



*The Caribbean
Youth Environment Network-Grenada
&
The Global Water Partnership-Caribbean*



*“National Youth Consultation on Climate Change and it's
Implication For Water Resources”*



Monday 14th May, 2007
The Grenada Red Cross Conference Room

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OBJECTIVE OF CONSULTATION

The objective of the consultation was to educate and engage students in a discussion on the effects of climate change on water resources. In addition to we wanted to solicit responses from these students on what methods were most appealing when trying to disseminate this information.

Opening Ceremony

In attendance were students between the ages of 14 – 17 years along with teachers from various secondary schools around the Island. The Opening ceremony began at 9:30 a.m. with Mr. Simon Andrew, Public Relations Officer CYEN-Grenada master of ceremonies giving a brief greeting. Mr. Kevon Samuel President of CYEN-Grenada did the opening prayer and this was followed by a rendition of the National Anthem song by Ms. Crystal Leo Anglican High School. The welcome remarks were made by Ms. Nicole Andrews, the National Coordinator CYEN-Grenada.

Opening Remarks

Mr. Trevor Thompson- Global Water Partnership-Caribbean

Mr. Thompson stated that the GWP-C and the MoA were happy to be a part of the consultation and to be collaborating with Caribbean Youth Environment Network in the “Consultation on Climate Change and its Implication for Waters Resources.”

The GWP Caribbean is a working partnership among all stakeholders in water management in the archipelagic states and overseas territories of the Caribbean region including the countries of Guyana and Suriname.

GWP-C is a network of partners devoted to supporting Caribbean Countries in the sustainable management of their water resources through the establishment of strategic alliances and the implementation of the appropriate actions. Its objective for this region is to achieve an integrated approach to water resources management at the community, national and regional level and its Vision is for the Caribbean region to achieve sustainable development and utilization of water resources to meet the social, economic and environmental needs of present and future generations.

When the opportunity came to work with CYEN to hold the consultation the GWP-C saw it as an opportunity for them to reach the community of youths with the message that Sustainable water resources management works. The Ministry of Agriculture as part of its work programme for 2007 planned to hold two consultations focusing on water for 2007.

Grenada like many other small island developing states in the world is not exempt from the impacts of climate change. Climate change is affecting our water resources and we will have to work together to address and come up with the right mitigating measures.

Grenada before IVAN had **71 Watersheds with less Than 20% of them** going dry in the Dry Season. He stated that we are not now sure what the status since after 2005.

Grenada is not the same country that we were. We are no more green and lush and the recent spate of bush fires, many of them man made, is not helping. Unless serious resources and efforts are invested into reforestation, land and slope stabilization our water systems, water quantity and water quality will be severely affected and I wonder if they will recover. Is it too late?

This consultation we hope will serve as an eye opener for many of you, to challenge you and to encourage you in pursuing careers, and adopt practices that will ultimately result in you playing a role in guaranteeing that there is sustainable management of our water resources and good quality drinking water for future generations to enjoy.

Remember Water Is Life. You can live without so many things but not without water.

Brief Remarks

Mr. Reginald Burke –Executive Coordinator – CYEN

Mr. Burke addressed the students and other participants on what the consultation was all about. He pointed out that management of the environment was by no means solely the role of specialists and government officials but more importantly, it was the role of the users of natural resources. He indicated that everyone in the room uses natural resources so therefore it was our collective responsibility to ensure that we have some understanding about nature and things around us and that we play our role in the management of natural resources.

Mr. Burke asked by a show of hands how many people knew about climate change issues or the greenhouse effect. The response was scattered and scant and to illustrate his point he asked again by a show of hands how many people knew about Nike and Timberland shoes. The response was unanimous. Mr. Burke said that as a people we would be making progress on environmental management issues when everyone in the room knows about climate change, what roles they had to play to mitigate climate change and could articulate what they were doing at the individual or personal level to contribute to the solution.

