



EnviroFocus

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From the Director...

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March 2010, marks 39 years that the Environmental Protection Department has been striving to prevent degradation of our environment. Over the years, the Department has sought to, among other things:

- develop policies to control noise and improve ambient air quality;
- develop legislation to prevent the degradation of the marine environment;
- develop policies for the regulation of solid waste management;
- raise public awareness on a number of environmental issues including the management of chemicals; and
- collect a range of data on chemical storage and disposal, water quality (both marine and ground water) and marine litter.

The data collected have highlighted a number of concerns. Two notable concerns are the amount of litter on our beaches and the manner in which chemicals are handled, stored and disposed of in Barbados.

As you know, the National Marine Litter Monitoring Programme was developed to collect and analyse data on marine litter for use in decision making; educating the public about the effects of marine litter; and encouraging better litter disposal practices. Through data gathered from this programme it is disheartening to see how irresponsible some persons are

when it comes to keeping our beaches free from litter and debris.

Investigations and audits conducted by the Department show that chemicals are stored without adequate labels and secondary containment. As a result, persons handling these chemicals are not aware of potential health and environmental impacts. Additionally, the absence of secondary containment may allow chemicals to enter the environment in the event of an accident or spill.

In an attempt to address these and other environmental issues existing in Barbados, the Environmental Protection Department (EPD) will continue to develop and implement a number of projects and programmes. This year the Department will be undertaking a project to improve the labelling of chemicals. This project will help to reduce the risk to persons who handle chemicals. The Department will also seek to intensify its efforts to highlight the impacts of marine litter on human health and the environment and to encourage more groups to adopt beaches and be responsible for collecting information and educating others.

As always, remember to utilize environmentally friendly practices as we strive to keep the environs of Barbados healthy and clean.

Marine Litter Clean-Up

The Environmental Protection Department (EPD) conducted our annual beach clean up at Morgan Lewis Beach, St. Andrew on September 19, 2009 with great success. The number of volunteers increased tremendously from previous years with 202 persons attending the event.

Beach clean-ups can be used to maintain the beauty of our beaches but they are also a way for the Environmental Protection Department to collect data on the types and quantity of garbage that disfigure our beaches. This information is recorded as part of our National Marine Litter Programme and is used to find ways to identify the types of litter and reduce the pathways by which litter reaches our beaches.

At the 2009 Morgan Lewis beach clean up over 4400 items were collected weighing approximately 822 pounds. Items such as bottle caps and lids and plastic beverage bottles of 2 litres or less in size, accounted for the greatest category of waste collected (286 pounds). Waste from fishing/boating accounted for 141 pounds, 158 pounds were due to waste that was classified as miscellaneous and medical and hygiene waste such as prescription bottles and cosmetic containers weighed 20 pounds.

In order to engage the public and encourage change from negative behaviour that leads to marine litter, the Environmental Protection Department has given

several presentations at events arranged by Parish Independence Committees, summer camps, primary and secondary schools and local companies. We have also published articles on the National Marine Litter Monitoring Programme and the impacts of marine litter in our newsletter as well as in the local newspapers over the last three years.

However, the large quantity of waste collected on the beach in 2009 is a clear indication that many people are not disposing of their waste appropriately and that more needs to be done to educate the public about the effects their behaviours have on the environment.



Volunteers sorting waste collected

Did You Know...?

- That our gully system is connected to our ocean and groundwater;
 - That when chemicals and other items that are harmful to the environment are disposed in our gully systems they have the potential to enter our drinking water and our ocean; and
 - That these practices affect all of us!!!
- Do you know how you can help?***
- Recycle and reuse items such as plastics containers. Never reuse plastic containers that previously held chemicals to store drinking water.
 - Dispose of litter in bins provided.
 - If you are unsure of the how or where to dispose of a chemical or hazardous material, please contact the Environmental Protection Department for assistance.
 - You can participate in one of the many beach cleanups that are performed across the island. Join the EPD in our clean up on September 18, 2010 or organise your own beach cleanup. For further information on organising your own beach clean or joining with EPD in September, contact our office at telephone 310-3600 and ask to speak to a Marine Pollution Officer.

Have You Ever Heard About POPs?

The term POPs stands for Persistent Organic Pollutants, which are a category of highly dangerous organic chemicals. Exposure to POPs, even at low concentrations, has been linked to a range of illnesses in human beings and animals. Studies have found that exposure to POPs can result in reproductive disorders, immune system disorders and cancer in humans, among other things.

