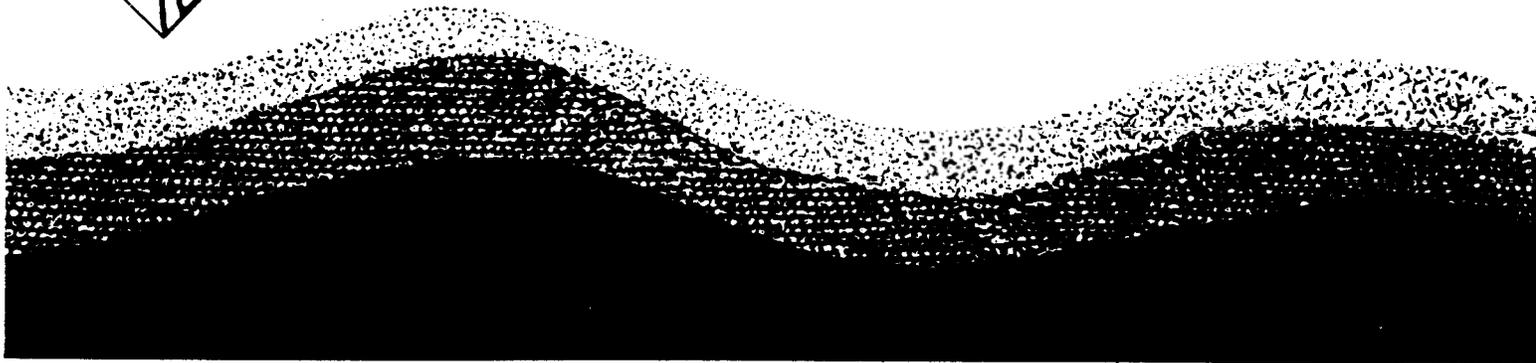




WATER HIGHLIGHTS

D.C. WATER RESOURCES RESEARCH CENTER,
WASHINGTON, D.C. COLLEGE OF LIFE SCIENCES
UNIVERSITY OF THE DISTRICT OF COLUMBIA



SPRING 1993

VOLUME XV NUMBER 2

D. C. WRRC REPRESENTS UDC IN 18TH NAFEO CONFERENCE

The 18th National Conference on Blacks in Higher Education took place from March 31 to April 4, 1993, in Washington, DC. The conference, which was under the motto of "Pathways to Success", was organized by the National Association for Equal Opportunity in Higher Education (NAFEO).

In a session moderated by University of the District of Columbia president Dr. Tilden LeMelle, the presenters discussed the issue of "Forging Coalitions to Broaden and Strengthen Water Research and Education at HBCUs." Dr. Hame M. Watt, Director of the DC WRRC presented a paper on "Urban Water Resources Management Issues."

Inside this issue of the DC WRRCN newsletter is a reprint of his talk. Other speakers at the session included Dr. James S. Burton and Dr. Jerry Stephens, both of USGS; Dr. Victor Okereke, director of the International Water Resources Institute, Ohio Central University; and Ms. Nancy Lopez, of the American Water Resources Association.

CONTENTS

NAFO Conference.....	1
Mid-Atlantic Water Institutes Conference.....	2
National Water Institutes Conference.....	2
Urban Water Resources Management Issues.....	3
UDC Hosts City-Wide Earth Day fair.....	8
47th D.C. science Fair.....	9
Announcements.....	9

NEWS FROM THE MID-ATLANTIC DIRECTORS' MEETING

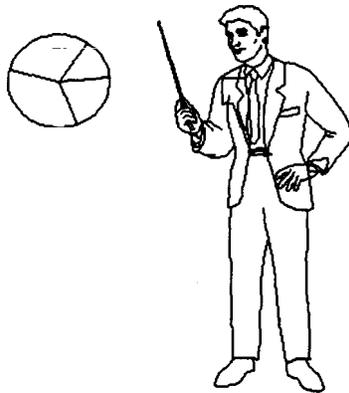
On March 3/4, 1993, the directors of the MidAtlantic Water Resources Research Institutes met in University Park, Pennsylvania, to discuss regional water and institute issues. One topic of great importance was the exploration of regional research issues to be submitted for funding under the Department of the Interior's Section 104g program. The program is intended for the development of research projects that will contribute to the solution of significant regional or interstate problems.

Among the many possible projects that were

discussed at the meeting, three main research areas crystallized: 1) PUBLIC EDUCATION, for example high school student training; 2) URBAN WATER ISSUES, for example lead in drinking water; and 3) WATERSHED MANAGEMENT projects, for example non-point source pollution abatement and application of Geographic Information Systems in regional studies. Draft proposals for each of these issues will be reviewed at the 1993 Annual Meeting of the National Institutes for Water Resources, April 21-23, 1993 (see **below**).

