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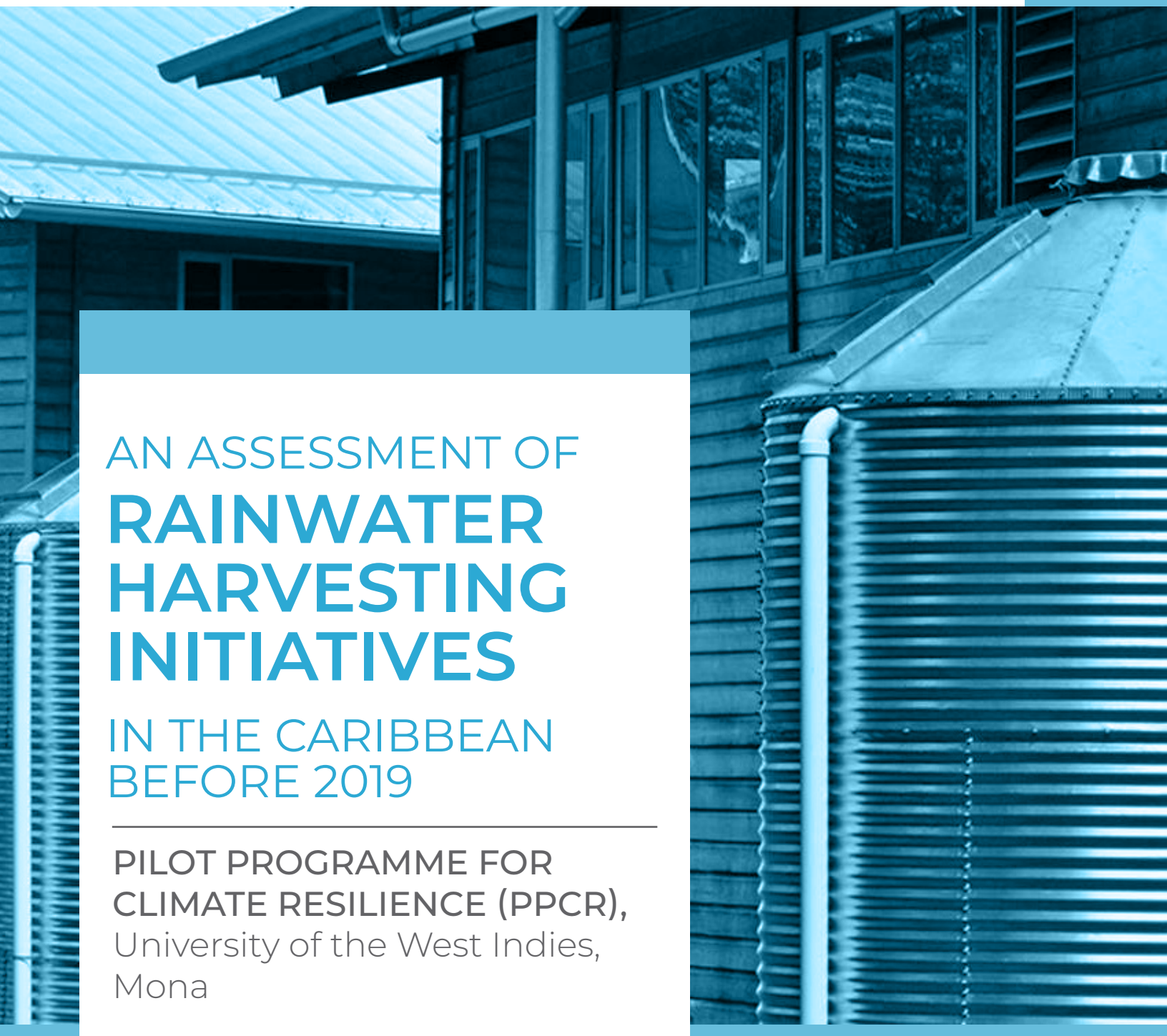

AN ASSESSMENT OF RAINWATER HARVESTING INITIATIVES IN THE CARIBBEAN BEFORE 2019

PILOT PROGRAMME FOR CLIMATE RESILIENCE (PPCR),
University of the West Indies, Mona

AN ASSESSMENT OF RAINWATER HARVESTING INITIATIVES IN THE CARIBBEAN BEFORE 2019

CLIENT:
CARIBBEAN REGIONAL TRACK OF THE PILOT PROGRAMME FOR CLIMATE RESILIENCE (PPCR), UNIVERSITY OF THE WEST INDIES MONA/CARIBBEAN PUBLIC HEALTH AGENCY

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FOREWORD

This document was produced by GWP Consultants LLP (GWP) under the Applied Initiatives-Rainwater Harvesting Systems Sub-Component of the Investment Plan for the Caribbean Regional Track of the Pilot Program for Climate Resilience (PPCR).

As a programme of the Climate Investment Funds (CIF), PPCR helps developing countries integrate climate resilience into development planning and investment. The PPCR comprises 28 national programs and 2 regional tracks in the Caribbean and the Pacific. The CIF, through the Inter-American Development Bank (IDB), has provided grant funding to implement the Caribbean Regional Track of the PPCR. The University of the West Indies, Mona Campus, through its Mona Office for Research and Innovation (MORI) is the executing entity for the Caribbean Regional PPCR. The Caribbean Public Health Agency is co-implementing the Rainwater Harvesting Systems Sub-component of the Applied Initiatives Component 4 of this project which is designed to improve the enabling environment (policy and capacity building) of the region with pilots in Grenada, Jamaica and Saint Lucia.

To that end, GWP was contracted to review and assess current rainwater initiatives in the region and through stakeholder consultation, revise existing guidance in the form of draft codes, guidelines and manuals, conduct capacity building by training rainwater harvesting professionals in the three pilot countries. GWP was also contracted to evaluate and recommend three water stressed communities for intervention through the investment by the project in the installation/rehabilitation of RWH systems designed with best practices and lessons learned from the assessments.

The specific deliverables of this consultancy are:

1. Inception Report (Deliverable 1).
2. KAP and Assessment reports and draft Water Vulnerability Maps (Deliverable 2)
3. Draft Codes/RWH Handbook & Training Manuals (Deliverable 3)
4. Training Report (Deliverable 4)
5. Final project report with updated RWH toolkit, manual and finalized model codes and recommended adoption strategy (Deliverable 5)

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1 INTRODUCTION

This report forms part of a wider regional assessment of rainwater harvesting (RWH) in the Caribbean Region, as part of the Investment Plan for the Caribbean Regional Track of the Pilot Program for Climate Resilience (RT-PPCR). The purpose of the PPCR is to upscale investment in climate risk resilience measures and to pilot and demonstrate ways to integrate climate risk resilience into development planning.

Rainwater harvesting is seen by the PPCR as a potential approach to increasing household and communal water security resilience to climate change risks, but it needs to be designed and promoted carefully to ensure it increases water supply resilience and does not result in mal-adaptation to climate change (e.g., unintentionally increasing exposure to drought).

> **RAINWATER HARVESTING**
>
> is seen by the PPCR as a potential approach to increasing household and communal water security resilience to climate change risks

Historically, rainwater harvesting had been the main form of water supply in the Caribbean region prior to the establishment of effective water utility service providers in the early-to-mid 20th Century. The practice of rainwater harvesting is now much reduced across the region; however, it has received renewed attention over the last decade, with an increasing interest in water security.

The purpose of this particular assessment (as defined by the ToR) was to review existing and/or previously completed rainwater harvesting initiatives (be these demonstration schemes, advocacy campaigns or capacity building interventions) implemented by local, national or international stakeholders projects. The purpose of this review is to capture relevant lessons that can help determine the approaches to be used by this RT-PPCR project to best promote RWH as a feasible climate change adaptation measure for building resilience in the water sector in the Caribbean.

This RWH project review has been designed to explore what types of rainwater harvesting schemes have been promoted, funded and implemented in the (recent) past, and to learn lessons regarding their:

- scope, reach and purpose;
- various technical aspects of the design (e.g., water quality and climate change considerations) and operation (i.e. maintenance);
- approaches to risk reduction;
- funding mechanisms, implementing stakeholders, and post-project evaluation; and
- use of campaigns to promote rainwater harvesting and overcome existing uptake barriers.

National RWH consultations were organised in each of the three target countries (Grenada, Jamaica and St Lucia) in February 2019, to which key water sector and RWH stakeholders were invited. Discussions during these consultations (reported separately in GWP Report No. 190913 – "National Water Sector Climate Risk Vulnerability Assessments to Inform the Caribbean Regional Rainwater Harvesting Programme of the Regional PPCR") allowed existing and previous RWH projects and implementing agencies to be identified. Follow-up interviews were then held with identified key agencies and personnel. The lessons learnt from reviewing these rainwater harvesting projects or interventions are discussed and summarised in this report.

2 METHODS

2.1 SEARCH FOR EXISTING OR RECENT RAINWATER HARVESTING PROJECTS

The perception of the practice of rainwater harvesting in the Caribbean region, which had informed the design of the RT-PPCR, was one of a traditional household and communal water supply approach. This approach, whilst once common across the Region, had reduced over the 20th Century, primarily due to the establishment of effective water utilities, to be limited to those areas not supplied by water utilities.

In order to capture the expertise residing within the different national agencies, departments, NGOs and other institutions at the national and regional levels, a consultation process was conducted during (as part of) the National Climate Risk Vulnerability Assessment (CRVA) Methodological Workshops held in Grenada, Saint Lucia and Jamaica in February 2019.

Even amongst the well-informed national consultation delegates, there was considerable disagreement on the extent to which RWH was actually practised. Areas within each country that had to rely on the capture and storage of rainwater due to a lack of utility water supply (e.g., rural upland Jamaica and the island of Carriacou, off Grenada) were easily identified, but the extent to which RWH was used in areas supplied by water utilities was the subject of much debate. It became clear, however, that ad hoc use of RWH as a secondary water source, e.g., for household domestic car washing and gardening, was much more frequent than was commonly recognised.

The collection and storage of rainwater is therefore currently practiced both at the household and community scales.

However, conversely, the national consultations also revealed that the national and international efforts to directly enhancing, upgrading and promoting the (safe) practice of rainwater harvesting across the Region in the last two decades have been solely focussed on community-scale rainwater harvesting – often focused on rural schools and health posts, with some separate focus on agriculture. The complete lack of focus on household-scale rainwater harvesting interventions might be explained by the donor prioritisation of drought-vulnerable communities (which de facto are likely to be those without utility water supply), but is also likely to be constrained by international donor safeguarding protocols (which effectively prevent the targeting of individual households for betterment for fear of discriminating against non-supported neighbouring households).

The national consultations also identified in each country that the management and promotion of rainwater harvesting at the national level is not the direct responsibility of any specific department or agency within the government. Instead, there are many stakeholders that are either directly or indirectly involved in the management and promotion of rainwater harvesting to some extent and, as such, projects are implemented by multiple governmental, civil society and international donor organisations.

2.2 SEARCH FOR EXISTING OR RECENT RAINWATER HARVESTING PROJECTS

Based on the list of rainwater harvesting projects identified during the consultation process (conducted as part of the CRVA Methodological Workshops), some of these were selected for further assessment, using Key Informant Interviews (KII). This interview approach had been previously agreed with the PPCR-PCU and their technical advisors: the Caribbean Public Health Agency (CARPHA) and Saint George's University (SGU) in Grenada.

Self-evidently, the KII interviews were only undertaken for those RWH initiatives for which a relevant stakeholder (e.g., project manager) could be identified and who was contactable/available. This proved to be not an insignificant constraint. Almost all of the expatriate international agency staff had left the Region since the RWH project completion and many, if not most, of the national staff of international agencies had moved onto other organisations (some out of the region). Senior staff within government departments and local NGOs were more commonly still in position and had a better knowledge of past initiatives.

The Key Informant Interview (KII) questionnaire was designed to cover a range of topics related to the practice, promotion and uptake of rainwater harvesting. Whilst the RT-PPCR is primarily interested in lessons learned that relate to promotion of RWH as a feasible climate change adaptation measure, it was recognised that this objective was not explicit to previous projects and as such a wider understanding of the projects objectives, approaches and challenges had to be captured.

The following project aspects were covered by the interview structure:

- Project design and/or implementation dates;
- Importance of rainwater harvesting practice;
- Location of the project;
- Reach and scope of the project;
- Purpose of the project;
- Consideration of water quality issues;
- Consideration of climate change scenarios;
- Funding mechanism and cost of the project;
- Post-implementation evaluation;
- Implementing agency;
- Risk reduction approach and resilience measures;
- Awareness raising campaigns; and
- Challenges and uptake barriers.

The KII questionnaire template is provided in Appendix 1.

All interviews were conducted during the period from February to April 2019 via teleconference. Each interview had a duration of approximately 1 hour, with the objective of gathering in-depth information about the project of interest whilst allowing some time to discuss other generic questions related to the practice of rainwater harvesting (e.g., considerations on the importance and relevance of rainwater harvesting for the development of climate change resilience in the region, review of existing regulations and policy on rainwater harvesting, discuss rainwater harvesting uptake barriers, etc.).

2.3 DATA PROCESSING AND SUMMARISING

The information gathered in the KII interviews was subsequently processed, homogenised and summarised in tables, to allow for comparisons to be made and for conclusions to be drawn.

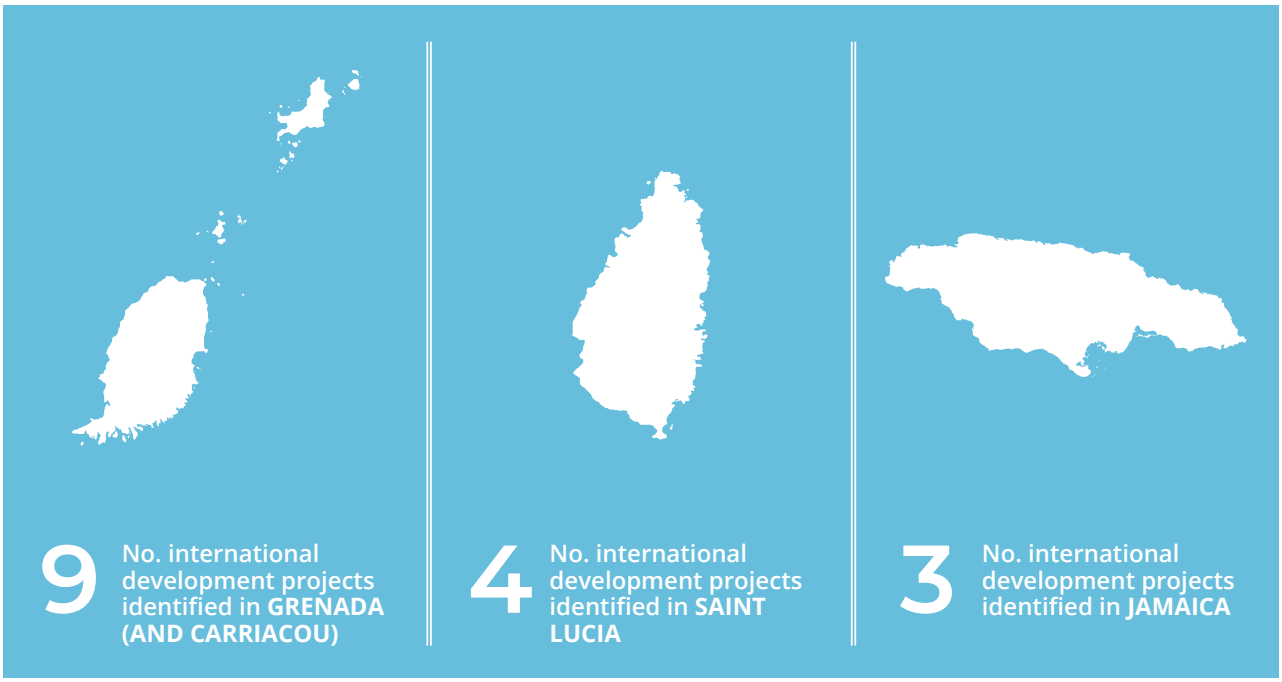
Tables 1a and 1b display the list of projects identified as part of this consultation.

Table 2 summarises the findings (interview answers) for each of the 8 No. rainwater harvesting projects for which a project-based KII interview was conducted.

3 RESULTS / CONSULTED PROJECTS / INTERVIEWS CONDUCTED

3.1 LIST OF RAINWATER HARVESTING PROJECTS

The on-going and relatively recently completed rainwater harvesting projects identified as part of this review are:



Furthermore, a number of projects implemented by local/national stakeholders were identified in Jamaica; these are as follows:

48 No. projects implemented by national NGOs (i.e., Environmental Foundation of Jamaica; EFJ);

30 No. rainwater harvesting system upgrading projects in rural schools (out of 201 No. rural schools targeted as potential beneficiaries of rainwater harvesting scheme upgrades) by Rural Water Supply Limited.

NO LOCAL OR NATIONAL RWH INITIATIVES WERE IDENTIFIED IN ST LUCIA OR GRENADA.

