



UNEP

CARIBBEAN CURRENTS

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Welcome...

...to **CARIBBEAN CURRENTS**, Volume Six, Number Four. This newsletter is edited by INFOTERRA/USA in its capacity as the Regional Service Centre (RSC) for INFOTERRA National Focal Points (NFPs) in the English and French-speaking Caribbean. Although the *CURRENTS* is assembled at INFOTERRA/USA, the content belongs to you, the readers. You are encouraged to send in any questions, comments, problems, or interesting issues relevant to the Region for inclusion in the *CURRENTS*. Please see the Guidelines for Contributions on page 7 for more information.

Each issue will feature a Directory of NFPs in the Region so that anyone with international environmental questions can contact their nearest resource. Please feel free to contact one another as well as your RSC for assistance or materials.

Please don't hesitate to share *CARIBBEAN CURRENTS* with your friends and colleagues, and to make copies as needed. The Currents should serve as an informational forum for anyone who lives, works, or is involved in environmental issues in the English and French-speaking Caribbean Region.

Water Quality

This issue's topic is water quality. Good water quality is an essential element to promoting good health in a community. Without access to water suitable for consumption, the spread of water-borne diseases is inevitable. Two resources essential to consistently providing clean water to a community include funding and organizational support. This issue presents the challenges faced by Antigua and Barbuda and Haiti.

The next issue of **CARIBBEAN CURRENTS** will focus on coastal zone management.

If you have any comments on this topic, or would like to contribute a short article or have a resources guide to share, please submit your contribution following the guidelines on page 6, as we would like to include it in the next or a future issue of *CURRENTS*. Please feel free to fax, write to, or call the RSC with any questions or comments you have. Thank you for your assistance.

Water and Tourism: The Antigua- Barbudan Context

**by
Caril T. Sebastian,
Environment Officer
Ministry of Tourism, Culture and Environment
Antigua, West Indies**

As the main industry of Antigua and Barbuda, tourism has provided the financial resources for infrastructure development and the enhancement of social services. Despite these positive aspects of tourism, however, there are a few negative impacts which have prompted development of a strategic plan for tourism in Antigua and Barbuda. Under this plan, administration of tourism would involve participation of all public sector agencies: essentially, an holistic approach. The success of this methodology depends on the association of tourism with the "core" disciplines of health, education, infrastructure, and finance. Plans for the sustainable use of natural resources would require special focus, with the issue of water management being a major component. In order to successfully embark upon water management for a sustainable tourism industry in Antigua and Barbuda, stringent guidelines for administration of the resource are important. At present, a cross-sectoral approach to management of resources is common. For example, the Ministry of Agriculture has authority to construct water catchments, while the Antigua Public Utilities Authority (APUA) is responsible for water supply, and therefore has some jurisdiction over the said catchments. APUA also tests microbial content of potable water at strategic points, although testing of bodies of freshwater is not carried out (APUA Engineering Unit, personal comment).

Water management in Antigua and Barbuda already involves some collaboration between ministries, but in order to make execution of projects even more effective in future it is necessary to refine guidelines for communication between agencies and to establish work plans for respective projects. These plans would incorporate all relevant ministries, providing each with explicit instructions, and thus guaranteeing a most efficient execution of projects. These activities are applicable to the management of nearshore bathing waters, and potable water. A successful tourism industry demands that each of these resources be given keen attention.

NEARSHORE WATERS

Visitors to Antigua and Barbuda participate in activities which impact on nearshore waters: watersports, sailing, recreational diving, swimming, and snorkeling. As a result, shoreline systems are placed under a considerable amount of stress, and natural processes of rehabilitation are impeded. The nearshore waters of Antigua and Barbuda are subjected to pollution from hotel activities: flow of wastewater into the sea, as well as that of the pesticides and fertilizers applied to hotel lawns and gardens.

The difficulty arises from three factors: **IGNORANCE** of alternatives, **NO APPARENT**

INCENTIVE for responsible practice in the tourism industry, and INEFFECTIVE penalties for punishing polluters. Adequate legislative support is imperative. The laws of Antigua and Barbuda do make allowance for preservation of coastal areas (*Antigua and Barbuda Consolidated Index of Statutes and Subsidiary Legislation to 1 January 1997*), but the laws need to be updated to include more modern contexts.

