were considered as part of the LWI WASH program. Health promoters were hired to deliver the trainings in each ICP targeting specifically children, mothers or caregivers. The tables below examined the beneficiary’s knowledge about handwashing.

The table No. 11 shows that household members wash their hands at the critical moment of the day, before and/or after some tasks. For example, the households surveyed reported that the handwashing before eating and after assisting a child in the bathroom and using the bathroom is adopted by 66, 80 and 95 percent of the households respectively. However, the handwashing practices either before helping a child eating food (4.8), after all contacts with animals (6.3) or after touching waste (18.5). This is an important issue as inadequate food hygiene practices such as not washing hands prior to feeding a child can lead to high levels of microbial contamination of food, and this is particularly concerning for the complementary food of children under the age of two

The data revealed that there is no significant change among the behavior change indicators from 2017 to 2019 (Table 11) except for one specific indicator regarding the percentage of households who washed their hands before preparing meals.

Most households reported that household members wash their hands with soap (89%). However, there is no specific space for washing hands around the households as evidenced by the surveyors’ observations. Only 4 percent of households had handwashing stations (Tables 11 and 12).

**Table 11: Handwashing practices**

|  |  |  |
| --- | --- | --- |
| *Knowledge about critical moments for handwashing (n=400) in percent of households. Multiple responses are possible* | | |
| *Respondents who know at least 3 critical moments for hand washing (%)* | ***End-line*** | **77.3** |
| *Midline* |  |
| *Before eating* | ***End-Line*** | **66.3** |
| *Midline* | 77.4 |
| *After using the bathroom* | *End-line* | 95.2 |
| *Midline* | 82.0 |
| *After assisting a child in the bathroom* | *End-line* | 19.2 |
| *Midline* | 5.3 |
| *Before preparing meals* | *End-line* | 51.3 |
| *Midline* | 8.3 |
| *Before helping a child eating food* | *End-Line* | 4.8 |
| *Midline* | 5.3 |
| *After all contacts with animals* |  | 6.3 |
| *Midline* | 7.3 |
| *After touching waste* | *End-line* | 18.5 |
| *Midline* | 35.3 |

**Table 12: Handwashing practices and type of products used**

|  |  |  |
| --- | --- | --- |
| *Product used to wash hands (n=400) in percent of households.* | | |
| Water and soap | End-Line | 89.0 |
| Midline | 88.7 |
| Water Only | End-line | 10.5 |
| Midline | 10.1 |

**Table 13: Percent of Households with Soap and Water in Handwashing Station**

|  |  |  |
| --- | --- | --- |
|  | *Mid-Term Evaluation*  *(2017)* | *End Line Evaluation*  *(2019)* |
| Sample Size | **400** | **400** |
| Margin of Errors (approximate) | **5%** | **5%** |
| ***Percent of Households where enumerators observed soap and water at the most frequently used handwashing station*** | *6.6* | *4* |
| ***Households storing drinking water in safe, covered drinking water containers*** | *N/A* | *48* |

Households where drinking water were stored in a safe and covered container represent 48 percent of all the households in the communities.

Waste management is another important issue when considering hygiene practices around the households. Since basic services are lacking in rural area, each household finds generally alternate means to fulfill its needs in terms of waste management. Such practices sometimes lead to environmental deterioration and risk the health of the population at large. Figure 2 presents ways of eliminating solid waste. Generally, the waste management practices adopted by the community members are unsanitary. Only 5% of interviewed households reported good waste management practices (Compostage and Garbage Cans). As in the Mid-Term evaluation, the most common practices reported are: nearby vacant slots (8.3%) and burning (60.3%). These practices showed that most people in the WPA used unsanitary waste management practices. However, we should note that there is a decrease in using water stream and open spaces as a waste management practices since the mid-term evaluation. Another important fact to take into consideration is that one third of the interviewed households in the WPA Cabaret use also unsanitary practices to manage the fecal waste of children.

**Figure 2. Waste Management Practices**

Diarrhea is defined as the passage of three or more loose or liquid stools per day (World Health Organization [WHO], 2013) and, globally diarrhea diseases are caused by infectious agents such as bacteria (e.g. E. coli, salmonella, shigella, campylobacter), viruses and protozoa. Lack of good hygiene and waste management practices represents a major factor that is often responsible of diarrhea diseases in the community.

The quantitative data collected shows that 8.2 percent of the households reported having members in all aged groups, compared to 25 percent during the mid-term evaluation, with diarrhea during the last two weeks preceding the survey. The prevalence of diarrhea is high (25%) when considering children less than five years old. There is little doubt that improving access to adequate and safe water from adequately distanced source, hygienic sanitation facilities and promotion of good hygiene practices by LWI project had a positive effect on the prevalence of diarrhea in WPA cabaret but effort should continue to get done in the area of hygiene and waste management practices.