3.2 KEY INFORMANT INTERVIEWS (KII)

Based on the list of existing rainwater projects or interventions reported by the national and regional stakeholders, a number of projects were selected for further assessment, i.e., for a Key Informant Interview (KII). The list of selected rainwater harvesting projects and/or interventions (and the corresponding interviewee) is as follows:

1. Grand Bay Cistern Refurbishment in Carriacou, Grenada (with Davon Baker, Climate Change Focal Point, Ministry of Carriacou & Petite Martinique Affairs and Local Government);
2. Rainwater harvesting project implemented by the National Water and Sewerage Authority (NAWASA) in Blaize, Grenada (Dave Marquez, Engineering Assistant at NAWASA);
3. Projects involving a component of rainwater harvesting implemented by the Environmental Foundation of Jamaica, EFJ (with Allison Rangolan, CEO at EFJ, and Mark Constable, Program Officer at EFJ);
4. Rainwater harvesting interventions undertaken by Rural Water Supply Limited in Jamaica (with Patrick Reid, Engineer at Rural Water Supply Limited);
5. Rainwater harvesting project implemented by the Project Integrating Watershed and Coastal Area Management (IWCAM) in North Dennery, Saint Lucia (with Cornelius Isaac, IWCAM);
6. Belle Vue Farmers' Cooperative rainwater harvesting scheme, implemented by the German Corporation for International Cooperation GmbH (GIZ) in Saint Lucia (with Timo Schirmer, Project Manager at GIZ, and Raphael Felix from Belle Vue Farmers' Cooperative);
7. 'Enhancing Access to drinking water for the maroon community of Asigron' project in District Brokopondo, Suriname (with Cylene France, Project Coordinator on behalf of Stg. FOB);
8. Rainwater harvesting projects implemented by the United Nations Development Programme (UNDP) under the Japan Caribbean Climate Change Partnership (JCCCP) across the Caribbean region (with staff from UNDP Barbados).

The interview responses are in Appendix 2.

4 KEY FINDINGS / LESSONS LEARNT

4.1 SCOPE OF EXISTING RAINWATER HARVESTING PROJECTS

Existing and recent rainwater harvesting projects do not focus on household rainwater capture at all but only on community-scale systems.

Community-scale rainwater projects have different design considerations (i.e. construction works), operational dynamics (i.e. multiple users and resource allocation) and uptake barriers (i.e. community asset governance) than household-scale rainwater systems.

However, there are specific aspects of these projects that are also relevant (and informative) for household-scale rainwater harvesting practice (e.g. water quality and climate risk management).

Thus, lessons can be learnt from the community-scale rainwater harvesting projects assessed that are at least partially transferrable to household-scale rainwater harvesting.

4.2 REACH AND PURPOSE

Most projects did not have a specific target public, but they are aimed at anyone who lives in the area where the projects are located. This is at least partially explained by the fact that all these are community-scale rainwater harvesting projects, thus it is very difficult to target specific sub-groups within each community.

The interviews report that some projects were located to target communities that are especially vulnerable to water shortages (i.e., poor or without access to utility water). A wider knowledge of the areas (i.e., beyond that given in the interviews) suggests that water scarcity was an important issue in site selection for all but one project (i.e., the agricultural project in Soufriere, St Lucia).

The main objective of the majority of these rainwater harvesting systems is the supply of water for domestic purposes, including drinking.

However, some of these rainwater harvesting projects were designed to serve a double purpose, for example, increasing the climatic resilience of the intervened communities.

4.3 CONSIDERATION OF MAINTENANCE AND WATER QUALITY

Although to a certain extent all projects used for drinking water considered the issue of water quality in one way or another, most projects did not have optimisation of water quality as a main design driver or objective.

Different aspects of water quality, such as treatment of captured rainwater, maintenance of the rainwater harvesting system components (i.e., roofs, gutters, tank), or the need for a first flush mechanism/device, were considered by different projects.

None of the projects had a systematic (i.e., risk-based) approach to assessing water quality, nor an incremental approach for upgrading the rainwater harvesting systems in terms of improving water quality.

First flush devices were only included as part of the water treatment features in the 2 projects in Grenada.

The use of chlorine tablets is relatively common amongst the rainwater harvesting projects included in this assessment, although not in St Lucia. Conversely, the use of filters for water treatment was only acknowledged by 2 of the interviewees.

The interview results also show that the frequency of maintenance tasks is not consistent. In fact, it is extremely variable amongst the rainwater harvesting projects evaluated, ranging from daily to 6-monthly maintenance frequency (or even no maintenance at all). In many cases, the respondents were not able to answer, which perhaps reflects their primary role in design and construction, and no role in operation and maintenance.

The KII interviewees mostly reported that they were not aware of any health hazards or risks caused by drinking rainwater from these projects.

4.4 CONSIDERATION OF CLIMATE CHANGE

Whilst some of the projects reported to have sized the rainwater harvesting systems taking into account the duration of drought periods, most of these did not undertake an analysis of the likely increase in the duration of droughts, as a result of climate change.

Most projects report to have considered the risk of structural damage posed by storms and tropical cyclones. However, it is unclear whether the (future) increased frequency of occurrence of these events, as a result of climate change, has been taken into account as part of the design process.

The expected increase in rainfall intensity as a result of climate change was considered in more than half of the assessed projects but in some cases, it was only considered in a qualitative way (i.e., it was not effectively incorporated into the design process).

Furthermore, the increase in water consumption demand as a result of increasing temperatures under a climate change scenario was neglected in most projects.

Although almost all projects were identified as addressing resilience to existing climatic risks (e.g., drought and hurricane damage), none of these projects did consider the expected impacts of climate change in a quantitative and exhaustive manner during the rainwater harvesting system design process.

4.5 CONSIDERATION OF COST

Existing and recent rainwater harvesting projects do not focus on household rainwater capture at all but only on community-scale systems.

Community-scale rainwater projects have different design considerations (i.e. construction works), operational dynamics (i.e. multiple users and resource allocation) and uptake barriers (i.e. community asset governance) than household-scale rainwater systems.

However, there are specific aspects of these projects that are also relevant (and informative) for household-scale rainwater harvesting practice (e.g. water quality and climate risk management).

Thus, lessons can be learnt from the community-scale rainwater harvesting projects assessed that are at least partially transferrable to household-scale rainwater harvesting.

4.6 APPROACH TO RISK REDUCTION

A common characteristic among all the rainwater harvesting projects assessed is the lack of a systematic and incremental approach (or strategy) to risk reduction. Although some projects did consider climatic and water quality hazards at the design stage, the design process was not really influenced by these factors but, in most cases, by the funding available for the project and the aim to maximise the size/scope of the proposed rainwater harvesting system.

The above approach to rainwater harvesting system design resulted in projects that, whilst resilient to some risks, are vulnerable to other risks (e.g., in Blaize, Grenada, wind activity severely hinders the ability to capture rainwater due to the roof's slope orientation/aspect), thereby making the entire investment vulnerable to climatic hazards and, in some cases, not suitable for effective rainwater harvesting.

Similarly, the lack of an incremental approach leads to an inconsistent (and partially unsuccessful) strategy towards ensuring the safe practice of rainwater harvesting, as a result of gaps in the water quality design and maintenance routine.

4.7 PROJECTS BENEFITS AND OPERATIONAL STATUS

Based on the feedback provided by the interviewees, the projects included in this assessment successfully delivered the objectives that had been set for the project. Most but not all rainwater harvesting schemes are still operational.

More than half of the projects report that the delivered rainwater harvesting scheme has been (or is still being) used by the majority of the target population.

The rainwater harvesting schemes assessed have been (or still are) most beneficial for those communities that either:

- have no other water sources available;
- are prone to water supply disruptions or interruptions during the dry season; and/or
- are prone to water supply disruptions or interruptions during the rainy season.

There are also other benefits delivered by these projects that are however not relevant in terms of increasing the safe and resilient practice of household-scale rainwater harvesting; these other benefits are, for example, the use of rainwater as an additional source of income from productive uses (e.g., agricultural).

More than half the projects identified neighbouring communities becoming interested in practising RWH – i.e., the RWH practise had local replication value - although no projects were designed to support such post-implementation replication.

4.8 IMPLEMENTING AGENCY

Existing rainwater harvesting projects have been, in most cases, funded and implemented by international agencies or actors, with the exception of rural projects in Jamaica. The fact that many of these are international development projects results in a lack of monitoring and technical support after the project construction phase.

For rainwater harvesting schemes, such a lack of project follow-up can result in, amongst other things, in a lack of consideration of longer-term operation and maintenance requirements.

4.9 POST-PROJECT EVALUATION

A consistent and thorough evaluation of the project outcomes (not only immediately after the implementation phase but also during/after the first few years of operation) is key to ensure that any successes and/or shortcomings are captured, and measures are put in place to promote/replicate successful practices and improve any shortcomings in subsequent projects.

Based on the feedback provided by the interviewees, a lack of post-project evaluation is perceived for most of the reviewed rainwater harvesting schemes, and this hinders the ability to assess the actual (positive and negative) outcomes delivered by the project, and to what extent it has fulfilled the needs (or increased the resilience) of the targeted community.

It also prevents any understanding of the sustainability of the project as well as no understanding of replication of RWH in the surrounding community.

4.10 CAMPAIGNS

According to the interview results, the majority but not all of rainwater harvesting projects that form part of this assessment included a component dedicated to running awareness campaigns to promote the safe use of rainwater harvesting.

The awareness campaign were mostly focussed on the attitudes towards rainwater harvesting, with only one focused on providing design advice for rainwater harvesting systems.

Most projects did specifically suggest the use of rainwater for drinking purposes, with only one suggesting alternative uses (e.g., agriculture, aquaponics or as backup emergency supply after a hurricane). Some campaigns did discourage some uses of rainwater.

When asked about the media used to run these campaigns, most interviewees did not or could not clarify what types of media were used. The IWCAM in St Lucia did however use multi-media approaches, i.e., TV channels, brochures or schools to run the awareness campaign.

Additionally, the KII interviews also asked about the frequency in which these campaigns were run. It is apparent from the interviewees' responses that there is not a consistent strategy towards promoting the safe use of the rainwater harvesting through awareness-raising campaigns – for almost all projects, there was no clear scheduling of rainwater harvesting campaigns, but were most likely a one-off effort.

4.11 UPTAKE BARRIERS

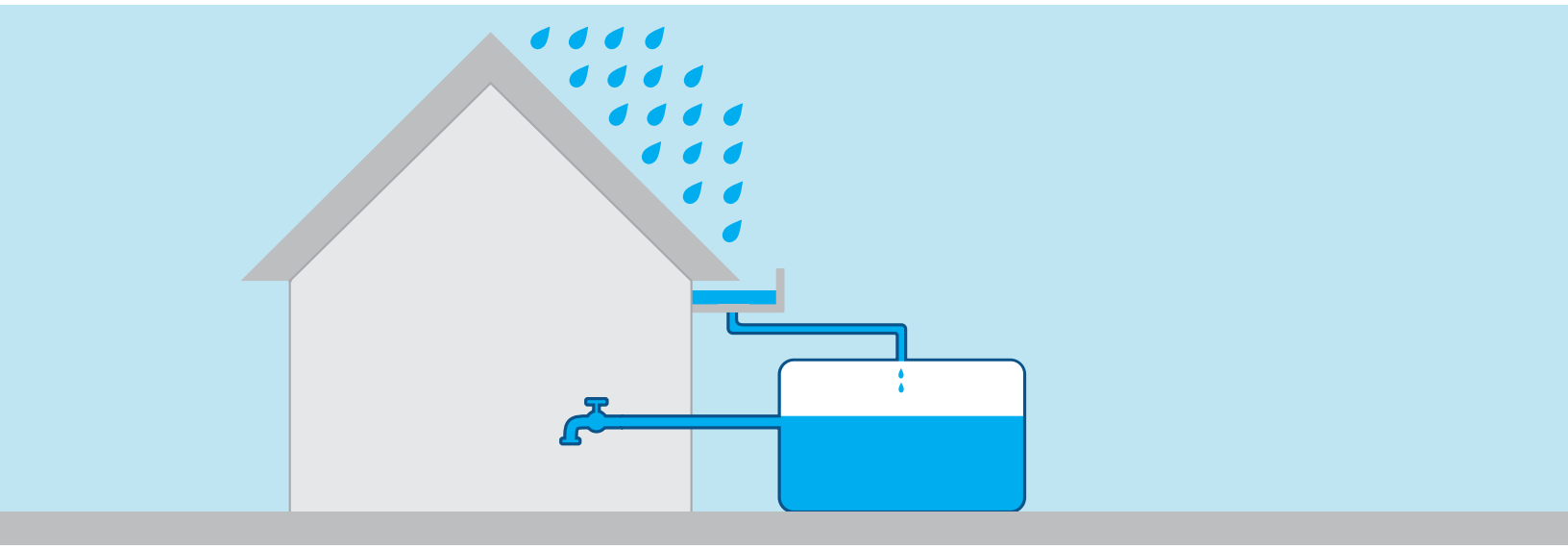
The interviews specifically asked whether there were barriers to the uptake of rainwater harvesting as a widespread climate resilience practice. The most common barriers identified were: the cost of building materials; water quality concerns; and lack of knowledge and understanding of RWH.

In addition but not so commonly reported were:

- lack of need in Grenada;
- lack of knowledge on technology options;
- lack of knowledge of who to contact for RWH construction.

Availability of materials and cultural issues were not sighted as barriers preventing uptake.

Lastly all the interviewed stakeholders agreed that rainwater harvesting should be promoted more actively by governments and most identified that some policies do already exist that support RWH.



4 CONCLUSION

A review of existing and recently completed rainwater harvesting projects have been conducted across Grenada, Jamaica, St Lucia, Suriname and Guyana, identifying 94 rainwater harvesting projects and/or interventions, eight of which were further assessed by undertaking in-depth interviews with key informants involved in the project delivery. Each interview included more than 100 questions, providing more than 700 responses.

This review has attempted to capture lessons from existing rainwater harvesting projects which could potentially support the promotion of RWH as a feasible climate change adaptation measure for building resilience in the water sector. .

The focus of existing and/or recent rainwater harvesting projects is not household-scale rainwater capture but community-scale systems. Community-scale rainwater projects, especially those in water insecure communities, have different design considerations (drought resilience and construction costs), operational dynamics (primary supply and water allocation) and governance arrangements (operation and maintenance of communal assets) than household-scale rainwater systems. It is also important to note that almost all of these communal RWH interventions were prioritised into locations of known water insecurity – areas with no water utility provision at all or poor water utility service. Only one was not – an agricultural scheme in Soufriere, St Lucia – and this is reportedly no longer operational. This obvious and apparent need for improved water security in these existing communal RWH interventions is a fundamental difference when looking to promote household RWH uptake elsewhere into areas that do have utility water supply. However, this message of water security may well be fundamental to still demonstrating and justifying the need for improved household RWH in water utility supplied areas.

It is also important to note that all these communal RWH interventions involved the design and construction of new systems. There was no consideration of assessing existing RWH systems and making informed upgrades to improve their performance and reliability. Clearly, such new systems have greater costs than smaller potential upgrades, but the capital investment costs are covered by the project and therefore have no bearing on the willingness of the beneficiaries to engage with the existing RWH project. This is not likely to be the case where households have to self-fund their own RWH.

Notwithstanding the above, there are specific aspects of community-scale rainwater harvesting projects that are also relevant (and informative) for the practice of household-scale rainwater harvesting, and some of the barriers to RWH uptake are therefore likely to be common to both.

It should be noted that many of these RWH challenges that prevent uptake do not specifically relate to climate change per se. However, if RWH is to be recognised and promoted as a climate change adaptation measure then these existing concerns will also have to be overcome.

Findings of this review have shown that water quality and maintenance are often partially disregarded or not effectively dealt with in many of the rainwater harvesting systems assessed. Yet concerns over water quality is recognised as a principle reason why households do not use rainwater, unless they have no alternative. Water quality and maintenance tasks are therefore aspects that need to be considered jointly and at the very early stages of the (conceptual) rainwater harvesting system design.

Similarly, whilst the existing projects considered existing climate hazards (i.e., droughts and storm damage) none considered the potential effects of climate change in a quantitative manner at the design stage. Thus, the resulting rainwater harvesting systems are not intentionally effective at increasing the communities' resilience to climate change aggravated and magnified impacts (e.g., structural damage due to climate-induced natural hazards or lack of water due to prolonged droughts).

Another lesson that arises from the findings of this assessment is the need to apply a systematic approach to risk reduction to any hazard (including but not limited to climate-related hazards), and to do so at the early stages of the design process.

National and local agencies are rarely involved in RWH schemes other than in rural Jamaica and outer-island Grenada. However, these agencies continue to support the target communities whereas international project support ends on RWH construction completion – with no technical support for operation and maintenance.

Unfortunately most rainwater harvesting projects did not undertake a post-project evaluation (i.e., an evaluation of the project outcomes after the implementation phase), and this hinders the ability for us to assess the actual outcomes delivered by the project, and to what extent it has fulfilled the needs of the target community. Most RWH schemes are still operational but where located in areas of water insecurity, this is perhaps not surprising.

Most projects also ran RWH awareness raising campaigns, but these were never embedded in local agencies and hence have never been repeated beyond the project implementation phase.

There are several uptake barriers for rainwater harvesting across the Caribbean region. Water quality concerns and construction costs were the most commonly sighted, as was a lack of understanding and awareness of the benefits and options available when it comes to rainwater harvesting.

