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BETTER WATER SYMPOSIUM

The importance of a State Water Plan for North Carolina was repeatedly emphasized by speaker after speaker at the Symposium on Better Water and Sewer Services for Small Communities in North Carolina which was held in Chapel Hill on December 4.

Jake Wicker, Assistant Director, Institute of Government, started the Symposium off with an excellent review of legislative authorizations for water and sewer services and a comparison of the characteristics of alternative organizational arrangements for these services in North Carolina.

Citing a number of problem areas arising out of poor planning and coordination between communities, James R. Hinkley, Division of Community Planning, Department of Conservation and Development, called for a curtailing of stop-gap measures, lack of coordination, and "one shot water and sewer programs." Hinkley stressed the need for cities to have the power to exercise water and sewer improvements in extraterritorial areas to avoid the annexation of substandard systems.

Col. Dan McDonald, Chief of the Department of Water and Air Resources Division of Water Management, emphasized the need to "attune community water development plans and objectives to area-wide and regional needs and water source availability. "The time has passed," he said, "when a community can afford to solve its water problems in isolation from its neighbors." McDonald concluded that every water system should be viewed "as a link in a chain of systems designed to meet the needs of the entire State."

Calling on information gained from a recent state-wide survey of North Carolina's 1470 public water systems, Marshall Staton, Assistant Director, Division of Sanitary Engineering, State Board of Health, cited numerous deficiencies in small community systems due to poor planning, lack of cooperation between communities, and inefficient operation, maintenance, and management. "Such a large number of systems," said Staton, "reflect a lack of planning and constitutes a major problem in providing assistance and surveillance of water quality."

The Assistant Director of the North Carolina League of Municipalities, Leigh Wilson, told the 141 participants that the State needs a "sound and politically acceptable

state-wide plan under which municipalities in cooperation with the counties can construct and operate area-wide water and sewer systems.

John Morrisey, Executive Director, North Carolina Association of County Officials, said that the question of providing these basic services can no longer be left to local decision on a county-by-county and city-by-city basis. "We must raise our sights," he noted, "and determine as a matter of State policy, the best, most effective, and economical ways of providing water and sewer services in both quantity and quality in every area of North Carolina. We are in dire need of courageous political leadership to demand sufficient resources and to insist on the rapid completion of a State Water Plan. Only then can we rationally determine how best to meet the needs of a growing State."

Among other speakers who emphasized the many opportunities for improved water and sewer services through area-wide or regional systems was Dr. Daniel A. Okun, University of North Carolina at Chapel Hill, who told the participants that the greatest advantage of regional systems is good management. He also called attention to the economies of scale in constructing one large system in lieu of a multitude of small systems. The unit cost of well water from a one million gallon well is about one-third of that from a 200,000 gallon well. In addition to lower costs and a more dependable supply, regional systems also offer an opportunity to provide a better water quality.

In his assessment of governmental alternatives for improved water and sewer services, Dr. Deil S. Wright, University of North Carolina at Chapel Hill, cited urbanization of the countryside and development of spatial concentrations of people in an otherwise rural setting as a root cause of the problem. His recommendations were as follows:

<u>At the Federal level</u>

1. Eliminate the three different categorical water and sewer grants presently administered by the Dept. of H.U.D., the Farmers Home Administration, and Economic Development Administration.

2. Eliminate the categorical grant for treatment facilities by the Federal Water Pollution Control Administration.

3. Replace the above grants with a consolidated grant, apportioned on a formula basis to the states with state-local matching. This consolidated grant for water supply and pollution prevention would be administered by the state on the basis of a state water plan that has received the approval of H.U.D., FWPCA, and perhaps other agencies, similar to the procedure of priorities set currently for treatment facilities.

<u>At the State level</u>

1. Strengthen the function of state planning generally, and coordinated state-local planning in particular.

2. Develop workable, visable, and meaningful common planning-development regions across the state and require the state agencies to treat these regions and their governmental officials as decision components in total agency policy formation.

3. Formalize, foster and otherwise assist by funding and other means regional and area-wide councils of governments with planning, review, and related coordination functions in their early stages. These entities should eventually serve as the entities for taking advantage of the economics of scale and fiscal capacity for large capital works such as water, sewerage, and treatment facilities.

