

The Anglican Church in the Diocese of Trinidad & Tobago

Holy Saviour Parish

Sunday 21st March 2010

Stewardship of Creation - Becoming a Green Parish



Heal the World

Awareness, Caring, Action.

Theme for March-Refuse



A chance to save the coral reefs

With the help of US\$4 million grant, an Israeli professor hopes to bio-engineer remedies to save the world's beautiful coral species from the effects of global warming.

Getting close to his subject: Israeli marine biologist Prof Zvy Dubinsky hopes to understand the changes global warming will cause to the world's delicate coral reefs.

Israeli marine biologist Zvy Dubinsky is worried. Coral reefs all over the world—from Great Barrier Reef in Australia to the Red sea in Israel—are dying, and global warming is the culprit.

Now the professor from Bar Ilan University in Israel hopes to do something about it. He and his team of researchers from the Faculty of Life Sciences have just been awarded a prestigious \$4 million grant from the European Research Council to study the effects of global warming on corals in the Mediterranean and Red Seas in the hope that they can come up with data that will help scientists bioengineer remedies to global warming in advance.

It's a significant grant. The European Union group received over 1,500 applications for the money, but chose Dubinsky, a renowned coral researcher, because of the vital importance of the research, which examines a number of fundamental questions about the future of marine ecosystems.

Coral reefs are some of the most delicate of marine life. They offer rich and complex eco-systems, comparable to tropical jungles. Aside from providing a home and habitat to many important fish species, the corals also have a unique symbiotic relationship with tiny algae that live within the coral cells. These algae provide the coral with most of the energy needed for life processing.



In stable water conditions the reefs thrive, but rising sea temperatures, increasing pollution and water acidity have deeply stressed the corals causing them to lose the algae. The result is bleaching—where corals whiten and die. Today bleaching events have been hitting reefs throughout the Indian and Pacific Oceans with increasing frequency, killing corals and decimating entire reefs.



“The increase of CO₂ in the atmosphere results in its increased dissolution in the oceans causing water acidification. The more acidic it becomes, the more difficult it becomes for calcifying organisms like corals, shellfish and crustaceans to deposit their calcium carbonate skeletons,” Dubinsky tells ISRAEL21c.

“Corals are endangered by global warming, but that’s not all,” he adds. “There are increased UV rates from the depletion of ozone, and in many places around the world, corals are used as building material where there are no other stones. Fisheries also cause problems as do pet shops and aquaria. They are destroying whole reefs to catch one expensive fish. The whole outlook is not good.”

Dubinsky, who founded the lab at Bar Ilan University, plans to study the effects of climate change on coral over the next five years, using state-of-the-art tools.

With the help of former student, Dr. Oren Levy, Dubinsky and his team will employ a special lab fitted with marine aquaria, built with part of the grant. There they will expose the non reef producing corals from the Mediterranean and the reef-producing species from the Red Sea to changes that coral reefs are expected to experience over the next 90 years, given various global warming scenarios.

After investigating metabolism rates, reproductive patterns, and growth—all monitors for animals fecundity, the coral skeletons will be brought to the University of Bologna in Italy where the mechanical and structural properties of coral will be studied.



Study: Climate changes will produce stronger hurricanes.

RESEARCH warns that climate change will create stronger hurricanes worldwide in the future, but that's just part of the story.

In 2005, Katrina became the most destructive hurricane ever to strike the US.

Some scientists pointed to the storm s an example of how climate change would continue to create stronger tropical systems worldwide in the future, but other experts weren't convinced and blamed seasonal fluctuations on Katrina and the record number of storms that year.

Those duelling theories led the World Meteorological Organization to form a panel of ten experts from both sides of the argument.

According to a study in the journal Nature Geoscience, the panel used complex computer modelling and concluded that climate change would cause fewer, but stronger hurricanes to form by the end of the century.

The findings are a good news, bad news situation.

Hurricane winds are expected to increase as much as 11 percent with rainfall rate increasing by up to 20 percent.

On the flip side, the number of storms are expected to drop by as much as a third. During a typical season, around 90 tropical cyclones form worldwide.

A 33 percent drop would take that number down to under 60 a year, but financial losses due to hurricanes are still expected to skyrocket in the coming decades as more people live near coastal water. A consensus on how severely climate change will affect other weather phenomenon, such as tornadoes or drought, continues to be debated. The Tri-State is not immune to the effects of hurricanes.

Many of us remember the damage we had in September 2008 after Hurricane Ike made landfall and blew through the area with nearly 80 mile-per-hour winds.



Some issues in Trinidad and Tobago

Promotion of Bio-diversity and eco-tourism

We are blessed in T&T with rich biological diversity but we must do more to conserve it. The UN has declared 2010 as the international year of biodiversity.

During 2010 the EMA in T&T will organize a number of activities and programs to “enhance public education and awareness and to promote the protection of biodiversity.” the EMS states in its 2010 Calendar:

“biodiversity is the foundation upon which all human life is maintained. Yet, biodiversity loss is accruing at a rapid rate. Over the pass 50 years, humans have changed ecosystems faster and more extensively than in any comparable period of time in human history. Species are going extinct at 1000 times the rates typical of Earths past.”

As part of Trinidad and Tobago plan to develop tourism T&T is promoting eco-tourism. Yet some areas in our environment are under threat.