In summary, it is important to understand there are fundamental differences between project focussing on external agency gifting of costly communal RWH infrastructure to water insecure communities, and approaches aimed at promoting self-funded household RWH in areas often well looked after by water utilities.

There are however some common messages and concerns, and these include the need for water security when utilities cannot provide water (i.e., during and after climatic risks), overcoming concerns about water quality and ensuring the RWH solutions are affordable and manageable.

TABLE 1A - LIST OF IDENTIFIED RAINWATER HARVESTING PROJECTS (except for RWSL projects in Table 1B)

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
GRENADA					
MAIN ISLAND					
Blaize	GIZ	2016	Blaize, St Andrew	120	Mr C Husbands General Manager NAWSA
Luthbur	GIZ/ UNDP		Mirabeau, St Andrew	Irrigation	Luthbur's Farmers Association. ariastlouis@gmail.com martin.barriteau@undp.org
Luthbur	GIZ/ UNDP		Mirabeau, St Andrew	Irrigation	Mr Clarke
Chambord	J-CCCP	2019	Chambord, Morne Fendue, Rose Hill, River Sallee, St Patrick	100 Farmers - Irrigation	Chambord Farmers Group, Reginald Buddy President 473-534-5167, 473-459-8410 pamelamoses1805@gmail.com
Mirabeau Propergation Station	J-CCCP	2019	Mirabeau, St Andrew		Ministry of Agriculture and Lands Permanent Secretary 1-473-440-2708
Bacolet Juvenile Rehabilitation & Treatment Centre Aquaponics	J-CCCP	2019	St David	20 staff, 30 juveniles	Samuel St. Bernard: Planning Officer Jicinta Alexis Gender Analyst
The St. Andrew's Anglican Secondary School Climate Smart Model Agricultural Project	J-CCCP & UNDP	2019	St Andrews	60 staff, 480 students.	Dianne Abel-Jeffrey, Principal 1-473-442-7542/8725 saass01@yahoo.com
CARRIACOU					
Princes Royal Hospital, Carriacou	J-CCCP & UNDP	2018	Carriacou	32 inpatients	Permanent Secretary Minsitry of Carriacou and Petit Martinique Affairs 1-473-443-6026 or 1-473-534-5193 Mrs Marisa Alexis Mc Lawrence, Health Services Administrator
Grand Bay Cistern Refurbishment, Carriacou	J-CCCP & UNDP	2018	Carriacou	320 residents in the Grand Bay, Mt Pleasant Community	Permanent Secretary Minsitry of Carriacou and Petit Martinique Affairs 1-473-443-6026 or 1-473- 534-5193; Ronald Gittens, The Mt. Pleasant Development Community Group
Carriacou Pasture Improvement and Paddocking Project (GN7)	UNDP	?	?	?	?

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
ST. LUCIA					
Various Locations	J-CCCP	2019	Soufriere Comprehensive Secondary School, Vieux Forte Comprehensive Secondary School & Beanfield Secondary School, Laborie Development Committee, Castries Ciceron Secondary School & Emerald Green, Gros Islat Secondary School, Dennery Sir Arthur Lewis Community College, Choiseul-Balamnouche Farmers with Disabilities	Promoting aquaponics as a farming approach to increase farmer resilience to the impacts of climate change	Stephie Smith, Aquaponics Assistant 1 758 468 4147 stephie.smith@govt.lc
Green Architecture Promotion Pilot (GAPP) toward Building Resilience to the Adverse Effects of Climate Change	J-CCCP & UNDP	2019		Installation of 6,000 gallon rain water harvesting system connected to the toilets and irrigation system at each location	Caroline Eugene, OIC Renewable Energy Division, 1 758 451-8746 ext 5807 caroline.eugene@gmail.com, est@govt.lc
Building the resilience of the honey sector to the impacts of climate change through genetic security and adoption of the best proven, climate smart production methods (SL1)	UNDP	?	?	?	?
North Dennery RWH Project (IWCAM)	IWCAM	2007	North Dennery	Government Institutions (schools and hospitals) Households	Cornelius Isaac
Belle Vue Farmer's Cooperative	CATS	2014	Soufriere area	10,500 imperial gallons' tank	Timo Schirmer and Raphael Felx
JAMAICA					

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
Clarendon: Victoria and Richmond Park in Upper Clarendon Clarendon Parish Development Committee Benevolent Society (CPDCBS)	J-CCCP	2019	Victoria and Richmond Park	Improving the adaptive capacity to climate change through rehabilitation and construction of water harvesting Infrastructure in Upper Clarendon. Affordable climate-resilient community-based water harvesting, storage and distribution systems designed, built and rehabilitated in selected target areas. Up to 4,000 inhabitants in the area.	Sharnette Mitchell – CPDCBS Administrator, Melbourine Mcpherson – Project Manager and Eurica Douglas- General Manager 1 876 986 9061 or +1 876 430-0347 clarendonpdcbs@yahoo.com
Promoting climate smart technologies in schools through enhancement of the 4H supported school gardens programme (JM2)	J-CCCP	2019	Various locations	Retrofitting of irrigation systems at selected locations towards developing model Climate Smart School Gardens (CSSG). These retrofits will be undertaken at 70 educational facilitates as outlined below: 10 Training Centres, 2 Prisons, 22 Primary Schools, 2 Special Education Schools, 7 All Age Schools, 19 High Schools, 6 Primary Schools and Junior High, 2 Primary and Infant Schools. Impressive numbers benefited	Kimberly Cheddar Project Accountant 1 876 927-4050-2 Kimberly.cheddar@jamaica4hclubs.com; Andre Anderson <andreanderson_andreanderson@yahoo.co.uk>
Demonstrating climate smart technologies for the enhanced agricultural production and sustainable livelihoods in rural farming communities of St Ann (JM3)	J-CCCP	2019	Communities in St. Ann	50 farmers	Cannot find further details in my files. Contact Yoko Ebisawa or Donna Gittens donna.gittens@undp.org
			EFJ		
Establishment of Water Harvesting System to Support Greenhouse Agriculture in the Remote District of Aboukir, St. Ann	EFJ	?	District pf Aboukir, St. Ann	Aboukir Dynamic 4HYouth Club	?
Water Solution System for Sustainable Farming - Catchment Reservoir	EFJ	?	Pratville, Manchester	Action Vibes Youth Club	?

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
Ashley Primary & Infant School Solar Powered Water Supply Harvesting & Management System	EFJ	?	Ashley District, Clarendon	Ashley Primary & Infant School	?
Rainwater For The Children	EFJ	?	St. Andrew	Best Care Foundation	?
Repairs and Improvement to Carron Hall Water Catchment and Storage Tanks	EFJ	?	St. Mary	Carron Hall Citizen's Association	?
Thatchwalk Rainwater Harvesting Pond	EFJ	?	St. Ann	Cave Valley Multi-purpose Cooperative	?
The Utilization of Rainwater Harvesting for the Irrrigation of Potatoes	EFJ	?	Manchester	Chriatiana Potato Growers Co-op Association	?
Construction of Water Harvesting Infrastructure and Improving the Community's Adaptive Capacity to Natural Hazards	EFJ	?	Clarendon	Clarendon Parish Development Committee Benevolent Society	?
Rainwater Harvesting for Water Conservation	EFJ	?	Portland	College of Agriculture Science and Education	?
Cross Keys Rainwater Harvesting Project	EFJ	?	Manchester	Cross Keys Community Development Committee	?
Fort George Primary Rain Water Harvesting Project	EFJ	?	St. Ann	Fort George Primary Rain Water Harvesting	
Project	?				
Frankfield Primary & Infant School Rainwater Harvesting Project	EFJ	?	Manchester	Frankfield Primary and Infant Parents Teachers Association	?
Jambos Pond Water Rehabilitation Project	EFJ	?	St. Catherine	Glengoffe Community Development Committee and Benevolent Society	?
Harnessing Natural Resources at Guy's Hill High School	EFJ	?	St. Catherine	Guy's Hill High School Development Trust	?
Water Harvesting and Supply System at Holywell	EFJ	?	St. Andrew	Jamaica Conservation and Development Trust	?
Rainwater Harvesting and Distribution to Improve the Resilience of Farmers in Three Manchester Farming Communities	EFJ	?	Manchester	Jamaica Greenhouse Growers Association	?
Rehabilitation of James Hill Catchment Tank	EFJ	?	Clarendon	James Hill Farmers Association	?
Rehabilitation of Kilmarnock Catchment Tank	EFJ	?	Westmoreland	Kilmarnock Community Development Committee	?
Anna Miller ECI Water Harvesting Project	EFJ	?	Manchester	Knockpatrick Citizens Association	?

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
Lawrence Tavern Primary School Backup-Water Supply	EFJ	?	St. Catherine	Lawrence Tavern Health Committee	?
Rainwater Harvesting to Enhance Agriculture and Sanitation at Tacius Golding High School	EFJ	?	St. Catherine	Local Initiative Facility for the Environment	?
Lucky Valley Primary School Aquaponics and Rainwater Harvesting System	EFJ	?	St. Catherine	Lucky Valley Primary School	?
Mafoota Water Harvesting / Irrigation Project	EFJ	?	St. James	Mafoota Agricultural Cooperative Society Limited	?
Social Enterprise Farming and Rainwater Harvesting Initiativ	EFJ	?	Manchester	Mount Olivet Boys Home (United Church)	?
Water Harvesting for Sustainable Development	EFJ	?	St. Ann	Mustard Seed Communities	?
New Horizon Sustainable Enterprise	EFJ	?	St. Catherine	New Horizon Christian Outreach Ministries (NHCOM)	?
Rehabilitation of New Works Catchment Tanks	EFJ	?	Westmoreland	New Works Community Development Committee	?
Rainwater Collection for Agricultural Irrigation	EFJ	?	Manchester	Northern Caribbean University	?
Little River Community Based Water Harvesting Project 2016	EFJ	?	St. Ann	Pedrovian Community Benevolent Society	?
Water Harvesting and Upgrade of Water Storage Facility, Pepper St. Elizabeth	EFJ	?	St. Elizabeth	Pepper Production & Marketing Organization Foundation Limited	?
Agriculture and Food Security in Schools Project	EFJ	?	St. Andrew	Plant Jamaica	?
Enhancing the Resilience of the Agricultural Sector in St. Elizabeth To Protect Livelihoods and Improve Food Security Against Impact of Climate Change	EFJ	?	St Elizabeth	Ridge Red Bank Community Benevolent Society	?
Rock Primary & Infant School Aquaponics Solar Powered Water Supply System	EFJ	?	Clarendon	Rock Primary & Infant School	?
Gordon Hill District Rainwater Harvesting System	EFJ	?	St. Catherine	Rural Water Supply Limited	?
Strengthening the Adaptive Capacity of Farmers through the Construction of a Water Harvesting System	EFJ	?	Clarendon	Security and Upliftment Association of Dawkins and Surrounding Districts	?

RWH PROJECT NAME	FUNDING BODY	DATE OF START OR CONSTRUC-TION	LOCATION	SIZE OF POPULATION SERVED	CONTACT PERSON
Rain Water Harvesting & Climate Change Abatement Project at the Albert Town Primary School	EFJ	?	Trelawny	Southern Trelawny Environmental Agency	?
Rain Water Collection for Adaptation to Climate Change at Freemans Hall Primary & Infant School	EFJ	?	Trelawny	Southern Trelawny Environmental Agency	?
St. Ann Hi-Tech Farmers Group Water Harvesting and Conservation Project	EFJ	?	St. Ann	St. Ann Hi-Tech Farmers Group Ltd	?
St. Elizabeth Agricultural Society Seedling Project	EFJ	?	St. Elizabeth	St. Elizabeth Agricultural Cooperative Society Ltd	?
Rainwater Harvesting and Agroforestry to Increase Resilience of St. Thomas Bee Farmers to Impacts of Climate Change	EFJ	?	St. Thomas	St. Thomas Bee Farmers Cooperative Ltd.	?
Rainwater Harvesting System to Sustainably Meet Demand of Community Services Facilities	EFJ	?	St. Andrew	Tarrant Baptist Church	?
Top Road Community Residential Water Project	EFJ	?	St. Andrew	Top Road Water Users Association	?
Troja Primary & Junior High School Rainwater Harvesting & Irrigation Project	EFJ	?	St. Catherine	Troja Primary & Junior High School	?
Mizpah Water Harvesting and Demonstration Project	EFJ	?	Manchester	UNITAS of Jamaica	?
Improving Rainwater Harvesting Systems for Sustainable Water Management	EFJ	?	St. Elizabeth	University of the West Indies	?
talling Water Management System in Three Basic Schools in the Greater August Town Township to Increase Resilience to Climate Change and Food Security	EFJ	?	St. Andrew	UWI, Office of the Principal	?
Williamsfield Water Project	EFJ	?	St. Catherine	Williams Field Citizens Association	?
Restoring Life from Bauxite Mines while Mitiigating the Effects of Climate Change and Fostering Economic Growth	EFJ	?	Manchester	WINDALCO Kirkvine Joint Communities Council	?

TABLE 1B - LIST OF PRIMARY SCHOOL CATCHMENT TANKS REFURBISHED (OR TO BE REFURBISHED) BY RURAL WATER SUPPLY LIMITED IN JAMAICA

CATCHMENT TANKS IN PRIMARY SCHOOLS TO BE REFURBISHED ISLANDWIDE

KEY	ESTIMATED TOTAL RAINFALL (MM)
EXCELLENT	600-1000
GOOD	250-600
FAIR	150-250
POOR	50-150
INADEQUATE	0-50

Based on analysis of region, location, school's capacity and estimated total rainfall, the following school from each county was chosen;

SURREY - Enfield Primary and Junior High, St.Mary;
CORNWALL - Revival All Age, Westmoreland;
MIDDLESEX - Higgins Land Primary and Junior High, St. Ann

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPACITY	ENROLMENT	RAINFALL
SURREY									
02025	Lawrence Tavern Primary	2. St. Andrew	1. Kingston	1.1 Primary	Rural	Catchment	1045	971	Fair
02048	Westphalia All Age	2. St. Andrew	1. Kingston	1.3 All Age	Remote Rural	Catchment	95	57	Fair
03018	Minto Primary	3. St. Thomas	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	160	68	Good
03021	Mount Vernon Primary	3. St. Thomas	2. Port Antonio	1.1 Primary	Rural	Catchment	120	11	Good
03036	Woburn Lawn Primary	3. St. Thomas	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	170	47	Fair
03045	Penlyne Castle Primary	3. St. Thomas	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	210	68	Good
4011	Bybrook Primary	4. Portland	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	170	63	Good
05010	Camberwell Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Rural	Catchment	145	39	Poor
05015	Derry Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Rural	Catchment	170	41	Poor
05019	Enfield Primary & Junior High	5. St. Mary	2. Port Antonio	1.5 Primary & Junior High	Rural	Catchment	440	253	Fair
05025	Hampstead Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Rural	Catchment	170	102	Poor
05029	Jackson Primary & Junior High	5. St. Mary	2. Port Antonio	1.5 Primary & Junior High	Remote Rural	Catchment	360	56	
05031	Jeffrey Town Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Rural	Catchment	225	77	Poor
05039	Mason Hall Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	155	74	
05064	Woodside Primary	5. St. Mary	2. Port Antonio	1.1 Primary	Rural	Catchment	105	40	Poor

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPAC-ITY	ENROL-MENT	RAIN-FALL
CORNWALL									
04044	Windsor Primary	4. Portland	2. Port Antonio	1.1 Primary	Remote Rural	Catchment	115	84	Good
07011	Freemans Hall Primary and Infant	7. Trelawny	3. Brown's Town	1.1 Primary	Rural	Catchment	210	120	Good
07015	Lowe River Primary & Junior High	7. Trelawny	3. Brown's Town	1.5 Primary & Junior High	Rural	Catchment	1000	586	Good
07019	Sawyers Primary	7. Trelawny	3. Brown's Town	1.1 Primary	Rural	Catchment	90	88	Good
07020	Spring Garden Primary and Infant	7. Trelawny	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	255	194	Fair
07022	Troy Primary	7. Trelawny	3. Brown's Town	1.1 Primary	Rural	Catchment	180	262	Good
07025	Wait-A-Bit All Age	7. Trelawny	3. Brown's Town	1.3 All Age	Rural	Catchment	430	428	Good
07027	Waldensia Primary	7. Trelawny	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	140	102	Good
07028	Warsop Primary	7. Trelawny	3. Brown's Town	1.1 Primary	Rural	Catchment	420	275	Good
08004	Bickersteth Primary and Infant	8. St. James	4. Montego Bay	1.1 Primary	Rural	Catchment	440	378	Excel-lent
08011	Goodwill Primary and Infant	8. St. James	4. Montego Bay	1.1 Primary	Rural	Catchment	230	145	Good
08016	Lottery Primary	8. St. James	4. Montego Bay	1.1 Primary	Rural	Catchment	155	98	Good
08017	Maldon Primary	8. St. James	4. Montego Bay	1.1 Primary	Rural	Catchment	280	276	Excel-lent
08024	Orange Hill Primary	8. St. James	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	130	42	Good
08026	Salter's Hill All Age	8. St. James	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	145	31	Good
08029	Springfield Primary	8. St. James	4. Montego Bay	1.1 Primary	Rural	Catchment	300	182	Good
08031	Sunderland Primary	8. St. James	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	105	55	Good
08062	Garlands Primary & Junior High	8. St. James	4. Montego Bay	1.5 Primary & Junior High	Rural	Catchment	195	203	Good
09015	Gurney's Mount Primary	9. Hanover	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	185	46	Good
09016	Jericho Primary	9. Hanover	4. Montego Bay	1.1 Primary	Rural	Catchment	150	43	Fair
09021	Maryland All Age	9. Hanover	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	120	90	Fair
09022	Middlesex Corner Primary	9. Hanover	4. Montego Bay	1.1 Primary	Rural	Catchment	320	255	Fair