5.4. EQ 3. To what extent have local churches and CBOs engagement in community WASH development increased? How have WPA activities contributed to this change?

### 5.4.1 church mobilization for sustainability and LWI contribution

Church mobilization is another aspect of sustainability. According to LWI theory of change, LWI expects in its action to mobilize local churches to take lead in community livelihood improvement through training in oral disciple making. This can only happen when people in the community considers themselves as members of community of faith either by attending churches on a regular basis or/and are part of a faith based local group organization where people meet regularly to exchange about their faith. When asking people about their regular participation in church activities, 15 percent of the surveyed households admit they are an active member of a local church in their community and only 9.2 percent were able to participate in church activities for at least twice a month.

**Table 12: Churches Activities among Households Members**

|  |  |
| --- | --- |
| *Household Members Attending Church Activities* | |
| **Percent of Households participating in church activities (N=400)** | 15 |
| **Frequency of participation in church activities in percent (N=60)** | |
| **Once a month** | 38.3 |
| **Twice a month** | 31.7 |
| **More than twice a month** | 30.0 |
| **Percent of Households participating in church activities at least twice a month (N=400)** | 9.2 |

This low level of participation of the WPA Cabaret in churches activities indicates that a lot should be done in the area of church mobilization, which is key in promoting solidarity and build resilient community. However, as many focus group participants and Key Informants revealed, churches, regardless of their denomination, have a strong influence on the community health behaviors like handwashing, latrine construction, water quality. This has been possible thanks to many LWI awareness campaigns through local radio and workshops. Though churches are aware of its integral mission, many people believe that lack of resources prevent them to play their leadership role in community livelihood improvement.

5.5. EQ4. What is the likelihood that results will be sustained? How does the involvement of, and partnership between, local officials, local churches, and communities, contribute to the sustainability of outcomes?

### 5.5.1 community mobilization for sustainability and LWI contribution

The sustainability of the LWI program in the WPA is based on the involvement of the local church association (OLEC), which is an organization created by the evangelical leaders of Cabaret. As reported in many KIIs, OLEC and LWI formed a partnership to better design and implement all WPA projects. While LWI ensure that these evangelical leaders are trained on the integral mission of the church, OLEC members work alongside LWI staff in dealing with local officials and community-based organization. According to many key informants and focus group participants, this partnership helps identify the needs of the community and, with the preconized participatory approach, people in the community feels empowered and can take ownership of the water points rehabilitated by LWI. The OLEC and LWI partnership is, according to many key informants, key for the sustainability of the programs implemented in the WPA Cabaret as it creates a strong enabling environment for other local organizations as churches and CBOs to become more engaged and allowing sustained WASH services on the long term. Besides, this partnership, LWI established a water management committee, provided training and capacity building on management, leadership and entrepreneurship to community members as part of its engagement to make WASH officials, community leaders and networks to be more equipped and mobilized for WASH.

One of the major problems in Haiti is the sustainability of physical infrastructure. Neglect and lack of funds and as a result lack of maintenance and repairs are the reasons why even the limited infrastructure that exists is ineffective and inoperable. To ensure sustainability of the physical infrastructure, for each water point created or rehabilitated, LWI set up a management committee comprised of 7 persons that should be responsible of the management of the water and sanitation system put in place by the LWI Project. The committees are well trained on the use and the maintenance of the water infrastructure, which is in general perceived of very good quality by the committee members.

Committees have internal rules and regulations and have legal reconnaissance with the local authorities (CASECs). The committees have usually an active bank account to which money can be withdrawn for maintenance and reparation of the water system. Their mandate can be summarized as follow:

* Manage the water infrastructures
* Establish the link between the community, LWI staff and the DINEPA
* Collect and manage with parsimony the funds with the goal to maintain and repair the water system when needed;
* Inform the community of different initiative of the committee
* Meeting on a regular basis to discuss the many challenges in relation of water point management in order to bring appropriate solutions.

To date, the maintenance of the water system is somewhat adequate. The Committees’ members relied on the presence of LWI and its budget to maintain the water system in operation, especially for large repairs. With the training provided by LWI and the costs associated with the water use, people in the WPA Cabaret remain confident that the maintenance and the operation of the water system will continue to be effective after the end of the project as the fees collected will be used for potential breakdown of the water system in the future.

LWI partnerships with OLEC and other local churches and CBOs create an environment that is enabling ownership of the LWI activities and more importantly their sustainability. This is possible because of the LWI participatory approach to consider all local organization as potential partners. The partnership increases people ownership and takes steps towards maintenance and the sustainability of the water system. LWI did created an environment in which WASH actors and officials are equipped and mobilized for WASH.

VI Conclusions and recommendations