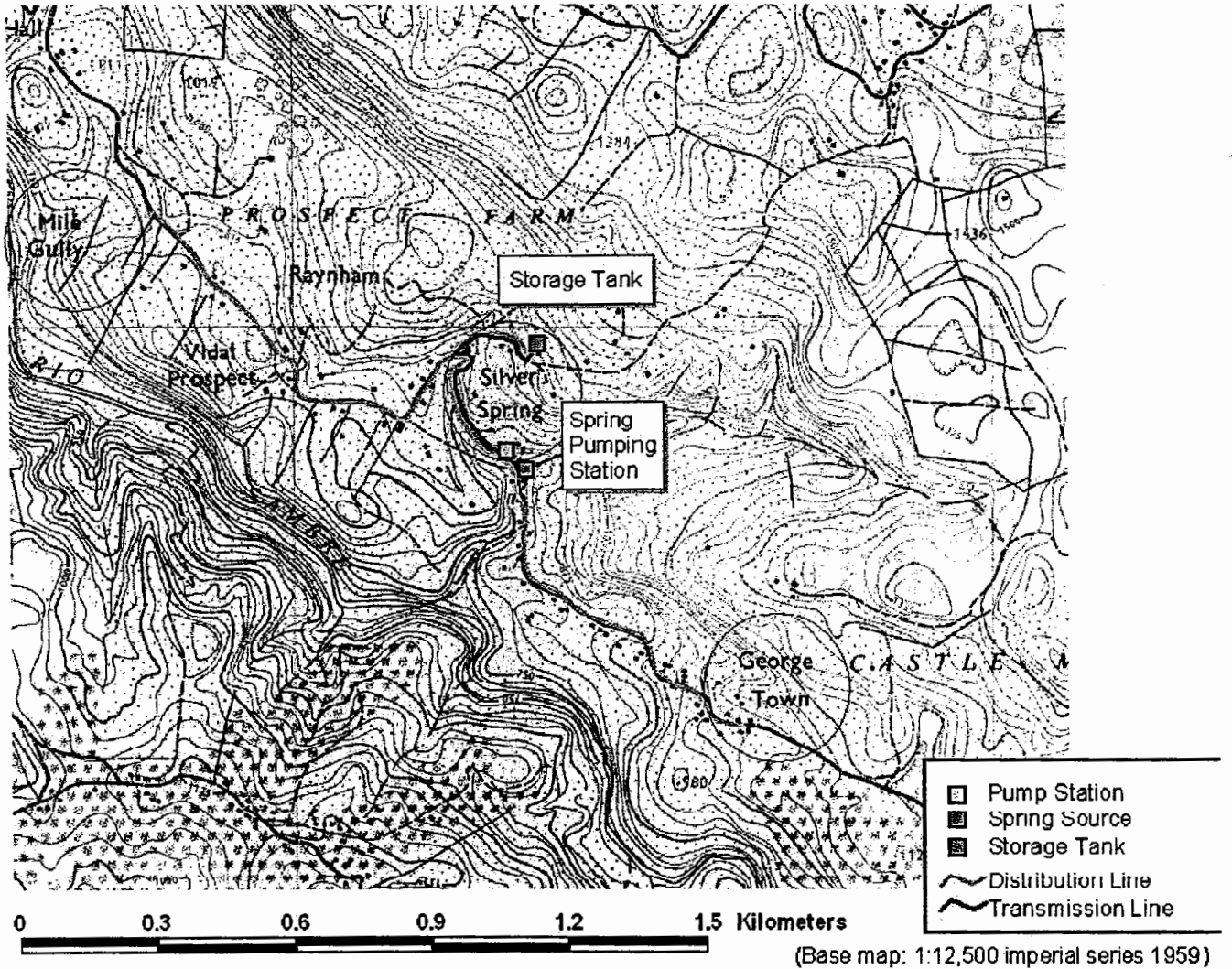


CARIBBEAN WATER INITIATIVE (CARIWIN) PROJECT

PROFILE OF MILE GULLY/WARWICK CASTLE COMMUNITY

ST. MARY



Background

The Caribbean Water Initiative is a collaborative project, designed jointly by the Caribbean Institute for Meteorology and Hydrology (CIMH), Caribbean partner governments and McGill University's Brace Centre for Water Resources Management (BCWRM) to address the complex challenges of water management in the Caribbean region. CARIWIN's goal is to increase capacity of Caribbean countries to deliver sustainable and equitable integrated water resources management. This goal will be achieved by strengthening local governments to better understand and apply the principles of Integrated Water Resources Management in community water management with a particular focus on gender equality, environmental sustainability and participatory governance. Two pilot communities will be selected in Jamaica where the principles of IWRM will be incorporated into a rural water supply project.