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPACITY	ENROLMENT	RAINFALL
CORNWALL									
09023	Mount Hannah Primary	9. Hanover	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	135	53	Fair
09032	Upper Rock Spring All Age and Infant	9. Hanover	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	140	104	Fair
09040	Success Primary & Junior High	9. Hanover	4. Montego Bay	1.5 Primary & Junior High	Rural	Catchment	170	66	Fair
09045	Hillsbrook All Age	9. Hanover	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	170	13	Good
10001	Ashton All Age	10. Westmoreland	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	145	122	Fair
10005	Blauwearie Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	155	58	Fair
10008	Cairn Curran Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	75	41	Fair
10010	Carmel Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Rural	Catchment	150	36	Fair
10013	Content Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	80	37	Good
10016	Dundee All Age	10. Westmoreland	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	235	177	Good
10024	Holly Hill Primary and Infant	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	205	146	Fair
10025	Kentucky Primary & Junior High	10. Westmoreland	4. Montego Bay	1.5 Primary & Junior High	Remote Rural	Catchment	105	83	Fair
10033	Mount Hermon Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Rural	Catchment	180	150	Fair
10038	New Works Primary and Infant	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	275	222	Fair
10041	Porter's Mountain Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Remote Rural	Catchment	105	46	Good
10043	Revival All Age	10. Westmoreland	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	280	241	Good
10047	Salem Primary & Junior High	10. Westmoreland	4. Montego Bay	1.5 Primary & Junior High	Remote Rural	Catchment	230	148	Good
10050	Seaford Town Primary	10. Westmoreland	4. Montego Bay	1.1 Primary	Rural	Catchment	195	85	Good
10075	Little Bay All Age and Infant	10. Westmoreland	4. Montego Bay	1.3 All Age	Remote Rural	Catchment	150	123	Fair
11000	Marie Cole Memorial Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	195	385	Poor

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPAC-ITY	ENROL-MENT	RAIN-FALL
CORNWALL									
11002	Accompong Primary & Junior High	11. St. Elizabeth	5. Mandeville	1.5 Primary & Junior High	Remote Rural	Catchment	210	101	Fair
11003	Fullerswood Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	185	133	Poor
11008	Beersheba Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	210	79	Fair
11014	Brinkley Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	95	115	Poor
11018	Carisbrook Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	265	104	Fair
11022	Epping Forest Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	190	90	Poor
11027	Giddy Hall All Age	11. St. Elizabeth	5. Mandeville	1.3 All Age	Rural	Catchment	210	88	Poor
11028	Ginger Hill All Age	11. St. Elizabeth	5. Mandeville	1.3 All Age	Remote Rural	Catchment	245	212	Fair
11030	Happy Grove Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	130	54	Good
11032	Hopeton Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	130	21	Poor
11034	Kilmarnock Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	125	84	Fair
11038	Lititz All Age and Infant	11. St. Elizabeth	5. Mandeville	1.3 All Age	Rural	Catchment	306	251	Poor
11045	Mulgrave Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	70	39	Fair
11049	Nightingale Grove Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Rural	Catchment	115	108	Fair
11054	Pisgah Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	180	143	Fair
11056	Quickstep Primary	11. St. Elizabeth	5. Mandeville	1.1 Primary	Remote Rural	Catchment	70	30	Fair

SCHOOL CODE AND NAME	PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPAC-ITY	ENROL-MENT	RAIN-FALL
MIDDLESEX								
13018	Garlogie Primary & Junior High	13. Clarendon	6. Old Harbour	1.5 Primary & Junior High	Remote Rural	Catchment	310	101	
13023	John Austin All Age	13. Clarendon	6. Old Harbour	1.3 All Age	Rural	Catchment	305	202	
13026	Kilsyth Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	225	275	Fair
13027	Leicesterfield Primary & Junior High and Inf	13. Clarendon	6. Old Harbour	1.5 Primary & Junior High	Rural	Catchment	265	107	Fair
13028	Morgans Pass Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	110	105	Poor
13029	Long Look Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	65	43	
13030	Main Ridge Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	100	22	
13034	Mitchell's Hill Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	65	45	Poor
13036	Mocho Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	180	299	Poor
13037	Moores Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	120	110	Poor
13038	Moravia Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	190	186	Fair
13039	Mount Airy Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	145	105	Poor
13042	Mount Providence Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	135	119	Poor
13043	Park Hall Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	165	107	Poor
13044	Pindars Valley Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	110	138	Poor
13047	Prospect Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	155	72	Fair
13049	Red Hills Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	135	61	
13050	Richmond Park Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	170	170	
13052	Rock Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	180	220	Poor
13054	Rosewell Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	105	100	Poor
13059	Staceyville Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	315	301	Good
13060	Thompson Town Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	365	337	Fair

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPACITY	ENROLMENT	RAINFALL
MIDDLESEX									
13067	Ashley Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	165	141	Fair
13079	McNie All Age	13. Clarendon	6. Old Harbour	1.3 All Age	Remote Rural	Catchment	720	480	Poor
13090	Morgans Forest Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	260	212	
13095	Cumberland All Age	13. Clarendon	6. Old Harbour	1.3 All Age	Rural	Catchment	185	102	Fair
13098	Coffee Piece Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	180	159	Fair
13105	Simon Primary and Infant	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	165	101	Fair
13122	Bunkers Hill Primary	13. Clarendon	6. Old Harbour	1.1 Primary	Rural	Catchment	155	61	
13123	Sunbury All Age	13. Clarendon	6. Old Harbour	1.3 All Age	Remote Rural	Catchment	195	140	
14005	Bonnett Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	215	120	Good
14007	Browns Hall Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	305	265	Poor
14009	Cedar Valley Primary and Infant	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	75	145	Poor
14011	Eccleston Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	100	110	Poor
14014	Garden Hill Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	170	124	Fair
14015	Ginger Ridge All Age	14. St. Catherine	6. Old Harbour	1.3 All Age	Rural	Catchment	200	95	Poor
14022	Harewood Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	260	81	Poor
14026	Juan De Bolas Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	120	40	Poor
14027	Jubilee Town Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	150	54	Fair
14034	Bois Content Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	195	102	Poor
14035	Marlie Hill Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	130	71	Poor
14037	Mount Hermon Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	210	120	Fair
14044	Pear Tree Grove Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	145	42	Fair
14049	Rose Hill Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	165	59	Fair
14053	Sargeantville Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	235	197	

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPACITY	ENROLMENT	RAINFALL
MIDDLESEX									
14054	Seafield Primary and Infant	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	280	70	
14062	Top Hill Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	95	57	
14067	Watermount Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Rural	Catchment	210	132	
14075	New Mount Industry Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	255	156	Fair
14099	Tydixon Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	105	54	Fair
14109	Top Jackson Primary	14. St. Catherine	6. Old Harbour	1.1 Primary	Remote Rural	Catchment	235	115	Fair
06002	Alva Primary and Infant	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	135	148	Poor
06003	Bamboo Primary & Junior High	6. St. Ann	3. Brown's Town	1.5 Primary & Junior High	Rural	Catchment	350	548	Poor
06004	Beecher Town Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	95	132	Poor
06005	Bensonton Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	150	105	Fair
06006	Bethany Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	230	198	Poor
06013	Cascade Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	295	198	Fair
06015	Charlton Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	415	641	Poor
06016	Charlton Infant	6. St. Ann	3. Brown's Town	0.1 Infant	Rural	Catchment	270	107	Poor
06018	Clapham Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	80	43	Poor
06021	Clydesdale Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	110	29	Poor
06023	Eccleston Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	240	145	Fair
06024	Epworth Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	95	105	Poor
06026	Fort George Primary and Infant	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	160	129	
06027	Gibraltar All Age	6. St. Ann	3. Brown's Town	1.3 All Age	Remote Rural	Catchment	240	190	Poor
06030	Irons Mountain Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	65	47	Poor
06031	Jeffreyville Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	80	31	

SCHOOL CODE AND NAME		PARISH	REGION	SCHOOL TYPE	LOCATION	WATER SOURCE	CAPAC-ITY	ENROL-MENT	RAIN-FALL
MIDDLESEX									
06032	Keith Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	190	128	Poor
06035	Lime Tree Gardens Primary and Infant	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	190	136	Poor
06036	Linton Park All Age	6. St. Ann	3. Brown's Town	1.3 All Age	Rural	Catchment	165	116	Fair
06037	Lower Buxton All Age	6. St. Ann	3. Brown's Town	1.3 All Age	Rural	Catchment	250	102	Poor
06038	Madras All Age	6. St. Ann	3. Brown's Town	1.3 All Age	Rural	Catchment	175	128	Fair
06040	Mount Moriah Primary and Infant	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	310	330	
06041	Mount Waddy Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	170	102	
06043	Muirhouse Primary & Junior High	6. St. Ann	3. Brown's Town	1.5 Primary & Junior High	Remote Rural	Catchment	225	145	Poor
06044	Murray Mountain Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	210	225	
06046	Philadelphia Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	120	76	
06047	Prickly Pole Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	125	76	Fair
06049	Retirement Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	100	121	Poor
06054	Bob Marley Primary & Junior High	6. St. Ann	3. Brown's Town	1.5 Primary & Junior High	Remote Rural	Catchment	135	150	Fair
06056	Turnberry Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	95	71	
06062	Watt Town All Age	6. St. Ann	3. Brown's Town	1.3 All Age	Rural	Catchment	27	99	Poor
06075	Inverness Primary and Infant	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	105	82	Fair
06088	Higgins Land Primary & Junior High	6. St. Ann	3. Brown's Town	1.5 Primary & Junior High	Remote Rural	Catchment	225	186	Good
06100	Free Hill Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Remote Rural	Catchment	140	188	
06101	Aboukir Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	180	159	Fair
06104	Grants Mountain Primary	6. St. Ann	3. Brown's Town	1.1 Primary	Rural	Catchment	165	132	

TABLE 2 - SUMMARY OF SELECTED PROJECT KEY INFORMANT INTERVIEWS (KII)

LEGEND YES NO PERHAPS N/A

1	**RWH Project**								
1.1	Project	Grand Bay Cistern Refurbishment	Blaize Community RWH Project	RWH Projects implemented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Cooperative RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
1.2	Location	Carriacou	Blaize	Various Locations	Various Locations	North Dennery	Soufriere	Asigron	Various Locations
1.3	Implementing Body	Gov't	NAWASA	EFJ	RWS Ltd	IWCAM	GIZ	UNDP	UNDP
1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
2	**General Questions**								
2.1	Is RWH important to the development of your country?								
2.2	Is RWH an important strategy for climate change adaptation?								
2.3	Is RWH widely used in your country?								
3	**Reach and purpose of RWH project**								
3.1	Where is your RWH located?	Grand Bay Area	Blaize	Elevated Areas	Communities	North Dennery	Soufriere	Asigron	Various Locations
3.2	How many people or households does it serve?	320 Individuals	45 households	150-500 households	Up to 2000 households	N/A	Whole Cooperative	66 households	N/A
3.3	Was anyone aimed at?								
3.4	Was especially poorer people who cannot afford piped water aimed at?								
3.5	Was especially people not covered by piped water supply aimed at?								
3.6	Was the main purpose of the RWH installation drinking water source?								
3.7	Was the main purpose of the RWH installation domestic use?								
3.8	Was the main purpose of the RWH installation agriculture?								
3.9	Was the main purpose of the RWH installation aquaponics?								
3.10	Was the main purpose of the RWH installation construction?								
3.11	Was the main purpose of the RWH installation aquifer recharge								
3.12	Was the main purpose of the RWH installation as an emergency backup source?								
3.13	Was the main purpose of the RWH installation as a backup source for dry periods?								

1	RWH Project								
1.1	Project	Grand Bay Cistern Refurbish-ment	Blaize Commu-nity RWH Project	RWH Proj-ects imple-mented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Coopera-tive RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
1.2	Location	Carriacou	Blaize	Various Locations	Various Locations	North Dennery	Soufriere	Asigron	Various Locations
1.3	Implementing Body	Gov't	NAWASA	EFJ	RWS Ltd	IWCAM	GIZ	UNDP	UNDP
1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
3.14	Was the main purpose of the RWH installation as a strategy for adapating to climate change?								
4	Water Quality Considerations								
4.1	Was the installation specifically designed to optimise water quality?								
4.2	Was advice given on roof. tank or gutter cleaning?								
4.3	Was advice given on water treatment?								
4.4	Was first flush device treatment chosen?								
4.5	Were chlorine tables treatment chosen?								
4.6	Were filters chosen?								
4.7	Are you aware of any health risks caused by the population drinking this rainwater?								
5	Project Funding								
5.1	Did the government fund the installation?								
5.2	Did a donor fund the installation?								
5.3	Did a NGO fund the installation?								
6	Climate Change Considerations								
6.1	Was the installation sized to address drought periods?								
6.2	Was the installation designed to address increased water demand due to increasing temperatures?								
6.3	Was the installation designed to withstand storm/cyclone damage?								
6.4	Was the installation designed to capture rainfall intensity under climate change?								
7	Project Objectives and Benefits								
7.1	7.1 Did the project deliver the objectives?								
7.2	7.2 Has the RWH facility been operational?								
7.3	7.3 Is the RWH facility still in use today?								

1	RWH Project								
1.1	Project	Grand Bay Cistern Refurbish-ment	Blaize Commu-nity RWH Project	RWH Proj-ects imple-mented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Coopera-tive RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
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1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
7.4	7.4 Does a large proportion of your target population uses the facility?								
7.5	Has it been beneficial for those with no other water sources available?								
7.6	Has it been beneficial for those whose main water source is often interrupted during dry periods?								
7.7	Has it been beneficial for those whose main water source is often interrupted during storms?								
7.8	Has it been beneficial to save money on piped water?								
7.9	Has it been beneficial for those whose main water source is of poor quality?								
7.10	Has it been beneficial for extra income source from productive uses?								
7.11	Has it been beneficial for aesthetic reasons?								
7.12	Has it been beneficial for cultural reasons/beliefs/indiosyncrasies?								
7.13	Have you received interest from neighbouring communities or areas?								
8	Operation and Maintenance of RWH Systems								
8.1	Is maintenance undertaken daily?								
8.2	Is maintenance undertaken weekly?								
8.3	Is maintenance undertaken monthly?								
8.4	Is maintenance undertaken around every 6 months?								
8.5	Is maintenance undertaken less than once every 6 months?								
8.6	Has maintenance never been undertaken?								
8.7	Has maintenance been mostly funded by beneficiaries own funds?								
8.8	Has maintenance been mostly funded by a project or government entity?								
8.9	Has maintenance been mostly funded by revolving/communal village?								

1	RWH Project								
1.1	Project	Grand Bay Cistern Refurbish-ment	Blaize Commu-nity RWH Project	RWH Proj-ects imple-mented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Coopera-tive RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
1.2	Location	Carriacou	Blaize	Various Locations	Various Locations	North Dennery	Soufriere	Asigron	Various Locations
1.3	Implementing Body	Gov't	NAWASA	EFJ	RWS Ltd	IWCAM	GIZ	UNDP	UNDP
1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
8.10	Is it usually easy to get spare parts or to contact a mechanic to do the repairs?								
8.11	Is it usually difficult to get spare parts or to contact a mechanic to do the repairs?								
8.12	Do you strongly agree that the maintenance of the RWH system can be covered in future?								
8.13	Do you agree that the maintenance of the RWH system can be covered in future?								
8.14	Do you neither agree or disagree that the maintenance of the RWH system can be covered in future?								
8.15	Do you disagree that the maintenance of the RWH system can be covered in future?								
8.16	Do you strongly disagree that the maintenance of the RWH system can be covered in future?								
9	Campaigns and Awareness Raising on RWH								
9.1	Did you run any awareness raising campaigns as part of your project?								
9.2	Did the campaigns focus on design advice?								
9.3	9.3 Did the campaigns focus on attitudes?								
9.4	Does the campaign suggest RWH should be used for drinking use?								
9.5	Does the campaign suggest RWH should be used for domestic use?								
9.6	9.6 Does the campaign suggest RWH should be used for agriculture?								
9.7	9.7 Does the campaign suggest RWH should be used for aquaponics?								
9.8	Does the campaign suggest RWH should be used as backup emergency supply after a hurricane?								
9.9	Are any uses discouraged?								
9.10	Is information on health issues of storing open water containers shared?								