There are a number of chemicals, both natural and man-made, which have the properties of POPs. Twenty-one chemicals have been formally listed as POPs; these include pesticides, industrial chemicals and by-products from chemical processes.

How do POPs enter the environment?

POPs can enter the environment as a result of:

- The use of POPs pesticides in agriculture or vector control;
- Improper storage and disposal of POPs chemicals;
- Emissions from industry;
- Improper handling and disposal of waste fluids from mechanical and electrical equipment; or
- Burning household garbage and other waste.

See our next issue to see what the Environmental Protection Department is doing to...



Old drums possibly containing a POPs pesticide

POPs do not break down quickly in the environment so they can remain in the environment or in human/animal tissue for many years. This means that POPs can cause damage to human and environmental health for many years after they are first released.

POPs have been found in places where they have never been produced or used such as in the Arctic, Antarctica, and remote Pacific Islands. This happens because POPs can be transported over long distances through the air and the water. They can also be transported by migratory animals like birds, fish or turtles due to the build-up of POPs in fatty tissue of living creatures.

POPs also bio-magnify; that means they can reach concentrations in human beings and animals that are much greater than their concentrations in the surrounding environment. This is especially true for creatures at the top of the food chain such as fish, predatory birds, and mammals, including humans.



E-Waste... An Emerging Threat

While as a nation many of us take pride in our developmental achievements, we must always remember the quote, “with great power comes great responsibility”, since the title ‘developed’ brings with it much responsibility for each of us to bear. With this development, we have seen a dramatic increase in the use and dependence on electronic equipment. While the various devices have many useful and even life saving features, like everything in life, too much of a good thing can kill you, especially if not properly managed.

With each passing day, that once new and modern piece of electronic equipment becomes obsolete, and a new, more sophisticated model emerges on the market, glittering with must have features that you suddenly cannot do without. The current one no longer suffices and is discarded. It has now become “e-waste”.

E-waste is the term given to this new waste type, and is defined as, ‘any electrical or electronic equipment or its parts that have been discarded’. Examples of e-waste include computers, cellular phones and appliances.

Improper discarding of e-waste poses a threat, not only to our water supply, but to our health in general. They are four (4) main disposal sites or landfills in Barbados, which are:

1. Mangrove Pond Sanitary Landfill (handles all municipal waste on island)
2. Bagatelle Bulky Waste Disposal Site (appliances, metals, cars, etc)
3. Lonesome Hill Disposal Site (organic liquids)
4. Rock Hall Asbestos Disposal Site (asbestos)

Out of these four sites, e-waste should **only** be sent to the Bagatelle Bulky Waste Disposal Site. However, sending e-waste to this disposal facility should be a secondary solution. The best option is to send such waste to one of the e-waste recyclers operating on the island, whose operation has been approved by the Town and Country Planning Development Office and the Environmental Protection Department.

The specific danger of e-waste on human health and the environment is due to the variety of components that can be found in these devices. Components such as the

plastic covers, circuit boards, batteries and cabling which appear harmless, may contain harmful chemicals such as lead, cadmium, mercury, chromium, PVC plastics, and brominated flame-retardants. Many of these chemicals are toxic to humans and can accumulate in our bodies. Some of them are also linked to increased incidence of cancer and to brain and kidney damage.

The Department is in the process of developing a policy for the management of e-waste. The purpose of the policy is to regulate the collection, recycling and disposal of e-waste and therefore minimize the threat to the environment and human health.

While this policy is being developed, you can still play your part. Make sure to dispose of your e-waste properly, because out of sight may be out of mind, but the effects of your actions could affect your life.



Electronic waste and other solid waste being disposed at the Bagatelle Bulky Waste Disposal Site.

Improving Chemical Labelling

It is now widely recognized that chemicals need to be managed properly in order to achieve sustainable agricultural and industrial development while maintaining a high level of environmental and human health protection. Chemicals directly or indirectly affect every aspect of our lives and they can be both helpful and harmful. In order to safely use chemicals, their hazards must be effectively communicated to workers and the public.

Last year, the Environmental Protection Department, with assistance from the United Nations Institute for Training and Research (UNITAR), submitted a project proposal to an international funding agency for a grant. The proposed project, “Development of a National Implementation Strategy for the Globally Harmonised System for Classification and Labelling of Chemicals in Barbados (GHS)” was approved in the first quarter of 2010.



Hazards posed by these chemicals should be clearly shown on the labels

The GHS is a logical and comprehensive approach for defining hazards of chemicals, applying hazard criteria (using an agreed methodology to classify chemicals) and communicating hazard information on labels and Safety Data Sheets (SDS). The ultimate goal of the GHS is to ensure that information on chemical hazards is made available to workers and consumers in a harmonized and clear format in countries around the world.