Introduction

A stakeholder meeting was held in Kingston at which a number of government agencies were represented. One of the objectives of this meeting was to decide which community could be recommended for consideration under the captioned project. After careful deliberation the Mile Gully/Warwick Castle Community was selected as a prospective community for participation in the Caribbean Water Initiative Project (CARIWIN). This community has been receiving some attention under a Jamaica government initiative to supply rural communities with domestic water. Environmental Solutions Limited (ESL) in September 2005 prepared a community profile for the Ministry of Water and Housing. The community was subsequently visited by E. Douglas and H. Roper of the Water Resources Authority in June 2007. This meeting was facilitated by the President of the Mile Gully Benevolent Society, Mr. Lenford Gordon and served mainly to confirm the findings of the previous study and to evaluate what type of equipment would be needed to allow for a meaningful execution of the project.

General Overview of Community

The proposed project should serve Mile Gully, Warwick Castle, Tucker, George Town, Athalone and Silver Spring. These communities are considered deep rural communities and are located in Western St. Mary, approximately 10 km south west of Port Maria or approximately 4 Km northeast of the town of Gayle. The area is characterized by low income residential settlements and has a low population density. Infrastructure particularly roads are in a poor condition. This coupled with a low employment rate leads to a steady migration of the young away from the communities. At present there are 189 households in this area broken down as follows:

Communities	Number of Households
Mile Gully	89
Warwick Castle	28
George Town/Silver Spring	43
Athalone	14
Tucker	15
total	189

Employment Status

As the communities are rural in nature farming is the main economic activity in 38 % of the 189 households surveyed followed by buying and selling (11%), construction (9%) and other (25%). Very few people are engaged in professional work, hustling, labouring, mechanical work and factory work. The survey further indicated that in 57 % of the households one or two male members have a job leaving 43 % of the households without a male member employed. In 40 % of the households surveyed one or two female members have a job. In 60 % of the households no female member had a job.

Water Situation

There are five water sources in the area which are described below.

Sambre River is running alongside the parochial road. The water is being used for farm animals, watering crops, washing laundry, bathing and other recreational activities. This source is not considered a domestic water source.

Silver Spring has been identified as the main source for drinking water to the Mile Gully, George Town and Athalone communities. Water will be pumped from the spring to an elevated tank and then fed via gravity to households.

Spring Bush supplies water to a small number of households in George Town and may be retained as water supply for these homes.

Tracy Spring has been identified as the main water source for Warwick Castle and Tucker communities. Water will be pumped to a holding tank and then gravity fed to the communities. A standpipe is established some 50 meters away from the spring and water is collected for household use.

Chapel Spring only supplies the Mount Angus Primary School and will remain as the school's source.

General Issues Associated with Lack of Water

The survey conducted by ESL indicated that most people expressed anger about the lack of water or had simply grown accustomed to the hardships associated with the lack of water expressing little hope about change. More specifically residents in George Town expressed their concern about the cost to carry water with taxis. In Athalone, where due to the proximity to the spring, water collection is less difficult, frustration was expressed about the quantity of water available for cultivating cash crop and raising poultry. Common to all communities were complaints related to personal hygiene, difficulty to carry out regular domestic chores and the impact on children. Persons collecting water from Silver Spring complained about the strain of carrying water due to the location of the spring downhill of communities.

Specific Gender Related Issues

Washing Clothes

Women in these communities use any of the water sources for washing. Fetching water to carry it to the house is time consuming, carrying a load of clothes to the source is equally time consuming. Finding a secure spot to wash clothes can be difficult. There are issues of over crowding, as well as the questionable quality of the water (garbage, sewage). Finding a clean source for rinsing has to be considered as well. There is an agreement that washing with soap is done at the downstream section so as not to increase turbidity. Rinsing is being done at the upstream section. Although agreements exist it is quite common that intimidation and/or fights for the best spot occur. Theft and damage of clothes is also being reported. Washing of clothes in public could also be deterred by someone's pride. Persons carrying water to the house for washing maybe subjected to ridicule and labelled 'prideful'.

Cooking and Drinking

Rainwater is sometimes collected for the purpose of cooking. The quality of the rainwater is generally considered suitable for cooking as contaminants are reduced by the boiling process when cooking the meal. The most common water sources for cooking are however the existing springs, river and standpipes. Collecting water is time consuming. Children are usually sent to fetch water. There is a general reluctance to store water for cooking and it is preferred to fetch fresh water for the preparation of the meal. Contamination of water can occur while transporting the water by placing hands into the water, or leaving water unattended when idling with friends. It is also stated that sometimes dogs might drink from the storage vessels.