NIWR CONFERENCE ADDRESSES "Focus ON OPPORTUNITY"

In the 1993 Annual Meeting of the National Institutes for Water Resources, April 21-23 in San Diego, CA, one section was devoted to "Focus on Opportunity" in the water resources field. As chairman of the session, Dr. Ham6 M.Watt will preside over a discussion of programs of various agencies that offer opportunities for water resources research. Among the speakers were Joyce Payne of the Office for the Advancement of Public Black Colleges, David Rakes of the USAID University Linkage Program; and Douglas James of the National Science Foundation. Also presenting their organizations' viewpoint on water resources research opportunities were William Easter of the World Bank, John Hartig of the International Joint Commission for USA and Canada, as well as Narendra Cunaji of the International Boundary Water Commission for USA and Mexico.



URBAN WATER RESOURCES MANAGEMENT ISSUES AND PROBLEMS

Presented by Dr. Hame M. Watt, Director DC WRRC

at the 18th Annual NAFEO conference (April 1993)

Introduction:

In the past, people really didn't think that cities had major water problems as long as there was always water to drink, to wash clothes or to wash cars just by turning on the faucet. There wasn't a problem as long as there were fish to catch. There wasn't a concern about industries using great quantities of water and discharging them in the streams as long as there was clean drinking water coming out of our tap. Whenever we wanted water we got it. And so we seldom took the time to think where our water was coming from, how it was used, and where it was going. But attitudes like that are changing.

Looking at the newspaper headlines of the last three months illustrates some of the water problems that cities in general and the District of Columbia in particular are facing.

1) In January 15, 1992 an underground water supply pipeline burst, ripped a 25 foot wide hole in the street, blew up like an explosion and shot up water 8 feet high in the air, leaving "M" Street and the four surrounding blocks looking like the canals of Venice. That was due to the aging of the water supply

systems in old cities like DC. That event resulted in a loss of 20 million gallons of water, enough to bath everyone in DC for several days.

2) The second event occurred a week later, when 3,500 gallons of heating fuel leaked near the 11th Street bridge into the already heavily polluted Anacostia River. It is still unclear how much damage was done to the river.

3) Most recently, on March 30, there was a massive petroleum spill near Washington DC. A ruptured 36 inch pipeline which carries petroleum between

Texas and New York spilled about 336,000 gallons of petroleum near Sugarland Run, a tributary of the Potomac River. That spill tainted more than 50 miles of the Potomac River. The proximity of the spill to the water supply intakes of Washington DC and its suburban jurisdictions made this a very serious event. In a communication giving the status of the situation and the reaction from water supply utilities in the region, the different measures taken by the three local water authorities to protect the water supply are described.

The Fairfax water authority shut off their valves because they were the closest to the oil spill and used the back-up reservoir in Occoquan. The WSSC in Maryland suburbs believed that their water intake escaped the spill, but still took precautionary measures by implementing additional treatment by activated carbon and are closely monitoring the situation. For the Washington Aqueduct, which is the water supply agency for the DC proper, the intakes were lowered to below the water surface to escape the petroleum floating on the surface. The Little Falls intake was closed, luckily, due to this period's high water.

It must be recognized that swift and efficient remedial actions were implemented, but it will take long time before the impact on animal life and the general ecology will be known. These serious problems have shown how vulnerable urban areas such as Washington, DC can become.

The press and environmental and city agencies have awakened the public's concern on these uniquely urban predicaments.

URBAN WATER PROBLEMS

The DC WRRC has identified urban water resources management as a major national issue for the National

Water Resources Research Institutes (NIWR), of which we are a member. The urban issues will be included in the section 104g, addressing water resources issues of regional or interstate scale, of the institutes' programs to be funded through Department of the Interior appropriations. Following is a discussion of water problems pertaining to urban areas.

DRINKING WATER

City residents are seriously concerned with the safety and availability of their drinking water. These concerns are dominated by toxic metal (e.g. lead, copper and zinc) contamination and water conservation. Identifying sources of contaminants in home and community water supply systems and minimizing risk to human health are essential to address the first issue. New waterefficient plumbing fixture designs and public education in conserving water can help to significantly reduce water consumption and offset increasing demand on water use. Additionally,

drinking water research must address problems of outdated supply and distribution infrastructure and treatment technologies, and retrofitting of piping, tanks and fittings in old buildings.

WASTEWATER/CSOs

Many older cities continue use of combined sewers -- a serious threat to surface water quality. During periods of high flow (e. g. during heavy rainfall or snow melt) these systems, which lots, roofs, yards, etc. are overloaded and discharge untreated water directly to surface water. Technological

and economic aspects of alternative corrective actions (e.g. sewer separation, on-line storage and treatment, etc) must be evaluated.