In closing Mr. Burke encouraged all present to get involved in the environment movement and extended an invitation to all the students to present to become part of the CYEN family as the first step. He urged the students not to get fool by the myth that the have so many things to do that they have no time. He said that young people had four things going for them - time, energy, talent and the ability to mobilize money but to be good stewards of the environment they will have to want to do something positive and to make a difference using these elements.

Feature Address

Mr. Aaron Francois representing Hon Gregory Bowen, Minister of Agriculture, Lands, Forestry Fisheries, Public Utilities and Energy.

Mr. Francois in his speech spoke on the phenomena called climate change or global warming which is one of the most hotly discussed topics at international conferences nowadays. He said that the international scientific community is now

providing more compelling evidence that human activities are changing the climate and the impacts of the changes are affecting every sector of society, especially our water resources and the possible impact of climate change, can be quite disastrous for small islands states like ours. It is anticipated that the following can result:

1. A rise in the sea level caused by the melting of the arctic ice;
2. Longer dry seasons and wetter we seasons accompanied by reductions in total rainfall; and
3. More intense rainfall when it occurs;

He said that water is one of the most important resources used for the development of a country and it is also important to note that **there is increasing water scarcity in the world** and moreover, **Grenada's total water supply is expected to reduce with increased potential for water shortages, especially during the longer dry seasons.** In addition, the rising sea levels increase the risk of salt water intrusion within the aquifers and wells that are located close to the coast.

He stated that what this is saying to us is that we need to engage a greater level of planning for the management of our water resources. It is precisely for this reason that **the Government recently mandated a task force to undertake the development of a comprehensive water policy and management plan to guide the management of our water resources.**

He reminded us that we must not forget that over the year, through various agencies, Grenada has built a significant amount of infrastructure to provide clean water for drinking and for industry, dispose of wastes, facilitate transportation, generate electricity, irrigate crops and reduce the risks of floods and droughts. These infrastructures have brought many benefits though at substantial costs. Yet to the average citizen, the nation's dams, reservoirs, treatment plants, pipes and forests are largely invisible and taken for granted. While they help insulate us from the wet and dry times, they have also permitted us to almost forget our dependence on climate.

He then commended the organizers for helping to heighten awareness on the consequences of climate change on water resources in Grenada. He also challenged all of us to contribute in whatever way possible to maintain the integrity of our environment.

He expressed his concern at this time over the spate of bush fires that are caused by human carelessness. These fires, in addition to causing destruction of physical property, will also have serious repercussions for our water resources and he encouraged us to do whatever is possible to stop these fires.

Energy Auditing and Climate Change

Presenter: Ms. Danielle Burnham of CYEN-Barbados

Energy Auditing

Ms. Burnham gave an insightful presentation on energy and electricity and how conservation and energy audits can be done in the home. She also gave an evaluation of energy usage in a home, business, or company in an effort to identify specific energy efficiency measures which can reduce the energy bill.

She stated that energy audit will assist in evaluating energy consumption and provide guidelines on how to improve energy efficiency. There are different types of energy survey:

- Residential
- Commercial
- Industrial

Ms. Burnham gave some recommendations of how to save energy:

The household uses 500kWh per month in electricity, which costs \$114. This can be reduced by 20% by:

- Using lower wattage, more efficient CFL bulbs
- Replacing the refrigerator gasket
- Ironing all clothing once a week in the early morning

- Using light colours materials for curtains to let in the breeze and keep let the sunlight in.
- Using a solar water heater
- Replacing appliances with energy efficient brands
- Raising the a/c temperature by 2 degrees
- Having awnings to shade the windows and keep them open instead of using a fan or a/c

Global Climate Change Evidence and Implications for Small Island States

Consequences of Climate Change for the Caribbean

Sea-Level Rise:

■ Although the rate of rise is neither constant or uniform, sea level in the Caribbean region is expected to rise by as much as 5 mm/yr, for next 100 years, as a result of GHG-induced global warming. Some of the consequences will be:

▶ *Coastal Land loss*, especially on low-lying, exposed coasts, low limestone islands and coastal plains without effective buffers between sea and backshore, e.g. Barbados, Bahamas, Antigua, Grenada.

