

Global Environment Monitoring System • Water Programme

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Good News

- Invitation to participate at upcoming Pan-African Implementation and Partnership Conference on Water, in Addis Ababa
- Ongoing collaboration with UNESCO-IHP pays dividends for building water monitoring capacity for SIDS and for Africa
- Invitation to contribute to development of water quality indicators with UN-Water and the World Water Assessment Programme.

Focus on Africa

How vulnerable are Africa's water resources to environmental change?

Last March, GEMS/Water announced that it was spearheading a new international study on "Vulnerability of Water Resources to Environmental Change in Africa."

Freshwater water quality, quantity and security have become major international issues on the agenda of the African Ministerial Conference on Water (AMCOW) and related events. Fifty years ago, there were four times more water for each African than there are today. Now there are acute water shortages for crops and for livestock, for industry and sanitation in the cities. Safe, clean water is the key to human health across Africa. But, almost everywhere, drinking water is increasingly scarce.

Changes in the quantity and quality of water resources are arguably the most important environmental change issue of concern to Africa, particularly to the arid and semi-arid regions of the continent. There is increasing frequency of droughts, changes in land-use, and urbanization.

These factors affect water resources and subsequently threaten human well-being, livelihoods and ecosystems. It is becoming increasingly difficult to meet water demand for agriculture, industry and domestic consumption in many parts of Africa.

Vulnerability is a set of conditions and processes resulting from physical and other factors that increase the susceptibility of a community to the effects of hazards. The new vulnerability assessment will help to understand the combined effects of

different stresses acting on regional water resources. Results
(Continued on page 2)



Inside This Issue:

Cover Story: Focus on Africa	1
Lead Article: New AMD	1
First Technical Advisory Meeting	2
Mekong River Initiative	2
Spotlight on Hong Kong	3
Inside Story: PE Study Launch	3
Country Participation Update	3
Data Storage & Archives	4
Upcoming...	4

New Analytical Methods Dictionary

A new *Analytical Methods Dictionary* (AMD) will be launched in December 2003.

This is a "must have" reference resource for any water quality specialist. It aims to document environmental analytical methodology used for water quality testing. The main advantage of the book is that it can be used to check validity and comparability of water quality data, thereby improving reliability of assessments using those data.

Complete in one volume, the AMD includes input over 50 national governments, and includes radioisotope methodologies from the International Atomic Energy Agency (IAEA).

Criteria for methods cover:

- Title of analytical method,
- Instrumentation used,
- Principle of the method,
- Method detection limit,
- Agency requesting the method, and
- Literature references.

With this information, difficulties can be uncovered and the precision, accuracy, efficiency and costs of methods used in different laboratories can be compared. In this way, the AMD addresses the need to identify and standardize laboratory methodologies.

The project was realized through a collaborative process between GEMS/Water and IAEA. For information or a copy of the AMD, contact Yvonne Stokker. ♦

First Technical Advisory Meeting

UNEP convened the inaugural Technical Advisory Group (TAG) meeting between September 29 and October 1, 2003 at GEMS/Water headquarters in Burlington, Canada.

The event brought together technical and scientific experts from 11 UN counterparts and other partner agencies.

Discussions led to the accomplishment of 3 main objectives:

1. Agreement and support for the direction and core activities articulated in the new strategic business plan; and for the

soundness of the scientific and technical underpinnings;

2. Ideas and new projects to develop alone or in partnership with other organizations – especially new technologies and database sources; and

3. Commitment from members to promote GEMS/Water through their respective networks and partners.

Details and plans for meeting these objectives are being compiled in *Technical Advisory Paper No. 1: Improving Global Water Quality Monitoring*, as the

main product of the meeting. The paper highlights a series of recommended actions and priorities, and their implementation is designed to help GEMS/Water successfully fulfill its mandate.

Feedback from members indicate that all were pleased with the meeting as well as with the opportunity to tour the NWRI facilities and meet NWRI officials. The next TAG meeting is scheduled for spring 2005.

For information, or a copy of the TAG paper, contact Sabrina Barker. ♦



Technical Advisory Group with GEMS/Water staff at Burlington offices

*Safe, clean water is
the key to human
health across
Africa...*

Focus on Africa

(Continued from page 1)

of the study will provide a basis for identifying paths towards integrated water resources management and thus, sustainable use and equitable allocation of water resources in Africa.