The project aims, ultimately, to improve the protection of workers, the public and the environment from chemical hazards. Some of the activities that will be undertaken under the project include:

- Preparation of a draft national GHS implementation strategy, which will outline, among other things, concrete actions that need to be taken to implement the GHS.
- Provision of training on the GHS to raise awareness about the GHS and its potential benefits among decision-makers and relevant personnel in sectors such as government and industry.

Implementation of the GHS has a number of benefits for government, industry, workers and members of the public. Some of these benefits include:

For Government:

- improved protection of workers and the public from chemical hazards
- lower health care cost

For Industry:

- fewer accidents and illnesses
- improved corporate image and credibility

For Workers and the Public:

- improved safety for workers and others through consistent and simplified communications on chemicals hazards and practices to follow for safe handling and use
- greater awareness of hazards, resulting in safer use of chemicals in the workplace and in the home.

A Glimpse at our Work

Water Quality Officers at the Environmental Protection Department (EPD) can attest to the fact that there is never a dull moment at the EPD! Whether it is researching new technologies and designing new monitoring programmes, making visits to wastewater treatment plants with little prior warning to keep companies on their toes, investigating at a moments notice a possible threat to water quality or almost being swept away by a south coast wave as one exits the sea after collecting a nearshore bathing water sample, these officers are constantly captivated by their work.

Below is a glimpse into the busy life of a Water Quality Officer.

The **Groundwater Monitoring Programme** is now a collaborative effort between the EPD and the Barbados Water Authority (BWA). Samples are taken from 21 drinking water wells, 11 agricultural wells and 7 public springs. Every week officers set out to sample predetermined sites. Tests are done for various physical, chemical and microbiological parameters to determine the quality of the groundwater water.

Twice a week the officers from the Water Quality and Marine Pollution Control Sections collect seawater samples from selected beaches along Barbados' south and west coasts. This is conducted as part of the Department's **Nearshore Recreational Water Monitoring Programme**. Samples are collected from 18 popular west and south coast bathing sites to be tested for the presence of Faecal Coliform, Enterococci and nutrients. This programme gives an indication of the impact land-based activities are having on our marine environment.

In addition there is the **Wastewater Treatment Plant Monitoring Programme**, the purpose of which is to ensure that water discharged from the treatment plants does not pose a great threat to the groundwater

or marine environment. As such, influent and effluent samples are collected by EPD to have their properties tested.

Barbadians have always boasted of excellent drinking water quality and the officers are without a doubt, working industriously to ensure that this pride remains.



Water Quality Officer Patrick Fergusson collecting and testing groundwater samples

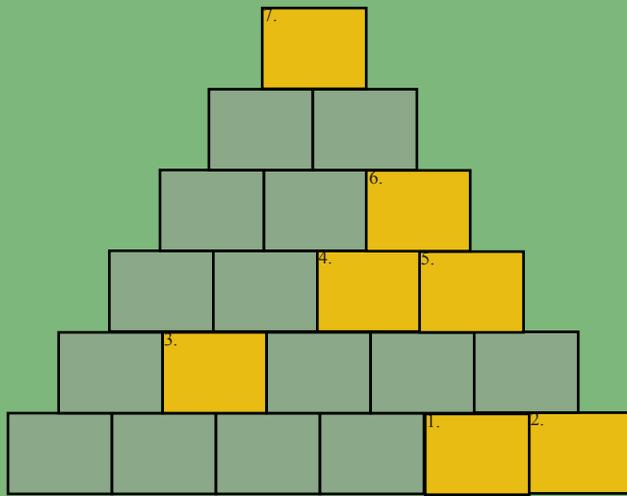
Do you want to know how you can help maintain drinking water quality?

One way is to dispose of your chemicals properly! Improper disposal of solid and hazardous wastes threaten groundwater supplies.

Activity Challenge

Instructions:

Fill in the sums to complete the pyramid. Each block is the sum of the numbers in the two blocks below it. The numerical answers to the seven (7) hints below should help in your quest.



1. The number of groundwater protection zones in Barbados
2. The sum of the numbers in the year that the GHS project will begin
3. Twice the number of disposal sites in Barbados
4. Subtract two from the number of chemicals that have been listed as POPs
5. Subtract one from the number of beaches from which the EPD collects samples
6. Add 15 to the number of chemicals that have been listed as POPs
7. Add one hundred to the number of years that the EPD has been in existence

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