1	RWH Project								
1.1	Project	Grand Bay Cistern Refurbish-ment	Blaize Commu-nity RWH Project	RWH Proj-ects imple-mented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Coopera-tive RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
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1.3	Implementing Body	Gov't	NAWASA	EFJ	RWS Ltd	IWCAM	GIZ	UNDP	UNDP
1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
9.11	Have you used national TV channel to shared this information?								
9.12	Have you used brouchures to shared this information?								
9.13	Have you used schools to shared this information?								
9.14	Are campaigns run daily?								
9.15	Are campaigns run weekly?								
9.16	Are campaigns run monthly?								
9.17	Are campaigns run around every 6 months?								
9.18	Are campaigns run less than once every 6 months?								
9.19	Does the government run these campaigns?								
9.20	Do non-government actors also run these campaigns?								
9.21	Have any efforts been on rebranding RWH nationally as "going green"?								
9.22	Have any efforts been on involving youth?								
10	Beneficiaries of RWH Project								
10.1	Did you get the beneficiaries to use the RWH facility? 010.1								
10.2	10.21 Did you use champions? 110.2								
11	Attittudes and Knowledge towards RWH								
11.1	Did you face attitude challenges from the beneficiaries to use the RWH facility?								
11.2	Did you face external climate related challenges regarding the use of RWH facility?								
11.3	Were these challenges resolved?								
11.4	Would you do anything differently next time to promote RWH?								
11.5	Is the low need the biggest barrier to increase RWH uptake nationally?								
11.6	Is the lack of knowledge and understanding of RWH in general the biggest barrier to increase RWH uptake nationally?								

1	RWH Project								
1.1	Project	Grand Bay Cistern Refurbish-ment	Blaize Commu-nity RWH Project	RWH Proj-ects imple-mented by EFJ	RWH Projects by Rural Water Supply Ltd	North Dennery RWH Project	Belle Vue Farmers Coopera-tive RWH Project	Enhancing Access to drinking water in Asigron	RWH Projects by UNDP under JCCCP
1.2	Location	Carriacou	Blaize	Various Locations	Various Locations	North Dennery	Soufriere	Asigron	Various Locations
1.3	Implementing Body	Gov't	NAWASA	EFJ	RWS Ltd	IWCAM	GIZ	UNDP	UNDP
1.4	Country	Grenada	Grenada	Jamaica	Jamaica	St Lucia	St Lucia	Suriname	Various
1.5	Key Informant (Interviewee)	Davon Baker	Dave Marquez	Allison Rangolan	Patrick Reid	Cornelius Isaac	Timo Schirmer & Raphael Felix	Cylene France	UNDP Staff
11.7	Is the lack of knowledge on technology options the biggest barrier to increase RWH uptake nationally?								
11.8	Is the lack of knowledge on who to contact to construct RWH system the biggest barrier to increase RWH uptake nationally?								
11.9	Is the lack of material to build the biggest barrier to increase RWH uptake nationally?								
11.10	Is the affordability/cost of materials the biggest barrier to increase RWH uptake nationally?								
11.11	Is the quality of rainwater the biggest barrier to increase RWH uptake nationally?								
11.12	Are cultural reasons/beliefs/ indiosyncrasies the biggest barriers to increasing RWH uptake nationally?								
12	Promotion of RWH								
12.1	Should RWH be promoted by the government?								
12.2	Are there policies in place to favour RWH?								
12.3	Are there policies in place to hinder RWH?								
12.4	Is there any other measures for the government to further promote RWH?								

APPENDIX 1

KEY INFORMANT INTERVIEW (KII) TEMPLATE

KII Interview with _____

Date _____ 2019

Attending

- Names _____
- _____

1. When was this RWH project implemented (start date & end date) and what was your role on the project?
2. Overall importance and utility of RWH
    a. How important do you think rainwater harvesting is to the development of your country, given risks placed on other water sources?
    a. Do you think RWH is likely to become more or less important – as a strategy for adapting to climate change? Why?
    b. Do you think RWH is widely used in your country?
        i. Why / why not
3. Questions about the project
    a. Where is your RWH located?
    b. How many people or households does it serve?
    c. What sort of people or households did you aim to reach
        i. Anyone?
        ii. Especially poorer people who cannot afford piped water?
        iii. Especially people not covered by piped water supply
    d. What is the main purpose of the rainwater installation
        i. Drinking water source
        ii. Domestic use – cooking, bathing, cleaning
        iii. Agriculture
        iv. Aquaponics = fish farming
        v. Construction
        vi. Aquifer recharge
        vii. As an emergency backup source, e.g. after a storm
        viii. As a back-up source, the utility water supply is low during dry periods
        ix. As a strategy for adapting to climate change
4. If it was used for drinking water
    a. Was the installation specifically designed to optimise water quality?
    b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al?
    c. Was advice given on treatment e.g. chlorine dosing, UV et al?
    d. Which treatment option was chosen - and why?
    e. Are you aware of any health risks caused by the population drinking this rainwater?
5. Financing
    a. Who funded the installation? Government? donor? NGO?
    b. Did you receive any grant or subsidy from the government
    c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)?
6. Resilience to climate change hazards
    a. Was the installation sized to address drought periods?
    b. Was the installation designed to address increased water demand due to increasing temperatures?
    c. Was the installation designed to withstand storm/cyclone damage?
    d. Was the installation designed to capture increased rainfall intensity under climate change?

7. Uptake & benefits - did the projects deliver their objectives?
    a. Has the facility been operational?
    b. Is it still in use today? (***may require a site visit)***
    c. What proportion of your target population uses the facility? (***may require a site visit)***
    d. What benefits have you seen of households using RWH
        i. Beneficial for those with no other water source available
        ii. The main water source is often interrupted in dry periods
        iii. The main water source is often interrupted during storms
        iv. To save money on piped water
        v. The main water source is of poor quality
        vi. For extra income source from productive uses (agriculture; aquaponics)
        vii. For aesthetic reasons, so that I can water my garden
        viii. Cultural reasons/beliefs/idiosyncrasies
        ix. Other
    e. Have you received interest from neighbouring communities or areas?
8. Maintenance & sustainability

1.1	How often is maintenance undertaken?	01 = Daily 02 = Weekly 03 = Monthly 04 = Around every 6 months 05 = Less than once every 6 months 06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	Open-ended
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
    a. Did you run any awareness raising campaigns as part of your project?
        i. What information do the campaigns focus on? Design advice? Attitudes?
        ii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc.
        iii. Are any uses discouraged? Why
        iv. What information is shared on health issues of storing open water containers
    b. Which channels do you use to share this information?
        i. How often are these campaigns run
        ii. Who runs them – do non-government actors also run campaigns?
    c. What messaging do you focus on?
        i. Any efforts to rebrand RWH nationally – e.g. as 'going green'
        ii. Any efforts to involve youth?
10. Lessons
    a. What worked well – to get beneficiaries to use the RWH facility?
        i. What strategies did you use?

    ii. Did you use champions? Etc.
  b. Why do you think the facility worked well here – even if it might not work elsewhere?
11. Challenges
  a. What challenges did you face, in getting beneficiaries to use the RWH facility?
    i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc.
    ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes
  b. Who did you resolve each challenge?
  c. What would you do differently next time to promote RWH – and what hindered you from doing that this time
  d. What do you think are the biggest barriers to increasing RWH uptake nationally?
    i. Low need – piped water supply is abundant & reliable
    ii. Lack of knowledge and understanding of RWH in general
    iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
    iv. Lack of materials to build
    v. Affordability/cost of materials
    vi. Quality of the rainwater: Cleanliness/dirtiness
    vii. Cultural reasons/beliefs/idiosyncrasies
    viii. Other
12. Policy
  a. Do you think RWH should be promoted by the government? if not – why not
  b. What polices are in place – which favour RWH?
  c. Which policies are in place – which hinder RWH?
  d. What more should the government do, to promote RWH further?

APPENDIX 2

KEY INFORMANT INTERVIEWS

KII Interview with Carriacou RWH project

29 April 2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Davon Baker = Climate Change Focal Point, Ministry of Carriacou & Petite Martinique Affairs and Local Government
- Clive & Marc – GWPL
- Adrian
- Lucrezia

1. **When was this RWH project implemented (start date & end date) and what was your role on the project?**
    a. Was
2. **Overall importance and utility of RWH**
    a. RWH is essential in Carriacou – few other water sources. Desalination water is not trusted
        i. There are both small household RWH tanks a communal RWH cisterns
    b. RWH used to cooking & cleaning & drinking
        i. No treatment of RW for drinking – maybe boiling sometimes. Not issues with concern over water quality
    c. Less worried about RW variability due to climate change; there is enough rain – the main issue is actually storing and capturing it
3. **Questions about the project**
    a. Project = Grand Bay Cistern Refurbishment, Carriacou
    b. Reaching 320 residents
    c. Refurbishment completed in early 2019
    d. Aimed to reach whole communities (not the poor) in neighbouring communities = in Grand Bay area
    e. The utility is still figuring out how much to charge for water
        i. Yes communities are happy to pay for water
        ii. In the past – used to be $25/month = this is very low
        iii. NAWASA will decide on price
        iv. How does it compare to price of desalination water
4. **If it was used for drinking water = yes it is**
    a. Don't use any technology to clean – e.g. first flush
    b. But there is some concern about water quality – with Japanese funding they are now doing water quality testing, e.g. for water for hospital
    c. Sometimes household put fish in the tank – to eat mosquito larvae
    d. Was the installation specifically designed to optimise water quality?
    e. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al?
    f. Was advice given on treatment e.g. chlorine dosing, UV et al?
    g. Which treatment option was chosen - and why?
    h. Are you aware of any health risks caused by the population drinking this rainwater?
5. **Financing**
    a. Construction first funded by local government – in 1920/1930s
    b. Refurbishment funded by JICA/UNDP
    c. No community contribution
6. **Resilience to climate change hazards**

a. Worst recent drought was in 2010/2011 – this prompted the government to refurbish the RW cisterns
b. During droughts – had to truck water to communities
c. The cisterns were not specifically sized for drought resilience – climate variability has gotten worse. There are about 14-16 large cisterns on the island – some have been rehabilitated; some not. If all were rehabilitated, these cisterns could probably meet all of the island's needs – even given climate variability. Weird that built a desalination plant – instead of repair all cisterns!
d. During a cyclone, the household RW tanks can withstand storm/cyclone damage
    i. But black tanks are less resilient = can be knocked off their stands by strong winds
e. Also the communal RW cisterns can withstand storm/cyclone damage; they are often sunk into the ground. One has issue with siltation (maintenance issue, not storm issue)

7. Maintenance & sustainability

a. Cistern – in theory owned by NAWASA. Cisterns installed in 1920/1930s
b. But in practice, it is managed by communities
c. The funds from tariff will not go to NAWASA, will stay with local government for maintenance
d. Daily maintenance (keys to the tank) is done by community groups
    i. Some issues – people come with trucks and take too much
    ii. Sometimes users are blocked
e. For large scale maintenance – community groups cannot cover it, need to go to local government or donor for funding
f. Maintenance will still be a problem – not sure yet what tariff would be sufficient to cover maintenance – need to still decide.

8. Awareness raising

a. No awareness raising campaigns
b. It is the population who told the government to refurbish the communal cisterns, not the other way around! Elderly people remembered how useful the communal cisterns were

9. Lessons

a. Worked well here – as solely dependent on RW
b. Have several black tanks – raised on platform = then can get water without a pump

10. Challenges

a. In the past – used to have community spirit, and cleaned out the tanks annually. This has changed = now households have larger individual RWH tanks which are large enough to supply the household. So only need the communal cistern in times of drought
    i. In the past, households built concrete cisterns are part of the house.
    ii. People go off island – brought money back and built new households with big RWH tanks. Also black polythene tanks are cheap – easy to install. So the reliance on the communal concrete RWH cisterns has gone done = so these have fallen into disrepair
    iii. How a resurgence of use of communal cisterns – due to increased climate variability
b. Maintenance will still be a problem – not sure yet what tariff would be sufficient to cover maintenance – need to still decide.
c. What do you think are the biggest barriers to increasing RWH uptake nationally?
    i. Curse of the commons – less interest in maintaining communal cisterns, as households are able to cover needs with individual RW tanks
    ii. Politics matter – NAWASA pushed for desalination plant = it is a cash cow for them! They are even pushing for a 3rd desalination plant!
        1. Yes current desalination plant is often down – then had to truck in water!
    iii. Funding flows matter – it is easier to get money for a new desalination plant, than get funding to repair an old communal cistern = less glamorous
    iv. Perverse incentives – CCCCC gets an incentive if they bring in new funding!

11. Policy

a. The communities are aware of the need for RWH – but the local government does not give it much attention. Could be more proactive
    i. For the rest of Grenada, the situation is different
b. New water quality bill is good – pays attention to RWH

KII Interview with Dave Marquez

Date 30/04/2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Names: Dave Marquez, Clive Carpenter
- Marc

1. When was this RWH project implemented (start date & end date) and what was your role on the project?
    a. Initial design by NAWASA, design was tweaked to fit the funds
    b. Blaize**,** 1375 feet above mean sea level
    c. Concrete tank 50000 imperial gallons; zinc galvanised roof area 1440 square foot
    d. After completion, monitoring started (twice a day, measure rainfall, dip tank)
    e. Drawbacks – sporadic use & sporadic rainfall in period of most use
    f. Originally, catchment 1440 square foot
    g. German input, ask to double the catchment area to 2880 sq. ft.
    h. NAWASA found the land, bought the land; GIZ got involved
    i. 2010 initial concept; Nov 2015 project started; April 2016 completion
    j. DM to email some photos
    k.
2. Overall importance and utility of RWH
    a. RWH very important; especially household based RWH (at the communal scale, it creates some big challenges)
    a. NAWASA encourages RWH at the school level
    b. Do you think RWH is widely used in your country?
        i. Why / why not
3. Questions about the project
    a. Blaize
    b. 45 hh; all of these have their own RWH tanks;
    c. What sort of people or households did you aim to reach
        i. Upper portion of Blaize community
        ii. Especially poorer people who cannot afford piped water? NO
        iii. Especially people not covered by piped water supply NO
    d. What is the main purpose of the rainwater installation
        i. Drinking water source YES
        ii. Domestic use – cooking, bathing, cleaning YES
        iii. Agriculture
        iv. Aquaponics = fish farming
        v. Construction
        vi. Aquifer recharge
        vii. As an emergency backup source, e.g. after a storm
        viii. As a back-up source, the utility water supply is low during dry periods
        ix. As a strategy for adapting to climate change
4. If it was used for drinking water
    a. First flush device; chlorine tablets – also bacteria testing every month; monitoring data to be provided by DM

   b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al?
   c. Was advice given on treatment e.g. chlorine dosing, UV et al?
   d. Which treatment option was chosen - and why?
   e. Are you aware of any health risks caused by the population drinking this rainwater?
5. Financing
   a. GIZ
   b. Did you receive any grant or subsidy from the government
   c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)?
6. Resilience to climate change hazards
   a. 30year rainfall period for design & population growth;
   b. Was the installation designed to address increased water demand due to increasing temperatures?
   c. NO – rainfall is blowing through the other side; they're looking towards
   d. Was the installation designed to capture increased rainfall intensity under climate change?
7. Uptake & benefits - did the projects deliver their objectives?
   a. YES
   b. YES – it is replenished by NAWASA
   c. Everyone
   d. What benefits have you seen of households using RWH
      i. Beneficial for those with no other water source available
      ii. The main water source is often interrupted in dry periods
      iii. The main water source is often interrupted during storms
      iv. To save money on piped water
      v. The main water source is of poor quality
      vi. For extra income source from productive uses (agriculture; aquaponics)
      vii. For aesthetic reasons, so that I can water my garden
      viii. Cultural reasons/beliefs/idiosyncrasies
      ix. Other
   e. NO – but NAWASA looking into a neighbouring area with high rainfall – i.e., CLOZIER
8. Maintenance & sustainability

1.1	How often is maintenance undertaken?	01 = Daily **02 = Weekly** **03 = Monthly** 04 = Around every 6 months 05 = Less than once every 6 months 06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	**01 = Own funds** 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	Open-ended
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
   a. Yes, only with the target community

i. Cost of project, objective, etc.
ii. NAWASA at national level does awareness raising activities
iii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc.
iv. No
v. What information is shared on health issues of storing open water containers

b. Which channels do you use to share this information?
   i. Daily
   ii. Who runs them – do non-government actors also run campaigns?
c. What messaging do you focus on?
   i. Any efforts to rebrand RWH nationally – e.g. as 'going green'
   ii. Any efforts to involve youth?

10. Lessons
    a. What worked well – to get beneficiaries to use the RWH facility?
       i. What strategies did you use?
       ii. Did you use champions? Etc.
    b. Main drawbacks – rainfall data collection
11. Challenges
    a. What challenges did you face, in getting beneficiaries to use the RWH facility?
       i. No challenge
       ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes
    b. Who did you resolve each challenge?
    c. What would you do differently next time to promote RWH – and what hindered you from doing that this time
    d. What do you think are the biggest barriers to increasing RWH uptake nationally?
       i. Low need – piped water supply is abundant & reliable
       ii. Lack of knowledge and understanding of RWH in general
       iii. **Other – COST OF WATER IS TOO CHEAP**
12. Policy
    a. YES
    b. What polices are in place – which favour RWH?
    c. Which policies are in place – which hinder RWH?
    d. What more should the government do, to promote RWH further?