Threats to Trinidad and Tobago's Environment

Each year we see the ways in which ecological destruction impacts on us and on our lives. We must play our part to address environmental issues in T&T also, for example—oil pollution of beaches; water pollution effluents such as agricultural chemicals, industrial waste and raw sewage; deforestation; soil erosion; flooding caused in part by the littering of our water ways; destruction of our mangroves, wet lands and coral reefs; illegal forestry and quarrying; unsustainable hunting; and unplanned construction.

“An increase in the unmanaged development of hillsides is causing environmental, social and economic problems in Trinidad and Tobago. Improved environmental awareness and deepening environmental concerns in recent years have focused attention on the need to move toward a more sustainable pattern of development.” (Baban, SMJ, Thomas, D, Canisius, F&Sant, KJ 2007, “managing development in the hillsides of Trinidad and Tobago geoinformatics”, *Sustainable Development*).

“Slash and burn” (cutting down and burning trees in order to clear land for temporary agriculture) which is practiced in T&T as a method of farming can harm biodiversity, pollute the air and make the ground infertile.

“Forest Fires have taken their toll on Trinidad's forest, esp. on the slopes and ridges of the Northern Range. Most are the products of “Slash and burn”, which have consequently led to large areas of secondary growth forest... Mining which results in a loss of top soil, vegetation and fauna is of particular environmental concern.” (See *The Encyclopaedia of Earth*).

While T&T is blessed with a wide range of flora fauna and wild life, there are a number of endangered species in T&T, e.g., the gentle manatee. *The Encyclopaedia of the Nations* states: “endangered species in Trinidad include the Trinidad piping guan (Pawi), tundra peregrine falcon, loggerhead turtle and red siskin.”



Catholic News Supplement
(*Reconciliation with Creation*)
Sunday March 14th 2010

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5 Key concepts

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1. Biodiversity refers to the variety of all living things on our planet and the patterns they form. It includes the difference between species, the difference within species, and the range of habitats in which they live. Many human activities have a negative effect upon biodiversity. Plants and animals live in certain climatic conditions, preferring certain temperatures and a certain amount of rain. If these amounts change the species may not survive in that area.
2. Fisheries support around 200 million people world wide. Fish is a good source of protein, minerals and essential fatty acid and is an important part of the diet. Fisheries are extremely vulnerable to pollution, habitat destruction and other forms of environmental loss. Temperature changes in the ocean could affect the fish stocks on which many communities depend for their survival.
3. Millions of people are affected by natural disasters: e.g. droughts, floods, earth quakes, hurricanes, fires and pests. Every year, there are 30—40 countries in crisis situations needing outside assistance to cope with critical problems with food insecurity. Climate change phenomena such as sea level rise, increase in temperature, reduce water availability and extreme events such as heat waves, floods and cyclones have dramatic effects on the land and local environments.
4. Seven out of ten of the world's hungry are women and girls. Women are particularly affected by the risk of environmental danger. Poor women tend to rely more than men on natural resources, so when these are directly hit by climate change, women's livelihoods will also be affected. Depletion of natural resources could put additional burden on women, who would be force to go longer distances in search of firewood and water. With women's key roles and responsibilities in feeding, providing care and producing food for the family, their rights are essential to ensuring food security.
5. Every person has the right to food. It means that all people have the right to feed themselves and their families with dignity. People must be able to grow or hunt or catch the food they need or earn enough money to buy it. Fulfilling the right to food means ensuring that people have the knowledge, skills, resources and opportunities to get food for themselves.



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What You Can Do



AT HOME

Reduce, Refuse, and Recycle

If there is a recycling program in your community, recycle your newspapers, beverage containers, paper and other goods. Use products in containers that can be recycled and items that can be repaired or reused. In addition, support recycling markets by buying products made from recycled materials.

IN THE OFFICE

Use less energy for your commute

Switch to public transportation, carpooling, biking, telecommuting and other innovative ways to save energy on your way to work. Encourage your employer to offer commuter benefits that address limited or expensive parking, reduce traffic congestion, improve employee recruiting and retention and minimize the environmental impacts associated with drive-alone commuting

ON THE ROAD

Drive Smart

Many factors affect the fuel economy of your car. To improve fuel economy and reduce greenhouse gas emission, go easy on the breaks and the gas pedal, avoid hard accelerations, reduce time spent idling and unload unnecessary items in your trunk to reduce weight. If you have a removable roof rack and you are not using it, take it off to improve your fuel economy by as much as 5%. Use overdrive and cruise control on your car if you have those features.

AT SCHOOL

Reduce, Reuse, Recycle

Reduce school or classroom paper, newspapers, beverage containers, electronic equipment and batteries. Reducing, reusing and recycling at school and in the classroom helps conserve energy, reduce pollution and greenhouse gases from resource extraction, manufacturing and disposal. You can reduce, reuse, and recycle at school or in the classroom by using two-sided printing and copying; buying supplies made with recycling content; and recycling used printer cartridges. For your old electronics, investigate leasing programs to insure reuse and recycling or donate used equipment to schools or other organizations.

From "Climate Change and the Environment 2010"
produced by the Network of NON-Governmental Organisations of
Trinidad & Tobago for the Advancement of Women.