Truly sustainable use of coastal resources must involve consultation with all stakeholders, establishment of guidelines for resource use, and harsh penalties for abuse of resources. In order to establish appropriate penalties, various factors would have to be considered:

- “ The types of pollution common to Antigua and Barbuda, and the resulting extent of damage to the environment
- “ the sources of pollution;
- “ whether alternative technologies are available to the culprits; and
- “ how best to adapt the polluter pays principle to the Antigua-Barbuda situation

“WATER, WATER EVERYWHERE.” ONE NEEDS A DROP TO DRINK!

Potable water is another important consideration in the issue of “water management for sustainable tourism.” The following are noteworthy points:

- “ tourism is a service industry;
- “ this service should include consistent supplies of potable water;
- “ the average visitor uses as much as ten (10) times the amount of water as a resident uses
- “ Antigua and Barbuda experiences low levels of rainfall

In order to maintain a viable tourism industry, Antigua and Barbuda must ensure that the QUALITY, and QUANTITY of potable water are both satisfactory. Maintaining water supply is quite expensive, as groundwater supplies are limited. At certain times, in fact, up to eighty (80) percent of the demand for potable water is satisfied by the process of desalination, a very expensive undertaking. Immediate plans for water management in Antigua and Barbuda must explore activities which reduce water use. Also, reuse and recycling options must be considered. The initial expense of a recycling project, for example, would definitely be compensated for by gains in the longer term.

The advantages of the actions stated above would be far reaching, accumulating environmental, and financial benefits, and satisfying the demands of more aware, demanding visitors. Further, because of the competitive nature of the tourism industry, and the importance of natural resources to the industry, immediate action is necessary. Antigua and Barbuda would do well to explore the dual process of direct policy and decisive action for a newer, better approach to water management for sustainable tourism.

Water Quality in Haiti: Opportunities & Barriers

by
**Mike Turvey, US EPA Region VII and
April Wright, INFOTERRA/USA**

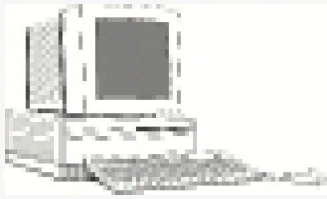
With a population of nearly 7 million, limited economic growth and resources, and severe infrastructure problems, Haiti remains vulnerable to environmental degradation and critical health problems. Along with overpopulation of fertile lands, soil erosion, and deforestation, unsanitary water supplies prevail.

The absence of sufficient wastewater treatment systems encourages the perpetuation of the transmission of water-borne diseases such as malaria, diarrhea and typhoid fever. In one agricultural area of Haiti, water delivered from canals to the rice fields is also used for bathing, washing clothes, watering animals and for drinking and cooking.

Drilling for ground water supplies and building water piping systems are viable solutions to the problem of clean sources of water. For example, in an area of southern Haiti, where a private organization has drilled and maintained wells, there have been noticeable improvements in the general health of the area's residents.

Although the market for water projects in Haiti is not restrained by strict environmental regulations, maintaining water quality projects in Haiti is difficult because of limited financial resources. Projects implemented by private organizations are not sustainable. There may, therefore, be several small projects occurring for specific amounts of time which cannot be continued once an organization fulfills its commitment. For example, one private nongovernment organization conducted water testing in a few communities and provided training for the operation of a water drilling rig. With the shortage of funding, the project was suspended. In another instance, the successful construction of a water piping system suffered setbacks because of depleted funds.

Nongovernment organizations (NGOs), nonprofit organizations, foreign governments and private entities continue their efforts to improve the water quality in Haiti. While viable technologies make this possible, sustaining these projects is difficult due to economic limitations.



INTERNET SITES ON WATER QUALITY

A few of many sources of electronic information on water quality

US EPA OFFICE OF WATER

<http://www.epa.gov/ow>

This site provides links to US water legislation, policies and programs as well as conferences and publications on water quality issues.