▶ *Loss of coastal infrastructure.* Practically all critical infrastructure is located at or near the coast on islands (roads, utilities, residential and tourist accommodation, social services, etc).

Accelerated Beach Erosion

Model runs and observed data consistently project that *accelerated beach erosion* will be an inevitable threat facing small islands. While much present-day erosion is man-induced (*sand mining, construction in active beach zone, infringement of building set-backs, etc.*), empirical studies show that SLR is a significant contributory factor.

▶ Higher Water Levels + Higher Wave Amplitude = Increased Wave Energy

▶ Recent coastal vulnerability assessments for Barbados, Guyana and Grenada clearly demonstrate that elevated sea level amplifies the rate of coastal erosion.

Storm Surge, Flood Risks and Inundation

Although there is uncertainty about the future behaviour of tropical cyclones (hurricanes), flood risks and inundation from storm surge will be more severe.

Corals and coral reefs

Observational evidence shows that periodic *warming of the ocean surface*, as occurs in El Nino years, is a contributory factor in *coral bleaching* (process by which corals secrete symbiotic algae. The major bleaching events of the past 20 years occurred at times when ocean temperatures have been about *10C higher than the summer maximum*).

Water Resources

- Saline intrusion and loss of freshwater lens due to elevated sea levels have been identified as critical concerns of many small islands. These effects would have severe consequences for low-lying coral islands (e.g. Barbados, Antigua, Bahamas), which are dependent on groundwater sources for potable and supplies.

- Hydrogeological modeling demonstrates that the situation is compounded where (i) *aquifer recharge* is low (ii) island width/area decreases, consequent upon SLR. The likely outcome would be a reduction in the quantity and quality of freshwater.

- In some islands the pressure on groundwater resources is already so great that the annual *drawdown* > *recharge*.

Crop Agriculture

■ Few studies have been undertaken for the Caribbean, thus there is little data on specific crop sensitivity.

■ However, the few investigations conducted to date suggest that for most crops *yields would be lower* owing to:

- Reduced solar radiation (due to increased cloudiness)
- Higher temperature – shorter growth duration and increased sterility
- Salinity intrusion – would lead to reduced soil fertility

Tourism

A major revenue earner, tourism generates significant employment. In the Caribbean, the industry is almost entirely ‘*coastal*’.

Human Health & Well-being

▶ Caribbean countries, as elsewhere, exposed to various climate-sensitive diseases – vector and non-vector-borne, e.g. dengue, malaria, yellow fever