To prevent contamination some households add chlorine to their water. This can be dangerous as there is some ignorance about the right amount of chlorine and poisoning can occur. Some residents rely on bottled water for cooking and drinking. This however is costly. The type of food being cooked is oftentimes governed by the availability of water. Women try to cook food that require little water.

Washing dishes is an important part of hygiene. Women sometimes have to resort to use the dish water twice or if dishes were left uncleaned after the last meal due to lack of water cooking of a new meal will be delayed.

Cleaning the kitchen is equally challenging. A clean working environment ensures that food can be prepared without contamination. Sometimes a choice has to be made what the water is to be used for and cooking and drinking obviously receives higher priority.

The cleaning of raw vegetables is an important task and has to be done with sometimes dirty water. Some women indicate that they prefer to cook vegetables to reduce the risk of contamination.

Carrying Water

It was already stated that carrying water is time consuming. There are also issues of ill health, back pains, muscle pains and headaches from carrying water containers on the head. When pressed for time taxi drivers are asked to fetch water at a cost.

The attendance of children at school suffers as the children have to fetch water in the mornings and evenings when coming from school. This places a high responsibility and stress on the children and the grades at school often times suffer.

To avoid carrying water and in order to save time persons sometimes bathe at the source.

There are reports of theft of water out of containers or even the containers or water tanks are removed.

Carrying water is also perceived a social class issue. There is a perceived division between those who can afford a tank and those who cannot.

Women are more often fetching water than men. However, young girls usually stay home while the boys fetch the water.

Water and Economic Activities

Farming

Farming is one of the main economic activities. Raising poultry is common. Chicken require a significant amount of water and its absence leads to heat stress and death of the animals. Growth might be stunted due to inadequate nutrition and the sale results in a reduced return as the animals and farm crops are of poor quality.

Business

Conducting business of any kind without a regular water supply can be challenging. This is particularly so for restaurants and hair dressers.

Construction

Water is essential in preparing concrete. The cost to transport water increases the cost of construction. The size of the building is influenced by the cost of water. In instances a homeowner might have to rely on wood as building material rather than concrete.

Women and Hygiene

Particularly during the drier season when the quantity of water is less, persons tend to not bathe regularly. Older persons have sometimes to rely on other family members as they are unable to bathe themselves. Older persons might also have a problem lifting buckets. Babies and ill persons are also dependent on others. Bathing a baby regularly is important as their ability to resist the effects of germs is not developed.

Children and Water

Children tend to play at water sources and might get ill when playing in dirty puddles. The level of anger towards children is high when they do not return quickly enough with the water. There is also the fear that children may fall into drums and drown or get seriously hurt.

Water-Related Diseases

The absence of clean water for drinking or bathing has implications on the health of community members. The diseases experienced range from skin fungus (bathing in dirty water) to diarrhoea (using contaminated water for cooking and drinking) to flu and cold (bathing in early mornings).

All of the above described issues have a serious effect on the emotional health of women. Women might feel underprivileged if they are not able to entertain visitors due to the absence of water. For those who have flush toilets the absence of water can be distressing and of serious health implications. Persons feel backward when compared with persons from communities that have piped water and embarrassed when not being able to bathe daily.