KII Interview with Allison Rangolan @ EFJ

Date 10/05/2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Allison Rangolan
- Mark Constable – Program Officer
- Marc

1. When was this RWH project implemented (start date & end date) and what was your role on the project? **YES, THEY HAVE IMPLEMENTED RWH PROJECTS. THE LIST OF PROJECTS THAT THEY HAVE SHARED WITH US INCLUDE THOSE PROJECTS THAT FOCUS ON RWH, BUT OTHER PROJECTS NOT INCLUDED IN THAT LIST ALSO TOUCH ON RWH.**
2. Overall importance and utility of RWH
    a. How important do you think rainwater harvesting is to the development of your country, given risks placed on other water sources? **VERY IMPORTANT, SPECIALLY IN REMOTE AREAS, WHERE AUTHORITIES NOT ABLE TO PROVIDE WATER SERVICES. ONLY AVAILABLE SOURCE IS RWH.**
    b. Do you think RWH is likely to become more or less important – as a strategy for adapting to climate change? Why? **MORE IMPORTANT. WHEN THERE IS A DROUGHT, EVEN THE SOURCES THAT SUPPLY PIPED WATER SUPPLY ARE AT RISK. ALSO, GETTING ABSTRACTION LICENSES FOR GW OR SW MAY BE TRICKY IN TERMS OF COST AND ADMINISTRATION.**
    c. Do you think RWH is widely used in your country? **IT IS JUST COMING ON, STILL NOT WIDELY USED. SOME OLDER PERSONS IN RURAL AREAS WILL SAY HISTORICALLY IT WAS ALSMOST THE NORM. GENERALLY, IT IS THE MAIN SOURCE OF WATER SUPPLY.**
        i. Why / why not
3. Questions about the project
    a. Where is your RWH located? **ELEVATED AREAS THAT DO NOT HAVE ACCESS TO MUNICIPAL WATER.**
    b. How many people or households does it serve? **MOST OF THE COMMUNITIES RANGE BETWEEN 200-500 HOUSEHOLDS. RURAL COMMUNITIES. SMALL COMMUNITIES. CONSIDERATION FOR THOSE THAT ARE AT SCHOOLS (RANGING FROM 150-300 CHILDREN).**
    c. What sort of people or households did you aim to reach
        i. Anyone? **BASED ON NEED FOR ADAPTATION IN TERMS OF THEMATIC AREAS. NORMALLY IN LOWER INCOME BANDS.**
        ii. Especially poorer people who cannot afford piped water?
        iii. Especially people not covered by piped water supply
    d. What is the main purpose of the rainwater installation
        i. Drinking water source – A FEW
        ii. Domestic use – cooking, bathing, cleaning
        iii. Agriculture - IRRIGATION
        iv. Aquaponics = fish farming – A FEW (ALSO GREENHOUSES)
        v. Construction

vi. Aquifer recharge
vii. As an emergency backup source, e.g. after a storm
viii. As a back-up source, the utility water supply is low during dry periods
ix. As a strategy for adapting to climate change

4. If it was used for drinking water
    a. Was the installation specifically designed to optimise water quality? **EFJ REQUIRE FOR MoH TO BE INVOLVED IN TREATMENT.**
    b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al? **USUALLY MOH PROVIDES TRAINING TO BUILD CAPACITY IN TERMS OF MAINTENANCE AND MONIROTING. SOMETIMES MUNICIPAL CORPORATION ALSO INVOLVED.**
    c. Was advice given on treatment e.g. chlorine dosing, UV et al? **MOH PUT IN PLACE A TRAINING PROGRAM E.G., A SIMPLE TEST FOR CHLORINE. TO ENSURE SUFFICIENT CHLORINE LEVELS ARE IN WATER.**
    d. Which treatment option was chosen - and why? **CHLORINATION, BUT ALSO FILTERS.**
    e. Are you aware of any health risks caused by the population drinking this rainwater? **NEVER EXPERIENCED ANY HEALTH HAZARDS.**
5. Financing
    a. Who funded the installation? Government? donor? NGO? **RECENTLY, BULK OF RWH PROJECT FUNDING HAS COME FROM SPE3CIAL CLIMATE CHANGE ADAPTATION FUND. "APFM" PROJECT (AGREEMEMETN BETWEEN EFJ AND MEGJC), WHICH IS PART OF THE SAME PPCR PROJECT (DIRECLY FROM IDB).**

       IN THE FUTURE – FUNDING FROM EU BUDGETARY SUPPORT PROGRAM (AGREEMENT BETWEEN EFJ AND FORESTRY DEPARTMENT).

    b. Did you receive any grant or subsidy from the government **SEE ABOVE**
    c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)? **IT IS ADVANTAGEOUS FOR COMMUNITIES TO CONTRIBUTE TO THE PROJECT – EFJ GIVE PRIORITY TO THESE COMMUNITIES. SO FOR MOST PROJECTS COMMUNITY HAS CONTRIBUTED TO IT.**

       FOR RWH PROJECTS, POST-IMPLMENTATION CONTINUITY IS ASSESSED. IT IS ASSESSED AT THE PROJECT DESIGN STAGE.

6. Resilience to climate change hazards
    a. Was the installation sized to address drought periods? **PRIORITY IS GIVEN TO SYSTEMS' CAPACITY. TO A LARGE EXTENT, EFJ TAKE INTO ACCOUNT DROUGHT PERIODS.**

       EFFORTS TO IMPROVE LIFETIME.

    b. Was the installation designed to address increased water demand due to increasing temperatures? **ALWAYS EFFORT TO MAXIMISE CAPACITY.**
    c. Was the installation designed to withstand storm/cyclone damage? **YES, WORKING TOGETHER WITH RURAL WATER SUPPLY, WHO HAVE FOUND THAT THE FERROCEMENT TANK IS GOOD IN TERMS OF THIS.**
    d. Was the installation designed to capture increased rainfall intensity under climate change? **FOR THE AGRICULTURAL RWH SYSTEMS, THESE ARE DESIGNED TO CAPTURE A SIGNIFICANT AMOUNT OF RAINFALL (EVEN IN EXTREME EVENTS).**
7. Uptake & benefits - did the projects deliver their objectives?

a. Has the facility been operational? **YES**
b. Is it still in use today? **YES**
c. What proportion of your target population uses the facility? **YES – IN THE SITE VISIT, THEY SEE A GOOD PEOPLE TURNOUT AND GOOD FEEDBACK**

   FREQUENCY OF MONIROTING DEPENDS ON DONOR REPORTS. GRANTEES ARE REQUIRED TO SUBMIT QUARTERLY REPORTS. IF SPECIFIC PROJECTS HAVE DIFFICULTIES, THEY MAY DECIDE TO UNDERTAKE A VISIT OR MAKE PROVISIONS TO ENSURE CONTINUITY OF PROJECTS.

d. What benefits have you seen of households using RWH
   i. **Beneficial for those with no other water source available**
   ii. **The main water source is often interrupted in dry periods**
   iii. **The main water source is often interrupted during storms**
   iv. **To save money on piped water**
   v. The main water source is of poor quality
   vi. **For extra income source from productive uses (agriculture; aquaponics)**
   vii. For aesthetic reasons, so that I can water my garden
   viii. Cultural reasons/beliefs/idiosyncrasies
   ix. Other
e. Have you received interest from neighbouring communities or areas? **YES**

8. Maintenance & sustainability – **EFJ DO NOT DIRECTLY GET INOLVED IN TERMS OF TECHNICAL REQUIREMENTS FOR MAITENANCE – THIS COMES FROM RWSL OR MOH.**

1.1	~~How often is maintenance undertaken?~~	~~01 = Daily~~ ~~02 = Weekly~~ ~~03 = Monthly~~ ~~04 = Around every 6 months~~ ~~05 = Less than once every 6 months~~ ~~06 = Never~~ ~~98 = Don't Know~~
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity **03 = Revolving / communal village fund**
1.3	What maintenance has been undertaken?	Open-ended
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
   a. Did you run any awareness raising campaigns as part of your project?
      i. What information do the campaigns focus on? Design advice? Attitudes? **HEALTH ISSUES AND CLIMATE CHANGE ADAPTATION.**
      ii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc. **THEY PROVIDE GUIDANCE AS TO SUITABLE**

USES BUT COMMUNITY HAS DECISION MMAKING.

iii. Are any uses discouraged? Why
iv. What information is shared on health issues of storing open water containers

b. Which channels do you use to share this information?
   i. How often are these campaigns run
   ii. Who runs them – do non-government actors also run campaigns?
c. What messaging do you focus on?
   i. Any efforts to rebrand RWH nationally – e.g. as 'going green'
   ii. Any efforts to involve youth?

10. Lessons
    a. What worked well – to get beneficiaries to use the RWH facility? **THEY'RE INTESTSTED.**
       i. What strategies did you use?
       ii. Did you use champions? Etc.
    b. Why do you think the facility worked well here – even if it might not work elsewhere?
11. Challenges
    a. What challenges did you face, in getting beneficiaries to use the RWH facility? **NO CHALLENGES IN TERMS OF PERCEPTION.**
       i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc.
       ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes **THESE SYSTEMS BUILD RESILIENCE TO A GREAT EXTENT IN TERMS OF CLIMATE CHANGE.**
    b. Who did you resolve each challenge?
    c. What would you do differently next time to promote RWH – and what hindered you from doing that this time
    d. What do you think are the biggest barriers to increasing RWH uptake nationally?
       i. Low need – piped water supply is abundant & reliable – **NOT IN THE AREAS THEY FOCUS**
       ii. Lack of knowledge and understanding of RWH in general
       iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
       iv. Lack of materials to build
       v. Affordability/cost of materials – **ON THE HOUSEHOLD LEVEL, COST OF CONSTRUCTION**
       vi. Quality of the rainwater: Cleanliness/dirtiness
       vii. Cultural reasons/beliefs/idiosyncrasies
       viii. Other
12. Policy
    a. Do you think RWH should be promoted by the government? **YES, ALTHOUGH A LOT HAS BEEN DONE, THERE IS ROOM FOR IMPROVEMENT. MORE PROMOTION NEEDED.**
    b. What polices are in place – which favour RWH? **E.G. VISION 2030 INCLUDES RWH.**
    c. Which policies are in place – which hinder RWH? **DON'T KNOW**
    d. What more should the government do, to promote RWH further? **THERE SHOULD BE SPECIFIC POLICY.**

KII Interview with Patrick Reid (Rural Water Supply Ltd – RWS)

Date 09/05/2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Patrick Reid
- Marc

1. When was this RWH project implemented (start date & end date) and what was your role on the project?
   STARTED IMPLEMENTING RWH IN 2012, INCLUDING SCHOOLS, HOSPITALS, PARISH COMMUNITY CENTERS; ALSO HOUSEHOLDS (2 PROJECTS – EACH HOUSEHOLD HAVING INDIVIDUAL SYSTEM AND REACHING 700 HH'S)

   GOING FORWARD – FOR YEAR 2019-2020 RWS HAVE 48 MILLION JA DOLLARS FOR RWH IN SCHOOLS AND 60 MILLION FOR RWH MUNICIPAL COMMUNITY

   TOTAL - 108 MILLION JA DOLLARS

   IN THE FUTURE – EVERY 6 MONTHS RWS TO TAKE A LOOK AT THE SYSTEM

2. Overall importance and utility of RWH
   a. How important do you think rainwater harvesting is to the development of your country, given risks placed on other water sources? **RWH VERY IMPORTANT FOR THE DEVELOPMENT.**
   a. Do you think RWH is likely to become more or less important – as a strategy for adapting to climate change? Why? **BECOMING MORE IMPORTANT WITH SCARCITY OF WATER IN MANY AREA.**
   b. Do you think RWH is widely used in your country? **YES, BECAUSE THERE ARE SOME PARISHES WHERE 60% USE RWH.**
      i. Why / why not
3. Questions about the project
   a. Where is your RWH located? **MAJORITY ARE COMMUNITY MUNICIPAL RWH PROJECTS, WHICH WERE BUILT BY BRITISH IN 1020, 30, 40s**
   b. How many people or households does it serve? **UP TO 2000 HOUSEHOLDS**
   c. What sort of people or households did you aim to reach
      i. Anyone? **AREAS THAT ARE WATER SCARCE, GIVING PRIORITY TO HIGH POPULATION AREAS**
      ii. Especially poorer people who cannot afford piped water?
      iii. Especially people not covered by piped water supply
   d. What is the main purpose of the rainwater installation
      i. Drinking water source
      ii. **Domestic use** – cooking, bathing, cleaning
      iii. Agriculture
      iv. Aquaponics = fish farming

v. Construction
vi. Aquifer recharge
vii. As an emergency backup source, e.g. after a storm
viii. As a back-up source, the utility water supply is low during dry periods
ix. As a strategy for adapting to climate change

4. If it was used for drinking water
    a. Was the installation specifically designed to optimise water quality? **ADD CHLORINE TABLETS** – BUT HAS FALLEN OFF BADLY OVERTIME - **SO INDIVIDUAL HH HAVE TO BOIL WATER**
    b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al? **NOT REALLY – MUNICIPAL CORPORTATION IS GOVT AGENCY THAT HAS ALL THIS INFO, BUT THEY'RE NOT FINDING THE FUNDING. 90% SYSTEMS ARE NOT MAINTAINED TO THE STANDARD.**
    c. Was advice given on treatment e.g. chlorine dosing, UV et al? **YES**
    d. Which treatment option was chosen - and why? **Chlorine tablets because they're cheap. Since 2012 to now, the maintenance man who would maintain the system receives 4000 JA dollars per month. He has to bush and keep the grass cut and maintained and keep track of chlorine for a very small salary.**
    e. Are you aware of any health risks caused by the population drinking this rainwater? **No As a matter of fact, in some schools, kids drink rainwater directly.**
5. Financing
    a. Who funded the installation? Government? donor? NGO? **Always government funding for RWS projects. Sometimes organisations like IDB.**
    b. Did you receive any grant or subsidy from the government **SINCE THE LAST 3 YEARS, DUE TO CLIMATE CHANGE AND WATER SCARCITY, RWH HAS BECOME A PRIORITY.**
    c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)? **BENEFICIARIES (E.G., SCHOOLS) RESPONSIBLE FOR MAINTENANCE.**
6. Resilience to climate change hazards
    a. Was the installation sized to address drought periods? **YES**
    b. Was the installation designed to address increased water demand due to increasing temperatures? **NO**
    c. Was the installation designed to withstand storm/cyclone damage? **YES**
    d. Was the installation designed to capture increased rainfall intensity under climate change? **YES**
7. Uptake & benefits - did the projects deliver their objectives?
    a. Has the facility been operational? **YES**
    b. Is it still in use today? **YES – *ALL OF THEM***
    c. What proportion of your target population uses the facility? **ALL**
    d. What benefits have you seen of households using RWH
        i. Beneficial for those with no other water source available
        ii. The main water source is often interrupted in dry periods
        iii. The main water source is often interrupted during storms
        iv. To save money on piped water
        v. The main water source is of poor quality
        vi. For extra income source from productive uses (agriculture; aquaponics)
        vii. For aesthetic reasons, so that I can water my garden
        viii. Cultural reasons/beliefs/idiosyncrasies
        ix. Other – beneficial for sanitation purposes (e.g., flush toilets) for schools
    e. Have you received interest from neighbouring communities or areas? **YES, A LOT**
8. Maintenance & sustainability **RWS does not do maintenance**

1.1	How often is maintenance undertaken?	01 = Daily 02 = Weekly

		03 = Monthly 04 = Around every 6 months 05 = Less than once every 6 months 06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	Open-ended
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
    a. Did you run any awareness raising campaigns? **JUST ON THE WEBSITE, IF THERE IS ANYTHING, BUT THERE'S NO FUNDING.**

       MANY ADS ON TV FROM JAMAICA INFROMATION SERVICE SPECIFICALLY ABOUT RWH – BUT NOT FROM RWS

        ~~i. What information do the campaigns focus on? Design advice? Attitudes?~~
        ~~ii. Does the campaign suggest what RWH should be used for – e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc.~~
        ~~iii. Are any uses discouraged? Why~~
        ~~iv. What information is shared on health issues of storing open water containers~~
    ~~b. Which channels do you use to share this information?~~
        ~~i. How often are these campaigns run~~
        ~~ii. Who runs them – do non-government actors also run campaigns?~~
    ~~c. What messaging do you focus on?~~
        ~~i. Any efforts to rebrand RWH nationally – e.g. as 'going green'~~
        ~~ii. Any efforts to involve youth?~~
10. Lessons
    a. What worked well – to get beneficiaries to use the RWH facility?
        i. What strategies did you use? **To get communities to use RWH tanks you have to cover them as many of these are not covered.**
        ii. Did you use champions? Etc.
    b. Why do you think the facility worked well here – even if it might not work elsewhere?
11. Challenges
    a. What challenges did you face, in getting beneficiaries to use the RWH facility?
        i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc. – **PEOPLE WANT THE SYSTEMS TO BE REPAIRED BECAUSE THEY WANT TO USE IT.**
        ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes **COMPARED TO A SCHOOL THAT HAS ONLY 2-3 BLACK TANKS (3000 GALLONS TOTAL), WHEN YOU BUILD A 20000 GALLONS TANK, THE RESILIENCE INCREASES A LOT BECAUSE THERE'S THE STORAGE CAPACITY.**
    b. Who did you resolve each challenge?

c. What would you do differently next time to promote RWH – and what hindered you from doing that this time
d. What do you think are the biggest barriers to increasing RWH uptake nationally?
    i. Low need – piped water supply is abundant & reliable
    ii. Lack of knowledge and understanding of RWH in general
    iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
    iv. Lack of materials to build
    v. Affordability/cost of materials **COST OF CONTRACTORS**
    vi. **Quality of the rainwater:** Cleanliness/dirtiness
    vii. Cultural reasons/beliefs/idiosyncrasies
    viii. Other – PEOPLE ARE SEEKING TO IMPROVE STANDARDS OF LIVING (E.G. SHOWER, JACUZZI) SO THEY PREFER PIPED WATER WITH ENOUGH PRESSURE.

