

Watershed Education Action Plan by ฅนญัจตน์ ป้งเต็ง

Be careful what you do upstream!

I. Background Information

A. The Republic of Trinidad and Tobago is a small, twin island developing state (See figure 1). The nation is characterized by immense political stability, with open and competitive democratic systems and strong opposition parties. According to the UNDP (2011) Trinidad and Tobago ranks 62 (0.760) in the Human Developmental Index 1980-2011. Social indicators in the twin Island Republic are moderate and points to the commitment of governments to improving the quality of life of residents.



However, despite considerable advances, Chin Chin Road, Cunupia community, like many other communities across Trinidad and Tobago that are economically deprived, has considerable work left to do to ensure a sustainable environmental health. The Cunupia community (See figure 2) is located in County Caroni in central Trinidad. Cunupia lies northeast of Chaguanas as its closest borough. Like Chaguanas, Cunupia has experienced rapid growth in recent years, especially in terms of residential developments. However this study will look closely at the Chin Chin Road, Cunupia community (see figure 3), which lies within County Caroni (see figure 3). Chin Chin Road, Cunupia community is faced with many challenges but one that plagues the community is the lack proper solid waste disposal. Municipal Solid Waste Management Services in Latin America and the Caribbean states “In Trinidad and Tobago the average person generates approximately 4lbs or 2.20kg of waste every day”. However, apart from the collected waste, large quantities of waste a improperly disposed of every day, and as a result, it pollute our streets, drains, rivers, coastal areas and other environs.

This action Plan will be geared towards fifth grade / standard four (Trinidad-British school grade classification) geography students at the Madras Government Primary School in Trinidad. This school is situated in the largest Hydrometric unit area in Trinidad. This particular hydrometric area is known as the Western Peninsula Hydrometric unit (See figure 4). Even though the location of the school is considered

rural the neighboring towns are industrial and agriculturally driven. The school also sits in close proximity to the ONLY airport on the Island which automatically says that the topography is relatively flat. The school is also in close proximity to the Caroni Swamp which in fact, is protected under the RAMSAR Convention. The Caroni Swamp consist of 5611 hectares and is home to a wide variety of Flora and Fauna, however, most importantly it is home to the national bird of Trinidad the Scarlet Ibis (*Eudocimus ruber*).

B. The goal of this action plan is to ensure that the geography students go away knowing what is a watershed and the understanding of how watersheds work, identifying how pollution from up-stream (Industrialized and farming area) can affect downstream (Caroni Swamp). It is very important for the students to understand the aforementioned in order to better care for the environment in which they live. They will learn how their daily actions and choices affect places we use to recreate or as a form of livelihood. I believe the best experience is hands-on experience. Therefore, the students will be taken to one the Rivers (Guayamare River) which drains directly into the Caroni Swamp. In doing this they will be able to observe point source pollution, conduct water sample collection, photograph change, if any, in area at each sampling location. This will then allow them to analyze the data collected and make informed decisions concerning land use and every day action.

II. Plan Outline

A. The first step will be to have the kids fully understand the water cycle, watersheds, and which watershed they live within. We will then look at how too and the importance of being able to identify the Caroni watershed on a map of Trinidad. The students will be taught that being able to identify a location on the map can better help us to make decisions in terms of building, farming, growing crops, setting up factories so that they do not affect important places of interest and environmentally sensitive areas such as the Caroni Swamp. This will then help them to see where and what we do affects the watershed in which we live.

B. No funding will be needed for the project. However, approval will need to be acquired by the school to have the children taken to the Guayamare River and the Caroni Swamp. The children will collect water samples at three sites along the Guayamare river. Site 1; the closest accessible point to the school, Site 2; mid way accessible point along the River, and Site 3; the point at which the river drains into the Caroni Swamp. The Centeno Field Station Laboratory will be responsible for testing the water being collected by the students for nutrients. Water samples will be taken once per week, therefore, assistance from parents and teachers will be needed. Prior to going out to the testing sites the students will be given pass data and results (the results will be

simplified for their understanding) from the University of the West Indies St. Augustine Campus. Students will also be able to visit the Caroni Swamp RAMSAR site.

C. The students will be divided into two groups (GROUP 1 and GROUP 2). Each week twelve of twenty-four students will go to conduct water collection at all three sites highlighted above. Therefore, every student will be conducting sampling forth nightly. This will ensure that every student has not, only the opportunity but a one-on-one experience.

III. TimeLine

A. Currently – What do we know?

The first phase of the project will be indoors. This part of the project will help the children understand watersheds and the human connection.

1. Last week in August – Second week in August (three weeks) – the students will explore watersheds via the classroom.
2. Week three of September - the children will explore the wetland they are studying
3. Week Four and Five of September- they will then conduct a research on the Caroni Swamp highlighting its background, importance, and provide other research information such as maps etc, in the form a portfolio.
4. Week one of October -A practice indoor water sampling session will be conducted to ensure that the students are equipped when placed outdoor.
5. Week two of October – Group 1 goes out to collect water samples and then submit them to the lab for testing.
6. Week three of October – While group 1 puts the data into excel discusses the data, group 2 goes out to collect water samples.
7. Water sample collection process will continue all the way to Last week of November.
8. Week one of December will be data analysis and decision making. Suggestion will be made by students about changes that should be made, or if any change is required to maintain a healthy watershed, but more importantly for the project to maintain a healthy wetland. (Caroni Swamp).

IV. Preparing My Students To Go Outside

· I'll start by teaching the children about watersheds, especially the one they live in. They will understand that everyone lives in a watershed. Homes, farms, ranches, forests, small towns, big cities and more exist in watersheds. Watersheds can be large or small. Some cross county and other borders. We'll discuss and do hands-on indoor activities such as:-

- Watershed Definition

- Mapping a watershed

Locate the school, and the Guayamare river on a map. Then, map their proximity to each other outlining the watershed. Then, map the river's course towards the Caroni Swamp.

- The human connection to watersheds (does the watershed we live in consist of farms, ranches, forests, factories and so on)

While learning about the above listed the students will be able develop their Caroni Swamp Portfolio as listed in the timeline at week four and five of September.

- Instruct the students on how water sampling is conducted. Identifying the need for water sampling and the type of nutrients (Nitrogen, Phosphorus, Sodium and pH) we will be testing for in the Guayamare river.

Understand the significance of each nutrient that is being tested in a watershed.

- Identify issues in other rivers that are located in industrialized and farming areas just as the Guayamare river.

- Look at past and present maps of the Guayamare river course.

- Conduct brainstorm exercises on how to rehabilitate a watershed that has been polluted.