UNEP, through GEMS/Water, responded to the call made at the Johannesburg World Summit, for "an integrated, multi-hazard, inclusive approach to address vulnerability, risk as-

essment and disaster management, as an essential element of a safer world in the 21st century."

The new study will produce a comprehensive statistical analysis of the state of water resources, the impact of extreme events; and identify hotspots and emerging issues across the African continent.

With the GEMS/Water Programme coordinating, partners include the Pan-African START

Secretariat, the International Geosphere-Biosphere Programme, UNEP and UNESCO. All African Governments were invited to participate.

The final report will be presented at the Pan African Implementation and Partnership Conference on Water to be held in Addis Ababa, Ethiopia, in December 2003.

For information, or a copy of the report, contact Richard Roberts. ♦

Mekong River Initiative

Workshop to kick-off regional presence for GEMS/Water in Mekong shared waters.

GEMS/Water-Japan is leading a new regional capacity building initiative focused on the Mekong River.

Participants in the project include governments of countries which share the Mekong (China, Myanmar (Burma), Thailand,

Laos, Cambodia and Vietnam, and other local authorities such as the Mekong River Commission. Links with private sector partners, in particular Horiba, will contribute to the technical strength of the initiative.

The project aims to provide a new water quality training programme at the regional riparian level. The first step will be a workshop in Bangkok, Thailand

in December 2003. An opening ceremony will precede the workshop to mark the events.

GEMS/Water-Japan should be congratulated for their regional approach, which could be adopted in every region around the world, to help promote water quality monitoring.

For more information, contact Andy Fraser. ♦



Life along the Mekong

Spotlight on Hong Kong

Data quality verification for governmental participants is one benefit that GEMS/Water offers.

In Hong Kong, there are hundreds of rivers, streams and open nullahs. They are finite resources with various benefits and uses: supply to reservoirs, irrigation, preservation of aquatic life, recreation and passage of storm water to the sea. Monitoring the water quality of Hong Kong's rivers is a role for the Environmental Protection Department (EPD).

The EPD monitors water quality

at 80 stations in 30 rivers and streams in the territory. *In situ* field measurements are performed and water samples are collected for laboratory analyses on a monthly basis. Monitoring covers over 40 parameters including physico-chemical characteristics, organics, nutrients, toxic metals and coliform bacteria.

Submitting water quality data on a regular basis from 1979 to present, Hong Kong has built a dataset at GEMS/Water consisting of 290 records for 18 parameters from Plover Cove Sta-

tion 19. GEMS/Water has provided an important QA/QC service to Hong Kong in support of these monitoring activities. Data verification and reliability checks were conducted at the request of Hong Kong authorities. The process covered all data submitted, and took one month to implement. A full report was sent to Hong Kong, after the review was complete.

GEMS/Water performs complete data verification checks as part of regular activities.

For more information, contact Kelly Hodgson. ♦



Monitoring Hong Kong's rivers

Launching A New Performance Evaluation Programme

More than 100 laboratories worldwide have been invited to participate in a new 5-year PE study programme.

The main purpose of the exercise is to ensure validity of, and comparability between, water quality datasets, which are required for global assessments.

GEMS/Water is working with Analytical Products Group, Inc., an American firm, to prepare and deliver test samples. The samples, containing one QC

and one PE sample, were shipped in mid- November.

The new study has improved over previous ones by being more comprehensive, with more parameters and participants. Plans for subsequent studies include progressive increases in scope and participation each year up to 2008.

Target analytes for PE No. 5 cover minerals, nutrients, pH and demand analyses. Additional test samples for solids,

metals, and pesticides will be available in future studies.

The results of the 5th study will be published in mid-2004, and will include individual performance reports to help laboratories improve their own analytical capabilities.

The PE studies, along with the AMD, are integral components of the QA/QC programme.

For more information, contact Yvonne Stokker. ♦

*More about
QA/QC at
www.gemswater.org*

Country Participation Update

Governments contribute to improve global data coverage.