12. Policy
    a. Do you think RWH should be promoted by the government? if not – why not **YES, WITH MORE POLICIES**
    b. What polices are in place – which favour RWH? **GOVT NOW PUTTING TOGETHER THAT IS ON THE TABLE FOR READING AND APPROVAL – HE HAS HAD A LOOK AT IT AND IT IS A GOOD POLICY, BUT DOES NOT TOUCH UPON RWH FOR AGRICULTURE.**
    c. Which policies are in place – which hinder RWH? **NO**
    d. What more should the government do, to promote RWH further? **THEY COULD PROMOTE IT IN AGRICULTURE BECAUSE YOU SHOW PEOPLE HOW TO SAVE**

KII Interview with Cornelius Isaac

Date 05/10/ 2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Cornelius Isaac
- Marc

1. When was this RWH project implemented (start date & end date) and what was your role on the project? **2007-2010 (ONLY RWH ACTIVITY) and PROJECT COORDINATOR.**
2. Overall importance and utility of RWH
    a. How important do you think rainwater harvesting is to the development of your country, given risks placed on other water sources? **7 OUT OF 10, BUT IT VARIES DEPENDING ON WEATHER AND TIME OF YEAR. IN NORMAL TIMES, THERE'S LESS DEMAND FOR IT.**
    a. Do you think RWH is likely to become more or less important – as a strategy for adapting to climate change? Why? **EXTREMELY IMPORTANT.**
    b. Do you think RWH is widely used in your country? **YES, FOR DIFFERENT REASON AND IN DIFFERENT WAYS. MOST PERSONS HAVE SOME TYPE OF EQUIPMENT TO COLLECT RAINWATER. A FEW OF HOTELS USE IT AS WELL FOR LANDSCAPING. ON THE DOMESTIC FRONT, MOST PERONS WITHIN RURAL AREAS USE IT FOR AGRICULTURE AND DOMESTIC USE.**

        SOME PEOPLE IN RURAL AREAS GET WATER ONCE A WEEK DURING DRY SEASON.
        i. Why / why not

3. Questions about the project
    a. Where is your RWH located? **NORTH DENNERY (IWCAM)**
    b. How many people or households does it serve? **FOR HOUSEHOLDS – DO NOT REMEMBER BUT CAN HAVE A LOOK AT THE REPORT.**
    c. What sort of people or households did you aim to reach
        i. Anyone? **RURAL COMMUNITY AGRICULTURAL BASED – THEY WERE NOT ABLE TO PROVIDE EVERYONE WITH A SYSTEM, AS THIS WAS A PILOT PROJECT FOR A FEW HOUSEHOLDS. MOST PEOPLE WERE ALREADY COLLECTING RAINWATER. WHAT THEY WERE OFFERING IS A BETTER WAY OF COLLECTING RAINWATER. WHAT THEY TRIED IS TO LOCATE 1 OR 2 SYSTEMS IN EACH SETTLEMENTS.**

            ONE OF THE CRITERIA WAS FOR THE RECIPIENTS TO AGREE TO GRANT ACCESS TO NEIGHBOURS TO HAVE A LOOK.

            2 COMPONENTS: 1) GOVT INSTITUTIONS, LIKE SCHOOLS, HOSPITALS; AND 2) HOUSEHOLDS.

        ii. Especially poorer people who cannot afford piped water? **YES, THEY SELECTED PERSONS WHO COULD AFFORD LESS.**
        iii. Especially people not covered by piped water supply **COMMUNITIES HAD**

PIPED WATER SUPPLY BUT THEY WAS NOT RELIABLE, ESPECIALLY DURING DRY SEASON.

d. What is the main purpose of the rainwater installation?
   i. **Drinking water source – to augment existing supply; although they didn't tell people what to use it for.**
   ii. Domestic use – cooking, bathing, cleaning
   iii. Agriculture
   iv. Aquaponics = fish farming
   v. Construction
   vi. Aquifer recharge
   vii. As an emergency backup source, e.g. after a storm
   viii. As a back-up source, the utility water supply is low during dry periods
   ix. As a strategy for adapting to climate change

4. If it was used for drinking water
   a. Was the installation specifically designed to optimise water quality? **FOR THE GOVT INSTITUTION SYSTEMS, THEY USED UV LIGHTING SYSTEM FOR BIOLOGICAL TREATMENT AND PHYSICAL FILTERS FOR SEDIMENTS AND NON-BIO MATERIAL.**

      FOR HOUSEHOLD SYSTEMS, THEY WERE TAUGHT HOW TO TREAT WATER WITH CHLORINE, AND THEY WERE PROVIDED TETING STRIPS TO TEST CHLORINE.

   b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al? **YES**
   c. Was advice given on treatment e.g. chlorine dosing, UV et al? **yes**
   d. Which treatment option was chosen - and why? **2 REASONS – VOLUME OF WATER BEING USED (MUCH GREATER AT THE SCHOOLS - SO MANUALLY TREATING WATER WOULD HAVE BEEN A DIFFICULT TASK) AND LACK OF MANAGEMENT SYSTEMS TO UNDERTAKE MAINTENANCE (IN GOVT INSTITUTIONS).**
   e. Are you aware of any health risks caused by the population drinking this rainwater? **NO, BUT IT WAS NOT SURVEYED.**
5. Financing
   a. Who funded the installation? Government? donor? NGO? **EU FUNDED THE RWH ACTIVITY BUT THE WIDER PROJECT WAS A GEF FUNDED PROEJCT.**
   b. Did you receive any grant or subsidy from the government
   c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)? **SOME OF THEM WERE ASKED TO COSNTRUCT THEIR OWN GUTTERING, PLATFORMS, ETC. BUT IT DEPENDED UPON NEGOCIATION. SOME HOUSEHOLDS PROVIDED LABOUR FOR THE PLATFORMS. ESTABLISHING PLATFORM FOR TANK WAS A PREREQUISITE.**
6. Resilience to climate change hazards
   a. Was the installation sized to address drought periods? **NOT SPECIFICALLY**
   b. Was the installation designed to address increased water demand due to increasing temperatures? **NOT SPECIFICALLY**
   c. Was the installation designed to withstand storm/cyclone damage? **YES, THAT WAS ONE OF THE OBJECTIVES**
   d. Was the installation designed to capture increased rainfall intensity under climate change? **Yes – there were overtopping mechanisms**
7. Uptake & benefits - did the projects deliver their objectives?
   a. Has the facility been operational? **HE DOES NOT KNOW - THE INSTITUTIONS WHO INHERITED THE SYSTEMS ARE THE ONES TO EITHER MAINTAIN**

IT.

HE IS LIVING IN THE SAME COMMUNITY SO HE HAS SEEN SOME OF THESE SYSTEMS ARE STILL IN OPERATION – E.G., SOME OF THE HEALTH CENTERS STILL UTILISE THE SYSTEM.

HE KNOWS 2 PERSONS WHO WERE NOT PART OF THE PILOT PROJECT AND HAVE BEEN USING THIS – HE IS ONE OF THEM.

b. Is it still in use today? (***may require a site visit)*** ***REQUIRES A SITE VISIT***
c. What proportion of your target population uses the facility? (***may require a site visit)*** ***REQUIRES A SITE VISIT***
d. What benefits have you seen of households using RWH
   - **i. Beneficial for those with no other water source available**
   - **ii. The main water source is often interrupted in dry periods**
   - **iii. The main water source is often interrupted during storms**
   - iv. To save money on piped water
   - **v. The main water source is of poor quality**
   - **vi. For extra income source from productive uses (agriculture; aquaponics) – he uses it for aquaponics system.**
   - vii. For aesthetic reasons, so that I can water my garden
   - **viii. Cultural reasons/beliefs/idiosyncrasies – ONE GUY WHO WAS OFF THE MAIN, AND HE DEPENDED SOLELY ON RWH, ARGUING THAT IT WAS OF HIGHER QUALITY THAN PIPED WATER.**
   - ix. Other

e. Have you received interest from neighbouring communities or areas? **YES, ALTHOUGH HE HAS NOT SEEN THE SYSTEMS, BUT HE KNOWS THAT OTHER COMMUNITIES WERE INTERESTED AND INSTALLED RWH.**

ALSO THE SMART HOSPITAL SYSTEM PROJECT BY WHO EXPRESSED INTEREST IN RWH.

8. Maintenance & sustainability – **TRAINING WAS CONDUCTED BUT MAINTENANCE WAS REPONSABILITY OF BENEFICIARIES.**

1.1	How often is maintenance undertaken?	01 = Daily 02 = Weekly 03 = Monthly 04 = Around every 6 months 05 = Less than once every 6 months 06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	Open-ended
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
    a. Did you run any awareness raising campaigns as part of your project? **YES**
        i. What information do the campaigns focus on? Design advice? Attitudes? **ALL – ABOUT HEALTH ISSUES, MAITENANCE ISSUES AND BENEFITS. THEY DID SCHOOL PROGRAMS, TOWNHOLD PROGRAMS, NATIONAL TV PROGRAMS.**
        ii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc. **RWH FOR DRINKING PURPOSES**
        iii. Are any uses discouraged? Why **NO**
        iv. What information is shared on health issues of storing open water containers **NO, THEY DIDN'T INTERFERE WITH THE TRADITIONAL WAYS IN WHICH PEOPLE WERE DOING RWH. THEY ONLY SHOWED THEM ANOTHER WAY.**
    b. Which channels do you use to share this information? **NATIONAL TV, BROCHURES, SCHOOLS, ETC.**
        i. How often are these campaigns run **PROJECT LIFE TIME – BUT HE HAS SEEN SOME OF THESE VIDEOS ON TV SINCE THEN, RUN BY THE GOVT**
        ii. Who runs them – do non-government actors also run campaigns? **AT THE MOMENT, ONLY GOVT.**
    c. What messaging do you focus on?
        i. Any efforts to rebrand RWH nationally – e.g. as 'going green' **NO**
        ii. Any efforts to involve youth? **NO SPECIFIC TARFGET.**
10. Lessons
    a. What worked well – to get beneficiaries to use the RWH facility? **UP TO THE POINT WHEN THE PROJECT ENDED, EVERYONE WAS HAPPY WITH THE SYSTEM. THEY WERE DOING WATER QUALITY TESTING.**
        i. What strategies did you use?
        ii. Did you use champions? Etc. **THEY ENCOURAGED THAT FORM BENEFICIARIES, BUT NOT A COMPULSORY ACTIVITY.**
    b. Why do you think the facility worked well here – even if it might not work elsewhere? **IT WAS DONE IN THIS LOCATION BECAUSE IT WAS THE IWCAM PROJECT. IN HIS OPINION, THE PROJECT WOULD HAVE ALSO WORKED IN OTHER AREAS WITH LESS WATER SCARCITY. ALL OVER THE COUNTRY SUPPLY IS LOWER THAN DEMAND, SO RWH WOULD HAVE WORKED IN OTHER PLACES.**

11. Challenges
    a. What challenges did you face, in getting beneficiaries to use the RWH facility?
        i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc. **NO GREAT CHALLENGE, BECAUSE THE COMMUNITY AT LARGE WERE ALREADY INTO RWHT TO SOME EXTENT. THEY SHOWED THEM A BETTER WAY.**
        ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes **THE BIGGEST CHALLENGE THEY FACED WAS THAT SOME OF THE HOUSEHOLDS IN THE COMMUNITIES THAT THEY WANTED TO TARGET HAD THE ROOFS PAINTED.**
    b. Who did you resolve each challenge?
    c. What would you do differently next time to promote RWH – and what hindered **PERHAPS TRY TO GET MORE MONEY AND DO MORE – BECAUSE THAT PROJECT WAS ONLY A PILOT PROJECT SO THEY DIDN'T COLLECT A LOT OF FUNDING.**
    d. What do you think are the biggest barriers to increasing RWH uptake nationally?

i. Low need – piped water supply is abundant & reliable
ii. Lack of knowledge and understanding of RWH in general
iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
iv. Lack of materials to build
v. Affordability/cost of materials
vi. Quality of the rainwater: Cleanliness/dirtiness
vii. Cultural reasons/beliefs/idiosyncrasies
viii. Other – IT IS NOT A REQUIREMENT IN THE BUILDING CODES

12. Policy
    a. Do you think RWH should be promoted by the government? if not – why not **YES**
    b. What polices are in place – which favour RWH? **THE CURRENT BUILDING CODE, WHICH IS NOT LEGALLY ADOPTED YET – IT DOES PROVIDE FOR THE INSTALLATION OF RWH SYSTEMS.**

       SMART HOSPITAL POLICY – SAINT LUCIA GOVT WORKING ON THIS WITH WHO.

    c. Which policies are in place – which hinder RWH? **NO – BUT THE EXISTING BUILDING CODE DOES NOT RECOGNISE IT**

    d. What more should the government do, to promote RWH further? **2 ASPECTS**

       1) TAXATION SYSTEM – THEY COULD GIVE CREDITS TO PEOPLE FOR CONSTRUCTION OF RWH SYSTEM

       2) PEOPLE DIDN'T LIKE THE PERPECTION OF HAVING TO CHLORINATE THE WATER THAT THEY HAVE TO DRINK – SO GOVT SHOULD PROVIDE UV SYSTEMS TO HOUSEHOLDS (IN THE SAME WAY THEY HAVE PROVIDED LED SYSTEMS TO REPLACE LIGHTS).

FINAL REMARKS – HIS OWN VIEW

HE FEELS CONFIDENT ABOUT UPTAKE OF RWH – BECAUSE EVEN IN HIS CURRENT ROLE, HE SEES RWH BEING DEVELOPED AND SUPPORTED BY THE GOVERNMENTS.

APPLICATION OF RWH SEEM TO BE INCREASING – DEMAND WILL INCREASE AND IT LOOKS PROMISING

TOP 3 USES:

1) **AGRICULTURE – SMALL FISHERIES & ORGANIC FARMING**
2) **TOURISM (INSTEAD OF DESALINATION) USED FOR TOILETS AND IRRIGATION SYSTEMS**
3) **FOR DRIKING**

KII Interview with TIMO SCHIRMER and RAPHAEL FELX (Belle Vue Farmers' Cooperative)

Date 02/05/2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- TIMO SCHIRMER
- ADRIAN THEOBALDS
- Marc

1. **Soufriere area in St Lucia, there was a RWH system implemented by the farmers' cooperative under the CATS programme. 10,500 imperial gallons' tank; solar power off-grid water pump; cooperative uses it for agricultural purposes; production of seed lings.**
    a. **CATS programme working together with groups in watershed areas (e.g., Soufriere), try to support these groups to promote climate-smart agriculture practices, etc.**
    b. **Bellevue farmers' cooperative**
    c. **To make them less dependent to the unreliable grid water; and to have access to water even during dry spells**
2. Overall importance and utility of RWH
    a. How important do you think rainwater harvesting is to the development of your country, given risks placed on other water sources? **NOT VERY WIDESPREAD NEITHER FOR AGRICULTURE NOR FOR CONSUMPTION PURPOSES. DEVELOPMENT AID AGENCIES DO PROMOTE RWH AS A MEASURE TO INCREASE RESILIENCE TO CLIMATE CHANGE, ESPECIALLY FOR AGRICULTURAL PURPOSES. TO SUPPLEMENT SUPPLY DURING SHORT DRY SPELLS.**
    a. Do you think RWH is likely to become more or less important – as a strategy for adapting to climate change? Why? **IT BECOMES MORE IMPORTANT.**
    b. Do you think RWH is widely used in your country? **NO**
        i. **THERE IS NO NEED AS POTABLE WATER SUPPLY IS GOOD**
3. Questions about the project
    a. Where is your RWH located? **SOURFIERE – constructed in 2014**
    b. **It benefits the whole cooperative, to produce seedlings. To supply the greenhouse.**
    c. What sort of people or households did you aim to reach
        i. **Anyone? YES. The sell seedlings to coop member and also non-members. The RWH system is important to make sure cost of water is kept to a minimum and seedlings cost are competitive.**
        ii. Especially poorer people who cannot afford piped water?
        iii. Especially people not covered by piped water supply
    d. What is the main purpose of the rainwater installation
        i. Drinking water source
        ii. Domestic use – cooking, bathing, cleaning
        iii. **Agriculture - SEEDLINGS**
        iv. Aquaponics = fish farming
        v. Construction

vi. Aquifer recharge
vii. As an emergency backup source, e.g. after a storm
viii. As a back-up source, the utility water supply is low during dry periods
ix. As a strategy for adapting to climate change