Waste streams from industry, commerce, and residences usually, flow to one communal treatment plant in urban areas. Huge investments have been made to build wastewater treatment plants, but technical and institutional research is now needed to develop acceptable methods to improve wastewater treatment and sewage sludge disposal to cope with growing populations and more stringent wastewater treatment criteria. Urban

solid waste disposal also seriously impacts water quality and innovative methods of reuse, recycling and safe disposal are urgently needed.

NON-POINT SOURCE POLLUTION

Because urban surfaces are largely impervious, pollution from non-point, i.e. dispersed sources causes serious deterioration of water carry both domestic wastes and drainage from roads, parking quality in rivers, lakes and estuaries. Industries, transportation systems and construction sites produce heavy loadings of sediment and hazardous and toxic substances which contaminate stormwater runoff and eventually enter rivers and streams. Additional inputs stem from high use of chemicals on urban lawns, gardens, parks and golf courses. Research to increase understanding of urban non-point sources of pollution and strategies to deal with them must be supported and expanded to decrease their impacts.

URBAN LAND USE AND GROUND WATER

Toxic pollutants which affect ground water in urban areas are also a major concern. Leaking sewer

lines, pipelines and underground storage tanks introduce pathogens and toxic hazardous substances such as petroleum hydrocarbons and chlorinated volatile organic compounds (VOCs) into groundwater. Activities such as ground water withdrawal, tunneling, and construction-site dewatering and alterations of urban landscapes, including changes of slopes, vegetative cover, and the extent and interconnectedness of impervious surfaces all affect ground water recharge and quality. Successful ground water protection requiring special consideration in this connection involve pollution threats from disasters (floods, hurricanes and massive fires) as well as previous land uses, i.e. cemeteries, abandoned railroads and railyards, abandoned buildings and plants, and former waste dumps are unobtrusive but continuous sources of contamination.

Identifying and quantifying risks associated with these specifically urban sources are essential for long-term planning.

MANAGEMENT, LEGAL AND INSTITUTIONAL ISSUES

The inter-jurisdictional nature of ground- and

surface-water management requires cooperation between federal government and local agencies and other regional and private interests. The scale and complexity of the ground water/ surface water interconnection distributes responsibility over enormous geographic and jurisdictional areas with different institutional arrangements for dealing with problems. Resolution of urban water management problems also requires productive teamwork among a diversity of impacted communities. City urban planners and managers need to be made aware of the utility of Geographic Information Systems (GIS) in managing water resources. The sophistication of commercially available GIS allows water resource planners to compile and analyze large databases to meet a diversity of objectives and make information readily accessible and understandable. However, urban water problems require approaches different from those used in rural areas; applications of GIS in urban areas need to be thoroughly investigated and new approaches developed.

The diversity of urban populations creates challenging tasks in training of technical experts and increasing public awareness. Education is essential to build public support for

implementing water protection and conservation measures. Training of individuals from all segments of the population in environmental matters can foster a fuller utilization of the country's workforce for competitive and environmentally sustainable economic development. Universities in urban areas, including Historically Black Colleges and Universities (HBCUs), have given high priority to public education through outreach programs, seminars, conferences, workshops and discussion groups, etc. However traditional formats may not be the most efficient route to reach and motivate inner-city citizens. Research and demonstration programs are needed to enhance the ability of universities to reach out to the inner city public with its special diversity and needs.

CONCLUSION

Demographic information indicates that more and more people live in cities and metropolitan areas as opposed to a century ago. Rural population and jobs have declined while urban population and jobs have increased. These trends offer a clear picture of where national priorities in water resources management should be placed, as opposed to the way it was in the past.

In the past, the main focus was on rural and agricultural water issues, while urban areas and their constituencies were neglected.

We believe things will change with the new Clinton-Gore administration. The Natural Resources Law Center of the University of Colorado convened a working group of water experts from universities and other groups to advise the new administration on critical water issues and opportunities. They recommended that it is time to reorient the federal role to satisfy new needs, consistent with a policy of sustainability, recognizing the necessity to take firm and responsible action to help create a visionary approach towards solving America's water problems. That approach includes a full recognition of social equity, economic efficiency, tribal water rights, the needs of traditional Hispanic water management organizations and the elimination of inequities and disproportionate effects of wastewater facilities and sewage plants on ethnic and low-income communities.

The DC WRRC is working with the NIWR, the USGS, and others to gather momentum dealing with the urban issues. For instance, UDC/WRRC will soon sign an MOU with USGS and the National Park Service which includes, among other features, an agreement to build gaging stations in the city for research, training and youth education. Urban centers possess rich human and institutional resources which, when combined with good will, imagination and dedication can be turned into instruments which can serve to improve the science and the management of water resources and help the public understand and appreciate the challenges and the opportunities presented by water resources in our daily lives.