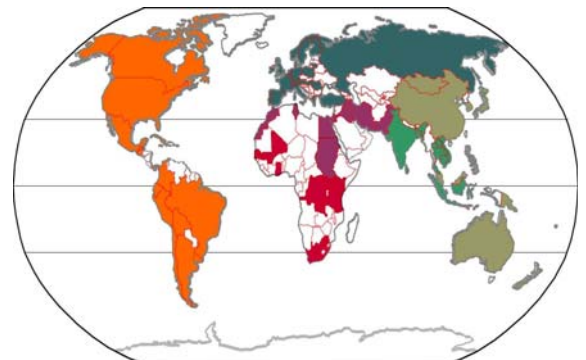
GEMS/Water relies on voluntary information exchanges with universities, governments and other data sources. A wide range of water quality data are submitted on an ongoing basis.

Over the past few months, several countries have been working to increase their submissions to the global database.

These include: Belgium, Cambodia, India, Pakistan, Sri Lanka, Switzerland, Thailand and Turkey. Several additional leads for country participation are currently being explored.

Links between national water quality data sources and the GEMS/Water global database will ensure that knowledge about clean water improves for both humans and ecosystems.

To promote your country's participation in GEMS/Water activities, contact Richard Roberts. ♦



Regional distribution of participating countries (colours), data gaps to be filled (white) include Antarctica.

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GEMS · Water Quality News welcomes articles and photos for possible publication. Readers' views and comments are also invited. For subscriptions or change of address, contact Clara Fabbro.

RIGHT: Staff celebrating Hallowe'en:

Brianvelope, Andy Crocodile Dundee, Kelly Rabbit, Yvonne-in-a-Hat, and Lesley An Elephant with their worldly carved pumpkin. Ghosts of Sabrina Nose and Clara the Grave in foreground. Richard the Panelist at top right.



Founded in 1977, the GEMS/Water Programme is the primary source for global water quality data. It is a multi-faceted water science centre oriented towards building knowledge on inland quality issues worldwide. Key activities include monitoring, assessment and capacity building. The twin goals of the programme are to improve water quality monitoring and assessment capacity in participating countries, and to determine the state and trends of regional and global water quality.

These goals are implemented through the GEMS/Water data bank, with water quality data from more than 100 countries, and over two million entries for lakes, reservoirs, rivers and groundwater systems. GEMS/Water activities add value to country-level data by creating global and regional water quality assessments. The programme also carries out assessments on a range of water quality issues and methodologies. GEMS/Water data have been used by many organizations, including the UN system and universities around the world.

GEMS/Water is part of the Division of Early Warning and Assessment (DEWA), UNEP.



Data Storage & Archives

Global water quality database has retrospective value.

Recently, a federal government agency (which wishes to remain anonymous) experienced a major computer problem, that destroyed their data storage system.

The loss of years of information can devastate a government's ability to operate. Luckily, in this case, there was a copy of all data kept permanently with GEMS/Water's database. The agency was able to get all its data back!

Archival services and data storage are one benefit of creating and maintaining a database with global coverage.

Another historical benefit comes with time. GEMS/Water first started collecting monitoring data in 1978. Today, there are over two million data entries, and 25 years of coverage — enough for trend, time-series analyses.

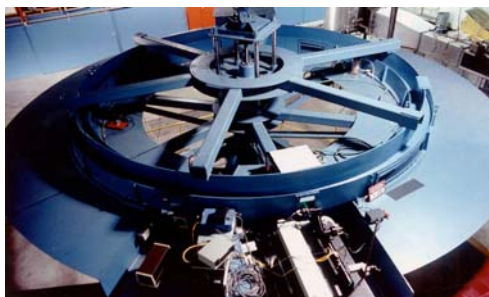
Water quality data are a national, and in many cases, an international resource. These data, properly documented and archived, can help future generations understand the global water system.

GEMS/Water has a role to play in encouraging data sharing and use.

A more visible and user-

friendly means to access and disseminate global data should become universal. Accessibility also needs to be balanced with the wishes of data providers regarding use of their data.

For more information, contact Andy Fraser. ♣



The world's only rotating flume next to GEMS/Water headquarters at the National Water Research Institute — Burlington, Canada

Upcoming...

- Report on Vulnerability of Water Resources to Environmental Change in Africa
- Electronic Atlas of Water Quality, 2nd edition
- Third meeting of the Steering Committee, December 2003
- Annual Report 2003-2004: 25 years of GEMS/Water.