US EPA ENVIRONMENTAL TEST METHODS AND GUIDELINES

<http://www.epa.gov/epahome/Standards.html>

These sites provide links to water quality test methods.

NATIONAL AGRICULTURAL LIBRARY WATER QUALITY INFORMATION CENTER

<http://www.nal.usda.gov/wqic>

This site provides links to water quality information resources.

WATER ENVIRONMENT FEDERATION

<http://www.wef.org/>

This site provides news and legislative information on water-related issues along with links to federal, state, and provincial government sites and state and regional water quality organizations.

WATER ONLINE NEWSLETTER

<http://www.wateronline.com>

This site, updated daily, is a source for news and analysis on water-related issues, information on products and industry resources.

INTERAMERICAN WATER RESOURCES NETWORK

<http://www.iwrn.ces.fau.edu>

This organization, affiliated with the Organization of American States promotes the exchange of water resources management information throughout Latin America and the Caribbean.

WATER INFORMATION PROGRAM

<http://www.waterinfo.org/lstsrv.html>

This site provides a list of water-related listserves and newsgroups as well as links to water-related organizations and websites.

NATIONAL GROUND WATER ASSOCIATION

<http://www.h2o-ngwa.org>

This site provides information on Association publications and events.

FREE US EPA PUBLICATIONS ON WATER QUALITY

Office of Ground Water & Drinking Water Publications **EPA 810B96001**

Office of Wastewater Management Catalog of Publications. **EPA 832B97005**

Catalog of Publications: Office of Science & Technology (water quality documents) **EPA 820B97001**

Office of Wetlands, Oceans & Watersheds 1998 Publications List **EPA 840B98001**

Guide for Conducting Contaminant Source Inventories for Public Drinking Water Supplies. **EPA 570991033**

Manual of Small Public Water Supply Systems **EPA 570991003**

Drinking Water Standard Setting: Question & Answer Primer. **EPA 811K94001**

Safe Drinking Water Act: Pocket Guide to the Requirements for the Operators of Small Water Systems **EPA 810K93001**

Introduction to Water Quality Standards **EPA 823B95004**

Ambient Groundwater Quality Monitoring Cost Analysis **EPA 816R97013**

What Progress in Improving Water Quality? **EPA 840A93001**

Consumer Education Guide: The Regulation of Drinking Water under the Safe Drinking Water Act **EPA 570K90024**

Guide to Federal Water Quality Programs & Information **EPA 230B93001.**

These publications are available from the National Center for Environmental Publications and Information (NCEPI):

NCEPI
US Environmental Protection Agency
P.O. Box 42419
Cincinnati, Ohio 45242-2419
USA
Telephone: (513) 489-8190
Fax: (513) 489-8695
Orders take 2-3 weeks to process.

HOTLINES

The following EPA hotline provides information about water quality issues.

Safe Drinking Water Hotline
US EPA
401 M Street, SW
Washington, DC 20460
Fax: (202) 260-8072
E-mail: hotline-sdwa@epamail.epa.gov
Hours: 9:00am-5:30pm (EST)

Current Conferences Water Quality



October 28, 1998 -- *Water Supply Issues for a Sustainable 21st Century*, Seattle, Washington. Contact: Interstate Council on Water Policy, 1299 Pennsylvania Avenue, NW, 3rd Floor, Washington, DC 20004; telephone: (202) 842-0621; fax: (202) 785-5277.

November 4-5, 1998 -- *NGWA Animal Feeding Operations and Ground Water: Issues & Impacts*, St. Louis, Missouri. Contact the National Ground Water Association, Dr. Dennis Goldman, Science Education Council, 601 Dempsey Rd., Westerville, Ohio 43081; E-mail: dgoldm@ngwa.org.

November 12-15, 1998 -- *Bringing Ground Water to Life*. Anaheim, California. Contact the Groundwater Foundation P.O. Box 22558 Lincoln, Nebraska 68542-2258; telephone: (402) 434-2740; E-mail: info@groundwater.org.