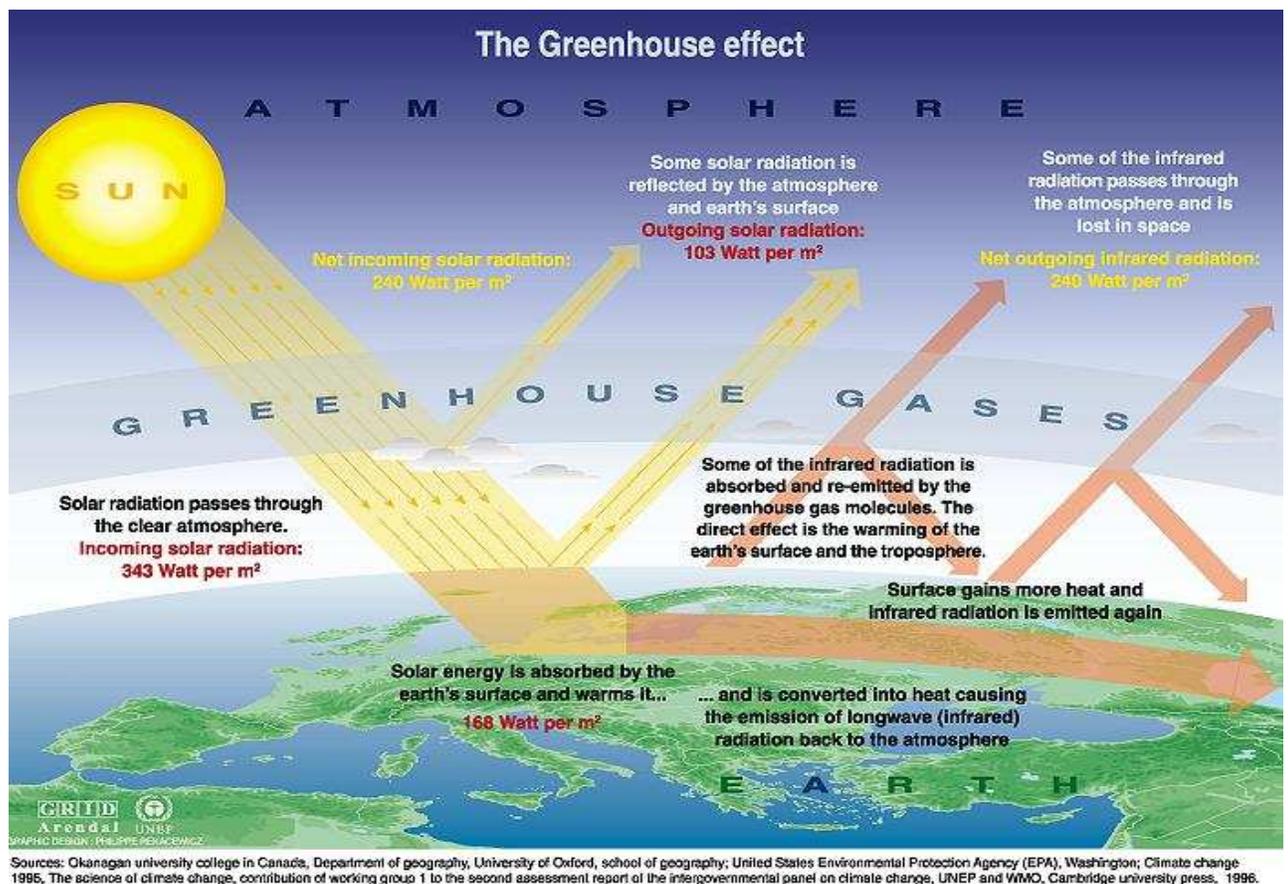
► Short- and long-term threats to human health are also posed by phenomena such as:

- *Hurricanes* (death and injury; increased sanitation and hygiene risks)
- *Storm surges* (physical injury)
- *Flooding* (drowning; creation of conditions conducive to breeding of insects and other vectors)
- *Drought* (water scarcity; reduced agricultural and food production – risk of malnutrition)

Climate Change Impacts and the Caribbean Reality

Paul Hinds, Regional Coordinator – Global Water Partnership- Caribbean

Mr. Paul Hinds' presentation was on effects of climate change and gave a brief overview of why there is a need to adopt an IWRM approach.



VULNERABILITY OF CARIBBEAN ISLANDS

- CAUSES OF VULNERABILITY**
- ✓ Small physical size;
- ✓ Limited natural resources;
- ✓ Surrounded by large expanses of water;
- ✓ Prone to natural disasters and extreme events;
- ✓ Open economies sensitive to external shocks;
- ✓ High population growth rates;
- ✓ Poorly developed infrastructure;

- ☐ ***Anticipated Impacts***
- ✓ Expected climate change impacts for the region includes:
 - **Sea level rise**
 - Saline intrusion into freshwater aquifers
 - Coastal flooding and erosion
 - **Increased temperatures**
 - Heat stress
 - ***Coral bleaching***
 - Biodiversity loss
 - Increased emergence of vector borne diseases
 - **Changes in rainfall patterns**
 - Droughts or floods
 - Decreased fresh water availability
 - **Increased intensity of storm activity**
 - Direct damage of infrastructure
 - Loss of lives