We believe the time is ripe for major concerted efforts from HBCUs and other concerned institutions to develop water research and management strategies suitable for the unique urban environments.

REFERENCES

1. The Washington Post
2. The Washington Times
3. Communication from ICPRB

*Earth
Day
Every
Day*



EARTH DAY FAIR

Saturday, April 24, 1993 (10 a.m. - 3 p.m.)

University of the District of C o l u m b i a
Van Ness Campus
4200 Connecticut Avenue, N.W.

UDC HOSTS CITY-WIDE EARTH DAY FAIR

UDC, in cooperation with the DC Public School, the DC Departments of Public Works and Consumer and Regulatory Affairs, USEPA and USDA-Forest Service, hosted the city-wide Earth Day Fair at the Van Ness Campus on Connecticut Ave, NW on April 23 and 24, 1993. Under the theme of "Earth Day, Every Day", more than 60 exhibits and demonstrations from District and federal agencies as well as private groups were featured in addition to environmental vehicles and such mascots as Smokey the Bear and Woodsy Owl. Over 1,800 Public School students attended the fair on the first day, while the general public visited the exhibits on April 24th. Panel discussion were also held on the topics of "Environmental Justice" and "The Anacostia River and its Environment". Participating panelists on the Anacostia were Ferial Bishop, Adminsitrator of the DCRA Environ-mental Regulations Administration (presiding), Mohsin Siddique, of the DCRA/ERA Water Resources Management Division, and James V. O'Connor, of the UDC College of life Sciences, Dept. of Environmental Science. Mr. Ray Robinson of the DC WRRC provided his support for planning and coordinating this event.

® Exhibits a Demonstrations s Hands-on Activities ® Panel Discussions

Sponsored by:

The University of the district of Columbia
The District of Columbia Public Schools
D.C. Department of Public Works
D.C. Department of Consumer and Regulatory Affairs

In cooperation with:

The U.S. Environmental Agency
The U.S. Department of Agriculture- Forest Service

FREE AND OPEN TO THE PUBLIC



Recycled/recyclable
Printed with Sony/Canada Ink on paper that
Contains at least 50% recycled fiber

WATER RESOURCES CENTER PRESENTS SPECIAL AWARDS TO D.C. STUDENTS

The D.C. Water Resources Research Center, for the seventh consecutive year, presented special awards certificates and prizes for the best water research projects developed by student participants in the 47th D.C. Science Fair at an awards ceremony, March, 1993 at the Woodson Senior High School.

The Special Water Research Certificates were presented to the following students:

First Place **Hooman G. Hamedi**, Georgetown Day School
Second Place

Joyi Rice, Jefferson Junior High School

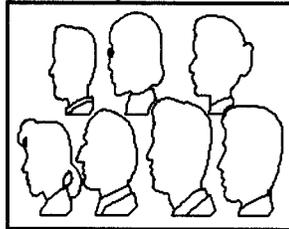
Third Place **Jeffrey Jones**, Gonzaga High School
Honorable Mention **Kathryn O'Reilly**,

Holy Trinity High School
Honorable Mention **Kimberly Mngl eld**, Jefferson Junior High School

Beyond the presentations of certificates and prizes (books), the Center offers each student winner an opportunity to match up with a professional mentor

to refine their projects for regional and national science fair competition or to pursue specific scientific interests.

Dr. Victoria Guerrero of the UDC Environmental Science Department served as judge for these Water Resources Research Center Special Awards for students, as she has for the past six years.



CONFERENCE ON WATER RESOURCES IN THE MIDDLE EAST:

The date for the international symposium on water resources in the Middle East has been

ANNOUNCEMENTS

changed from 7-9 October to 21 - 23 October, 1993. The conference will be held at Jumer's :Castle Lodge, Urbana, Illinois. Prospective presenters are

invited to submit a two-page presentation proposal by May" 31, 1993. For more information, contact 'Water Resources 'Center, University of Illinois at Urbana-Champaign, 205 N. Mathews Ave, Urbana, IL 61801-2352. Ph.. (217)333-6275

GROUND WATER NEWS: U.S.

EPA has recently released a series of *software packages* which provide interactive ground water education on *Drinking Water Quality*, *Water Conservation*, and 'others. The software is available at no cost, if you provide your own disks. For information, contact Alfred E. Krause (WCP15J), U.S. EPA, Region V, 77 West Jackson Blvd., Chicago, IL 606043590

A new *poster* available from the League of Women' ' Voters Education 'Fund (202-429-1965) offers four ways for citizens to get involved in protecting ground water. The poster "Look Out Below - Protect Your ' Ground Water" costs \$ 4.99 plus \$ 1.00 shipping