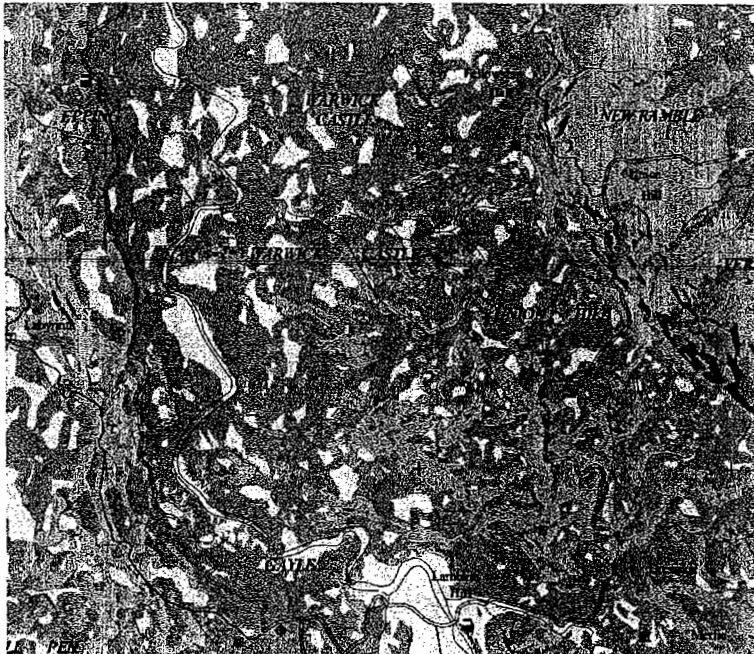
Landslide Hazards

The susceptibility of landslides in this area needs to be considered as landslides can interrupt water supply lines and leaving the communities without water for extended time periods. The Mines and Geology Division has prepared susceptibility maps which are used to display the spatial distribution of landslide hazard zones in a given area. The maps are intended to be used as a guide to assist technical and professional groups involved in natural hazard mitigation physical planning and development as well as in the planning of civil engineering works.

In addition, the maps can be used by individuals and community groups who have an interest in assessing the susceptibility of their property or community to landslide hazards.

These maps however should not be used for site-specific purposes because of the scale at which the data was obtained.

Figure 1: Land Slide Susceptibility (extract from Landslide Susceptibility map St. Mary; Source: Mines and Geology Division)



The area shows a generally moderate landslide susceptibility [diagonal hatching] which would manifest itself in small-scale landslides including road cut and gully bank failures. Some simple slope stabilization measures are recommended.

For areas with moderately high landslide susceptibility [cross-hatching] there is a higher likelihood for moderate to large-scale slope failures. Proper drainage and erosion control stabilization measures are strongly recommended and contour farming must be included. Roof runoff from buildings must be controlled especially in areas of clay rich rocks.

Mitigation measures against landslides should include soft measures such as vegetative restoration and hard measure eg. civil engineering measures. Measures should be employed under a collaborative effort among the Forestry Department, the Mines and Geology Division and the National Works Agency.

Civic Groups

There is the Mile Gully Benevolent Society a community based NGO headed by its President Mr. Lynford Gordon. This group exists since November 2002 and has been registered since 2003.

In the Mile Gully area, a Jamaica Agricultural Society (JAS) group of some 30 members, predominantly men, was formed in 2005 under the auspices of the Benevolent Society. The Mile Gully Women's Group has also been formed out of interest among the women to undertake home-based economic activities that will utilise the many fruits, which abound. Rural Agricultural Development Agency (RADA) has promised assistance, but lack of potable water is a major obstacle to the development of this as well as other livelihood projects, including farming itself.

Community Involvement in Project

The community will provide land for the erection of the storage tank and the laying of pipelines. It is also expected that community members will participate in water quality and quantity monitoring.

Involvement of the Government of Jamaica Agencies

The following is the proposed extent:

- Identification of domestic Water supply sources
- Determination of type and quantity of water resources monitoring equipment needed
- Installation of monitoring stations
- Determination of volume and reliability of water supply by monthly monitoring.
- Water Quality Monitoring
- Recommendation of good watershed practices for water resources protection
- Compile data and make report available to community and agencies for incorporation into best practices methodology.
- Train local community personnel to observe and record water resources data.

PRESENT SITUATION

- There is a V notch Weir installed on the Silver Spring.
- Flow measurements on the Silver Spring near Gayle indicate that there is a less than a 5% chance that the yield of Silver Spring will fall below 500 m³/day and that this volume could serve a population of 1832 persons. (Hydrological investigation – Silver Spring) submitted to Carib Engineering Ltd (CECL) January 19, 2005.
- Flow measurements taken June 2007 indicate flow of 9,517 m³/day (3.89 cfs).

WATER RESOURCES MONITORING EQUIPMENT NEEDED (approx. cost)

1. One (1) Water Quality Multimeter (already received)
2. One (1) Rainfall intensity Gauge (US\$ 2,300.00 (Eijkelkamp or Casella))
3. One (1) Manual Rain Gauges (US\$ 400 Casella)
4. Three Streamflow data loggers for (Warwick Spring, Tracey and Silver Spring)
(consisting of logger, encoder, solar panel, charge controller, battery and infrastructure works (steel box, mast, cable) (total approx. US\$ 12,000)
5. Three Staff Gauges each 2 m in length
(at US\$ 42 per foot total US\$ 756.00)
6. Three Free Chlorine Test Kits (Hach)
Each kit US\$ 48 plus 100 extra satchets US\$ 33, total US\$ 243.00

Source of Information

- CARIWIN Project Document
- Baseline Study prepared by Environmental Solutions Ltd/September 2005
- Project brief prepared by Linnette Vassel, Rural Water Supply Ltd

Report prepared by: Andreas Haiduk – Chief Hydrologist/Water Resources Authority