THE IMPACT OF CLIMATE CHANGE ON WATER RESOURCES:

THE NEED FOR AN INTEGRATED APPROACH –IWRM

- ☐ **Climate Change Impact on Water Resources**
 - ▣ Lower precipitation → drought and forest fire → lower water levels;
 - ▣ Deterioration in water quality → strain on supply and demand;
 - ▣ Precipitation increase → increased flooding;
 - ▣ Sea level rise → flooding of low lying coastal areas → salt water intrusion (also caused by over pumping due to drought like conditions);

Water scarcity - quantity and quality

- ☐ ***Coastal Vulnerability and Risk Assessment***
 - ✓ Studies (CPACC) in Barbados, Guyana, Grenada for scenario of 0.2m SLR by 2020. 0.5m SLR by 2050 and 1m SLR by 2100;
 - ***Barbados***
 - ✓ St. Michaels and St. Philip aquifer which produce 75% of the island water safe from saline intrusion;
 - ✓ West Coast aquifer already showing signs of salt water intrusion;
 - ***Grenada***
 - ✓ 0.5m SLR will have severe hydrological impact in Carriacou;

- ✓ 1.0m SLR will lead to salinisation of wells in South peninsula of Grenada
- **Guyana**
- ✓ In dry season estuarine penetration of brackish water for more than 60km. SLR will extend this penetration;
- ✓ Coastal aquifers already experiencing salt water intrusion. Will greatly increase with SLR;
- All CARICOM countries have identified water sector as vulnerable to climate change with deleterious impacts to critical sectors:
 - Agriculture;
 - Health;
 - Energy;
 - Tourism; and
 - Infrastructure

What is IWRM?

- Consideration of all the different uses of water resources;
- A participatory approach to, planning and implementation of WRM;
- Presents an opportunity to determine how society addresses long-term needs for water while maintaining essential ecological services and economic benefits;
- The process of balancing water demand and supply;
 - not only focuses on development of water resources but also management of water resources;
- Protecting the environment at the same time, fostering economic growth and sustainable agricultural, industrial and recreational development;
- Promoting democratic participation in governance and improve human health;

WHY IWRM?

Urgency of Action

- The world's freshwater resources are under increasing pressure;
- Many still lack access to adequate water supply for basic needs;
- Growth in population, increased economic activity and improved standards of living lead to increased competition for, and conflicts over, the limited freshwater resource;
- Water withdrawals have increased more than twice as fast as population growth;
- Current concerns about climate variability and climate change demand improved management of water resources to cope with more intense floods and droughts;

WORKING GROUP SESSIONS AND REPORTS

The student broke off into five(5) groups and was given two (2) questions each to discuss, one question was common to all groups.

Group 1

Question:

What is the most effective means of getting information about climate change?

The students began with a discussion before they came up with the ideas to present to the other participants. The students felt that with the use of the school the information about Climate Change and the implication of water will reach the youths quicker since the students spend most of their time in school and this was a place where information are imparted to students

They stated:

* The education system was the most effective means of getting information about climate change to the youth's reason for this was:

* Students spend a large portion of their early years in school and thus including this topic in the curriculum would help in spreading awareness.

They went on to explain that when a youth attends secondary school they have to go through classes over a period of five to six years within be doing studies on climate change in areas such as weather changes and patters, soil and forestry, marine and water evaporation etc

They will also be learning about some of the agents responsible for the changes and how it is affecting theses areas land, sea and air.

*Within this time the youths will also encourage to participate in activates such as promoting self awareness against pollution, recycling, usage of cleaner energy and bio fuel, participating in discussion on climate change and raising funds to help promote the idea that climate change is a major issue.

Group 2

Question:

What would make the issue of Climate Change more relevant to youths?

The group first stated that they would have to be properly educated about the topic. Many youths were not aware of what climate change was and the impact of it. Also they would hear the words climate change and not bother with it, it would just be in one ear and out the other.