INDUSTRY JOURNALS

Water & Environment International (ISSN 0969-9775) - covers water pollution & treatment from an environment perspective.

Water Newsletter (ISSN 0043-1273) - Covers water supply, waste disposal, conservation & pollution.

Water Research (ISSN 0043-1354) - Covers ground, marine, & fresh water pollution & water resources management.

Water Supply (ISSN 0735-1917) - Trade publication of the International Water Supply Association.

Water Week (No ISSN) - Covers news & analysis of drinking water issues.

Water International (ISSN 0250-8060) - News about InterAmerican Water Resources Network and reports on water-related issues.

Guidelines for Contributions to *CARIBBEAN CURRENTS*

Any organization or individual operating or involved in the English and French-speaking Caribbean Region is welcome to contribute to the newsletter. Contributions should be addressed to:

Caribbean Currents Coordinator
INFOTERRA/USA
U.S. Environmental Protection Agency
Headquarters Library, 3404
401 M Street, S.W.
Washington, D.C. 20460
UNITED STATES

Telephone: (202) 260-5917; Fax: (202) 260-3923; E-mail: library-infoterra@epamail.epa.gov

Please note that submissions should meet the following criteria:

- They should be relevant to environmental issues
- They must be of interest to or directly involve the Region
- They must not endorse or recommend any product or commercial service, explicitly or implicitly
- They must be brief--under 250 words; Bulletin Board requests should be under 100 words
- They must be received by the posted deadline (see below)

Please feel free to contact the *CARIBBEAN CURRENTS* coordinator if you are interested in submitting a longer article. You should contact the coordinator to discuss your topic and any size or content restrictions beforehand. Be aware that once your article is submitted, it is subject to editing as needed. Final decisions on editing and inclusion of any contributions are left to the INFOTERRA/USA Manager. Please contact INFOTERRA/USA using the address above to contribute any comments, questions, problems, or ideas.

DEADLINE FOR CONTRIBUTIONS TO Vol. 6, No. 5: December 8, 1998

Welcome to The **CARIBBEAN CURRENTS** Bulletin Board

Each issue, we will publish questions or concerns of interest to CURRENTS readers. Anyone who has materials or information that they are seeking or that they feel will be helpful should feel free to contribute. We will post queries and offerings of general interest on the Bulletin Board. You may respond by contacting the reader who has placed the item, or the RSC.

Bulletin Board



Water Quality Organizations

International Association on Water Quality

1 Queen Anne's Gate
London SW1H 9BT England
Telephone: 71 222 3848
Fax: 71 233 1197

Water Environment Federation

601 Wythe Street
Alexandria, Virginia 22314-1994
Telephone: (703) 684-2452
Fax: (703) 684-2492
E-mail: techinq@wef.org (technical research questions)

National Groundwater Association

601 Dempsey Road
Westerville, Ohio 43081
Telephone: (614) 898-7791
Fax: (614) 898-7786
Internet: <http://www.h2o-ngwa.org/>



SPECIAL ANNOUNCEMENTS

8th Annual International Children's Environmental Painting Contest

UNEP and the Foundation for Global Peace and Environment (FGPE) in Japan are accepting paintings from children ages 6-15 worldwide between September and December 1998. The theme is "Preserve the Beautiful Oceans, Skies and Forests for the 21st Century."

For further contest information contact:
Mr. Theodore Oben, UNEP Children & Youth Focal Point, UNEP Headquarters
P.O. Box 30552
Nairobi, Kenya
Telephone: (254-2) 623262
Fax: (254-2) 623692
E-mail: theodore.oben@unep.org

Caribbean Currents is available on the Internet at <http://www.epa.gov/earlink1/currents/>

About the NFP Directory

This directory reflects changes and additions to the INFOTERRA Directory of National Focal Points distributed by INFOTERRA/PAC, dated January 1997. Please check this information to verify that it is correct and up-to-date. If you have any changes or corrections, please notify the RSC as soon as possible. We will be happy to relay the information to the PAC.

NFP DIRECTORY

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Mrs. Vanesta Moses-Felix
Government Documentalist
Ministry of Planning, Development and Environment
National Documentation Center
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