4. If it was used for drinking water – **NOT TO HIS KNOWLEDGE**
   a. Was the installation specifically designed to optimise water quality?
   b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al?
   c. No treatment system installed because of agricultural use
   d. Which treatment option was chosen - and why?
   e. Are you aware of any health risks caused by the population drinking this rainwater?
5. Financing
   a. Who funded the installation? Government? donor? NGO? **CATS provided tank & pump. But coop had to build platform for tank.**
   b. Did you receive any grant or subsidy from the government? **NO**
   c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)? **NO, apart from normal funding.**
6. Resilience to climate change hazards
   a. There was a long period of drought in St Lucia before the implementation of CATS (around 2013). They occasionally run out of water.
   b. Was the installation designed to address increased water demand due to increasing temperatures? **DOESN'T KNOW**
   c. Was the installation designed to withstand storm/cyclone damage? **DOESN'T KNOW**
   d. Was the installation designed to capture increased rainfall intensity under climate change? **DOESN'T KNOW. Capacity is 10,000 gallons but sometimes during extreme rainfall and frequent showers tank overtops.**
7. Uptake & benefits - did the projects deliver their objectives?
   a. Has the facility been operational? **YES, NO PROBLEMS REPORTED**. **Yes, it has been operational since the beginning. Sometimes they cannot use the pump because solar panels do not get sun – then they switch to electric power supply.**
   b. Is it still in use today? ***YES***
   c. What proportion of your target population uses the facility? (***may require a site visit)***
   d. What benefits have you seen of households using RWH
      i. Beneficial for those with no other water source available
      ii. The main water source is often interrupted in dry periods
      iii. The main water source is often interrupted during storms
      iv. To save money on piped water
      v. The main water source is of poor quality
      vi. For extra income source from productive uses (agriculture; aquaponics) – by lowering cost of production
      vii. For aesthetic reasons, so that I can water my garden
      viii. Cultural reasons/beliefs/idiosyncrasies
      ix. Other
   e. Have you received interest from neighbouring communities or areas? **DOESN'T KNOW, NOT OPERATED BY THEM. They thought that by having RWH system in the coop, they would show this can be a solution for individual farmers. Some farmers have replicated using 1000-2000 gallon tanks.**
8. Maintenance & sustainability – **DOESN'T KNOW, NOT OPERATED BY CATS. The only system that sometimes gives them some problem are the solar panels. The other components of the system do nto give problems.**

1.1	How often is maintenance undertaken?	01 = Daily 02 = Weekly 03 = Monthly 04 = Around every 6 months 05 = Less than once every 6 months

		06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	**None**
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

9. Awareness raising
    a. Did you run any awareness raising campaigns as part of your project? **NO, BUT THEY WORK TOGETHER WITH WATER UTILITY TO INCREASE RESILIENCE OF WATER SUPPLY NETWORK; BY IMPROVING OPERATION OF WATER UTILITY.**
        i. What information do the campaigns focus on? Design advice? Attitudes?
        ii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc.
        iii. Are any uses discouraged? Why
        iv. What information is shared on health issues of storing open water containers
    b. Which channels do you use to share this information?
        i. How often are these campaigns run
        ii. Who runs them – do non-government actors also run campaigns?
    c. What messaging do you focus on?
        i. Any efforts to rebrand RWH nationally – e.g. as 'going green'
        ii. Any efforts to involve youth?
10. Lessons – **DOESN'T KNOW, WE NEED TO SPEAK TO THE COOPERATIVE**
    a. What worked well – to get beneficiaries to use the RWH facility?
        i. What strategies did you use?
        ii. Did you use champions? Etc.
    b. Why do you think the facility worked well here – even if it might not work elsewhere?
11. Challenges – **DOESN'T KNOW, WE NEED TO SPEAK TO THE COOPERATIVE**
    a. What challenges did you face, in getting beneficiaries to use the RWH facility?
        i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc.
        ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes
    b. Who did you resolve each challenge?
    c. What would you do differently next time to promote RWH – and what hindered you from doing that this time
    d. What do you think are the biggest barriers to increasing RWH uptake nationally?
        i. Low need – piped water supply is abundant & reliable
        ii. Lack of knowledge and understanding of RWH in general
        iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
        iv. Lack of materials to build
        v. Affordability/cost of materials
        vi. Quality of the rainwater: Cleanliness/dirtiness
        vii. Cultural reasons/beliefs/idiosyncrasies

viii. Other

12. Policy
    a. Do you think RWH should be promoted by the government? if not – why not **N/A**
    b. What polices are in place – which favour RWH? **NOT YET**, **BUT THERE IS A PLAN**
    c. Which policies are in place – which hinder RWH? **N/A**
    d. What more should the government do, to promote RWH further? **COULD PROMOTE RWH THROUGH TAX REDUCTION ON RWH SYSTEMS.**

- LOCAL UTILITY CHARGES A FEE FOR 2000 GALLONS (24 XCD)
- AMOUNT OF HH THAT PAY FOR THE MINIMUM FEE

- WASCO WILL DO A RWH PROJECT WITH GORDON WYKE – COMMUNITY LEVEL RWH (CLOSE TO THE ROSE DAM).

Email survey on UNDP RWH project

Date = _June 28,_____ 2019

Name of respondent _Cylene France_____

Name of RWH project and country _Enhancing access to clean drinking water for the Maroon community of Asigron - Suriname_____

1. When was this RWH project implemented (start date & end date) and what was your role on the project? April 2017 – June 2019. My role was to coordinate the implementation of the project on behalf of Stg.FOB.
2. Questions about the project
    a. Where is your RWH project located? District Brokopondo (interior) - Suriname
    b. How many people or households does it serve? 66 households
    c. What sort of people or households did you aim to reach
        i. Anyone?
        ii. Especially poorer people who cannot afford piped water?
        iii. Especially people not covered by piped water supply
    d. What is the main purpose of the rainwater installationg
        i. Drinking water source
        ii. Domestic use – cooking, bathing, cleaning
        iii. Agriculture
        iv. Aquaponics = fish farming
        v. Construction
        vi. Aquifer recharge
        vii. As an emergency backup source, e.g. after a storm
        viii. As a back-up source, the utility water supply is low during dry periods
        ix. As a strategy for adapting to climate change
3. If it was used for drinking water
    a. Was the installation specifically designed to optimise water quality? Yes
    b. Was advice given on roof cleaning, tank cleaning, gutter cleaning et al? Yes
    c. Was advice given on treatment e.g. chlorine dosing, UV et al? Yes
    d. Which treatment option was chosen - and why? Chlorine was chosen by the bureau of health
    e. Are you aware of any health risks caused by the population drinking this rainwater? Yes, diarrhea
4. Financing
    a. Who funded the installation? Solely funded by UNDP / J-CCCP? Yes
    b. Or additional grant or subsidy from the government ?
    c. Did beneficiaries contribute to the cost of construction (including in kind, with their labour/materials)? Yes, in kind with their labour
5. Resilience to climate change hazards
    a. Was the installation sized to address drought periods? Yes, taking into account for the sole purpose of drinking water.
    b. Was the installation designed to address increased water demand due to increasing temperatures?
    c. Was the installation designed to withstand storm/cyclone damage? Partially, by including a concrete platform as a base for the tank and a guttering installation to hold the pipe secured in place.
    d. Was the installation designed to capture increased rainfall intensity under climate change? Yes, the robust guttering system.

6. Uptake & benefits - did the projects deliver their objectives? Yes
    a. Has the facility been operational? Yes
    b. To the best of your knowledge, Is it still in use today? Yes
    c. To the best of your knowledge, What proportion of your target population uses the facility? 100%
    d. What benefits have you seen of households using RWH
        i. Beneficial for those with no other water source available
        ii. The main water source is often interrupted in dry periods
        iii. The main water source is often interrupted during storms
        iv. To save money on piped water
        v. The main water source is of poor quality
        vi. For extra income source from productive uses (agriculture; aquaponics)
        vii. For aesthetic reasons, so that I can water my garden
        viii. Cultural reasons/beliefs/idiosyncrasies
        ix. Other
    e. Have you received interest from neighbouring communities or areas? Yes
7. Maintenance & sustainability

(please delete the answers which do not apply)

1.1	How often is maintenance undertaken?	01 = Daily 02 = Weekly 03 = Monthly 04 = Around every 6 months 05 = Less than once every 6 months 06 = Never 98 = Don't Know
1.2	How has this maintenance been mostly funded?	01 = Own funds 02 = Funding by a project or government entity 03 = Revolving / communal village fund
1.3	What maintenance has been undertaken?	Cleaning of the entire system: washing durotank, cleaning of gutter screen, re-apply silicone e.g. from pvc pipe connection to the tank etc.
1.4	How easy has it been to get spare parts for the repairs, or to contact a mechanic to do the repairs?	01 = It is usually easy to get spare parts or to contact a mechanic 02 = It is often difficult to get spare parts or to contact a mechanic 98 = Don't Know
1.5	Do you feel that the maintenance of the RWH system can be covered in future?	05 = Strongly agree 04 = Agree 03 = Neither agree nor disagree 02 = Disagree 01 = Strongly disagree 98 = Don't know

8. Awareness raising
    a. Did you run any awareness raising campaigns as part of your project? Yes
        i. What information do the campaigns focus on? Design advice? Attitudes?

The campaigns focused on the following three (3) areas:

- Knowledge:

Participants knowledge:
1. What water resources are available to them, what the advantages and disadvantages of each are.
2. How waterborne diseases are caused and how to prevent them.
3. Which (possibly according to them normal) use leads to problems in the area of hygiene.

- Attitudes

Participants:
4. strive to choose the best options for the health of themselves, their families and

their immediate environment in the most common situations with regard to water in general and drinking water in particular.
5. take the decision to prevent drinking water other than boiling drinking water for at least the following groups: young children, the elderly and other vulnerable groups.

- Behaviour

Participants:
6. Handling water and waste in a responsible manner.
7. Know-how and at least under what circumstances to wash their hands properly.
8. Boil their drinking water (from an unreliable source), at least for the following groups: young children, the elderly and other vulnerable groups.

ii. Does the campaign suggest what RWH should be used for - e.g. as drinking water? Domestic use? Agriculture/aquaponics? As backup emergency supply after a hurricane? Etc.
iii. Are any uses discouraged? Consumption of rainwater without cooking it Why Higher risks for health issues, e.g. diarrhea
iv. What information is shared on health issues of storing open water containers handling of water and waste (see previous question a. i. no.06)

b. Which channels do you use to share this information? During the project implementation through village meetings, one-on-one meetings during monitoring activities for the RWH systems, Hygiene training including the manual and other means, such as flyers, posters, stickers, colouring pages etc.
i. How often are these campaigns run At least 2 times a year (during the periodic cleaning of the system). Bureau of health-BOG will visit/inspect upon request of the community
ii. Who runs them – do non-government actors also run campaigns? BOG- Bureau of health

c. What messaging do you focus on?
i. Any efforts to rebrand RWH nationally – e.g. as 'going green'
ii. Any efforts to involve youth?

9. Lessons
a. What worked well – to get beneficiaries to use the RWH facility? The majority of the beneficiaries did not have a duro tank; they used other storage materials (buckets, old oil barrels). With the introduction of this project and the associated facilities, the project was immediately welcomed by all villagers. Usage by the beneficiaries was not an issue here.
i. What strategies did you use?
- Promotion of the installations with the results of a similar pilot project in District Marowijne. Especially the participation of women was highlighted here.
- Engagement with each beneficiary to determine the RWH site per household; taking into consideration the accessibility for its users.
- Mobilization of local teams, local leaders to organize local logistics (material and tools storage, distribution; renovation of roofs etc.) and to assist the project team with monitoring and evaluation of project activities on site.
- Formation of a water commission based on a cluster model; each cluster nominated a member. This commission is responsible for the overall maintenance of the RWH systems – financially, technically – with the direct support of the trainees and under supervision of the village authority (seven clusters of households – ranging from 5 to 12 households per cluster).

ii. Did you use champions? Etc.
Yes. We actively promoted practices of villagers already in use by the

community during village meetings (assist elderly people with access to good drinking water). We also used quotes by key persons to mobilize and encourage the community to act on collective visioning with respect to the RWH facility, e.g. *"I want people not to worry about the quality of the water in my tank. They should not think twice to drink the water from my tank; this is my vision about my tank"*

b. Why do you think the facility worked well here – even if it might not work elsewhere? It worked well here because of the partial relief of the drinking water need of the community by adding more storage and a complete RWH system. Especially the women are aware of the benefits. They are the main caregivers and responsible for their households and have embraced this project from the start. As the chief stated 'it is the women who experience the need the most because they are left in the village to run the household while the men go out to look for work. This has led to the participation of the women until the delivery and beyond; e.g. the Water Commission'.

10. Challenges
    a. What challenges did you face, in getting beneficiaries to use the RWH facility? One issue which was occasionally brought forward during discussions about the availability of rainwater: the need to 24h drinking water. However, this was not an issue for the beneficiaries to use the RWH facility.
        i. Attitudes (it's not clean), we don't; needs it (have good water supply) etc.
        ii. Which challenges were within or outside your control? E.g. low rainfall / hurricanes
    b. Who did you resolve each challenge? With regard to 24h drinking water: this was resolved with the whole community during meetings but also one-on-one meetings by 1) recognizing this need but also 2) placing the focus on the attitudes of handling the available water resources; whether rainwater or tap water.
    c. What would you do differently next time to promote RWH – and what hindered you from doing that this time Data collection for base line needs improvement (e.g. assessment of the roofs and who will be responsible to do the renovations? Who will be responsible to resolve errors during the execution of the project etc.)
    d. What do you think are the biggest barriers to increasing RWH uptake nationally?
        i. Low need – piped water supply is abundant & reliable
        ii. Lack of knowledge and understanding of RWH in general
        iii. Lack of knowledge on technology options (including how connect RW to house water supply) and/or don't know who to contact to construct RWH system
        iv. Lack of materials to build
        v. Affordability/cost of materials
        vi. Quality of the rainwater: Cleanliness/dirtiness
        vii. Cultural reasons/beliefs/idiosyncrasies
        viii. Other
11. Policy
    a. Do you think RWH should be promoted by the government? if not – why not It should be promoted because it is considered as a second or third option.
    b. What polices are in place – which favour RWH? The Ministry and institute responsible for drinking water currently do not have policies in place which favour RWH.
    c. Which policies are in place – which hinder RWH? The current policies do not forbid RWH. Thus, other partners have the opportunity to work on RWH.
    d. What more should the government do, to promote RWH further? Foremost, develop policy to support RWH in Suriname, especially for communities in the hinterland.

KII Interview with UNDP Barbados RWH project staff

29 April 2019

YELLOW = we need to follow up after call

BLUE = important/interesting for our report

Attending

- Donna – UNDP technical specialist
- Cheryl – UNDP – can share lessons from the RWH sites
- Nisha – from UNDP
- Clive – GWPL
- Adrian
- Lucrezia

1. **Which RWH projects does UNDP oversee – under JCCP**
    a. Yes covers Guyana, Jamaica, St Lucia, Grenada…
    b. Each country reports to Barbados office – about project status
    c. Have some baseline data
        i. E.g. Guyana – preferred water point to RWH, because more reliable
        ii. E.g. Suriname – preferred river water to RWH, because of taste
        iii. E.g. Carriacou – did not like taste of water from desal plant; culturally not used to paying for water (from desal plant) because used to free RWH water. Some health issues from unclean tanks from desal plant. Yes did some water testing (chlorine level, suspended solids) = all met standards. Yes can share results
        iv. E.g. Jamaica – UNDP worked in areas where population only have access to RWH (not on network), these distrust anything apart from RWH
        v. >> share quarterly report? She will look for reports
    d. Have now started collecting qual data from beneficiaries – feedback on RWH, impact on beneficiaries
    e. Can ask them to share this – after August
2. **Focus of projects**
    a. Mainly on schools / irrigation / income generation – not household level
    b. But in Suriname – it is household level
3. **Lessons**
    a. Yes did a survey for Jamaica – can share
        i. E.g. when have thatched roof, then could not gather RWH
        ii. Many households not familiar with first-flush diverter
    b. Happy to share our questionnaire on lessons/challenges with country leads
4. **Replication of these UNDP pilot projects**
    a. Each project had a sustainability plan – to scale up or replicate
    b. Most projects were initiated by line ministries
5. **Awareness raising**
    a. Did not run any awareness raising campaigns – because mostly worked in countries where RWH is the only water source
    b. In Guyana – where also use other water source – was maybe households sharing their own experience by word of mouth
6. **Resilience to climate change hazards**
    a. Yes – size of cisterns took into account the RW variability – given climate change variability over last 10yrs + future predictions. E.g. Grenadines = drought season had

extended, needed to import substantial water amounts.
    i. Adrian reviewed these proposals
b. Yes – constructed to withstand storm/cyclone damage – e.g. Carriacou had reinforced roofs. Designed for a Category3 hurricane
c. For household schemes, did not retrofit house roofs, but added guttering

7. Ability to promote RWH elsewhere

a. Barbados – culturally RWH is not common, but policy mandates that every household above a certain size needs a tank. Policy matters
b. Really depends – different in each country

8. Lessons to date

a. (most lessons to date – more about technical implementation challenges (how to design the gutter/tank etc.)
b. Lesson – many communities had not thought about the purpose of the RW – to help choose the design of the tank. This was useful
c. Lesson – local knowledge on drought and length of rainfall was very useful, to design the scope of the tank (as stats not readily available)
d. Lesson – many plumbers not familiar with first-flush diverter
e. Lesson – yes affordability matters, yes RWH installations are expensive but importing water is even more expensive for Carriacou
f. Lesson – attitudes did not make a big difference, as the UNDP mainly worked in communities which solely use RWH

NOTES

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