The students came up with ideas of making the issue of Climate Change relevant to the youths.

* Composing of a songs or a videos

Many of the students stated that with the use of a creative songs and/ or a videos this will make youths better aware of the topic since many youths are quickly influenced by songs and videos.

* Camps, Art and Drama

Schools can organize and have camps for students to do projects and activities on Climate change.

Art and Drama Competition can be done among schools, students like to compete and winning prizes in an incentive. In the process of competing they will be learning about the topic.

* Motorcade

This will encourage the youths to get involve about climate change.

* Knowledge bowl quiz

Competition will encourage and make students better aware of the topic better.

* Media Programmes involving youths

Government can put programme together to get communities more aware of the importance of the topic.

* Organizing of cultural activities such as wrapping /calypso competition.

This will catch the youth more and it will bring across the message to them.

*Art competition, this will bring across the beauty and the changes within the environment as the time goes along so that youths will be able to deal with the issue better.

The students felt that the government is not doing enough when it comes to the topic of Climate Change.



Group 3

Question:

Are young people aware of the obligations that your government has signed on to?

The students in this group stated that they did not know that their government had signed on to any agreement that dealt with climate change.

Some of the suggestions that they gave include:

* The need for more information on TV and in the schools on agreements signed by Government that is related to the effects of climate change.

* The agreements are commitments on behalf of the people and part of the curriculum should include what small part student could play in assisting with how these goal are accomplished.

* They felt that some measures should be considered about climate change so that youths would be better enlightened by being more knowledgeable about climate change and the environment.

* Organizing of cultural activities such as wrapping /calypso competition. This will catch the youth more and it will bring across the message to them.

*Art competition, this will bring across the beauty and the changes within the environment as the time goes along so that youths will be able to deal with the issue better.

The students felt that is important to enhance and keep the environment beautiful.

Group 4

Question:

What type of approaches should be taken to encourage the various categories of youth (children, teenagers, young adults) to learn about climate change and to motivate them to take action?

The students in this group discussed many things, It was stated that:

* Advertisements should be used to get the word across. Also the media which entails the newspaper, television and the radio which should be used to spread the news through all the communities.

* Education Programmes (eg. dramatization) which should be done on a community bases to educate the communities about the disadvantages of Climate Change and give them or show them ways of how to preserve the environment.

* Community Fun Day show casing different photos on Climate change and what can happened if you don not preserve the environment.

Group 5

Question:

What can young people really do to positively contribute to slowing climate change?

Group 5 stated:

* Conserving of Electric Energy which would result in less damage the atmosphere.

* The majority of the youths are at school so a time should be set aside to discuss the topic at hand and how to slow it down.

A common question was given to each of the groups to answer

Question:

How effective have environmental education programmes of the (1) government (2) civil society on getting information on climate change across to youth?

There are no programmes in place to get the information across to youths, so the students came up with ideas that the government can use to get the information across.

Government

*They should pass laws to limit the amount of household appliances for homes.

* Rallies and seminars should be arranged in schools and communities so as to teach and explain the advantages and disadvantages of Climate change.

* In the offices they can use windows instead of the air condition.

Civil Society

* They need to be more groups in the communities to bring more awareness of the topic at hand.

* The society needs to pay more attention to the to the forestry and lessen on the cutting down of trees in particular areas which results in the negative effects to the society, the evaporation and the condensation will become slow and clean fresh air have to be received by the clouds instead hot air goes up causing damage to the atmosphere.

* The media needs to be use to transmit information to the society.

At the end of the presentation one of the groups came up with a motto:

“Energy conservation the best operation to have a better and healthy environment”

The consultation was concluded at around 3:00 pm participants found that the workgroup session was the most exciting part of the consultation seen that the students came up with very interesting points and they got to participate, ask and answer questions.

During the presentation of the group work the student was very eager to get their point over the audience.

The consultation was attended by one hundred and four (104) participants.

The vote of thanks was done by Ms. Cheryl Noel-CYEN Grenada.