4. Reduce the number of options available for organizing to provide water and services. Place primary reliance on the two instruments of general government, municipalities and counties. Broaden the powers of counties to plan, approve, and/or finance and operate water-sewage facilities.

5. Enact a water supply and waste treatment planning act that would authorize and fund a coordinated development plan for water use across the state. Alternatively,

6. Consider the creation of a state study commission on Environmental Quality in which land, water, and air resources will be inventoried as to present state and evaluated as to possible future uses.

At the Local level

Within the context of broadened state interest and support, local officials need to:

1. Take the initiative for promoting the identification of community goals and the development of plans for their implementation.

2. Take a broad view of their representative role, consulting with all groups in the community.

3. Assert leadership in forming formal or informal inter-local councils of officials.

4. Consider establishing, in larger jurisdictions, a reorganized Department of Water Resources Management, with all the implications that broadened planning, control, and administration would imply.

The Symposium was jointly sponsored by the Water Resources Research Institute and the Institute of Government.

Copies of the Symposium Proceedings will be available to non-participants upon request to the Water Resources Research Institute, 124 Riddick Building, N. C. State University, Raleigh, N. C. 27607.

URBAN AND RURAL AMERICA: POLICIES FOR FUTURE GROWTH

The luncheon speaker for the Better Water and Sewer Services Symposium on

December 4 , Mr. Page L. Ingraham of the Advisory Commission on Intergovernmental Relations, Washington, D. C., told the participants that "the urgent needs of our harassed cities and eroding rural areas are immediate and interrelated. There must be a major national commitment to the development of urbanization policy at all levels of government," he said. He indicated this should include both the public and private sectors and necessary implementing measures to restore equilibrium between the rapidly growing concentrated metropolitan belts and the rest of the countryside while establishing a more desirable, productive, and rewarding environment. Great effort at all levels of government and by the private sector will be necessary if this undertaking is to go forward. Conscious urbanization policy arrived at through a process drawing on all available resources must be evolved.

He concluded with the plea that those directly involved in administering programs not be discouraged by the frustrations arising from the complicated intergovernmental relations which are necessitated by our federal system. Increasingly, he noted, avenues are opening up to facilitate efforts to make the most creative use of available resources.

NATION'S WATER RESOURCES

Following President Johnson's transmittal of the First National Assessment of the Water Resources Council to the Congress, Secretary of the Interior Stewart L. Udall, Chairman of the Council, has set forth in detail the findings and recommendations of the 472-page report which deals with the water problems facing the Nation over the next fifty years.

"The National Assessment," Secretary Udall said, "describes the Nation's water and related land resources and their use and management problem with projections to the year 2020. The report also contains the findings and recommendations of the Council. These recommendations, which outline the steps we must take to assure adequate water supplies for the future, were prepared after a careful review of what now appear to be our most important national and regional water problems."

The Council's report contains findings and recommended solutions region by region and also assesses various aspects of water and related land resource problems on a national basis.

The report states that the conterminous United States has a natural runoff averaging about 1,200 billion gallons per day (bgd). This runoff appears as streamflow and as perennial recharge to groundwater aquifers. Other sources of water include mining of groundwater storage, saline water conversion processes, direct use of saline water from oceans and estuaries, and weather modification. Withdrawals of water for use were estimated at 270 bgd in 1965 and are expected to rise to almost 1,370 bgd in 2020, thus stressing the

need for increased water reuse and the development of new technology to augment existing supplies. The consumptive use of water on a national basis was 78 bgd in 1965 and is expected to increase to 157 bgd in 2020.

Withdrawals of water for rural domestic and municipal use totaled 26 bgd in 1965 and are expected to rise to 78 bgd in 2020. Consumption of water by these uses was 7 bgd in 1965 and is expected to increase to 27 bgd in 2020.

Industrial uses of self-supplied water--distinct from industrial uses of municipal supplies--was 46 bgd in 1965 and is estimated at 211 bgd in 2020. At the same time, consumptive use will increase from 4 bgd to 16 bgd.

Cooling water for steam-electric powerplants is projected to be by far the greatest withdrawal use of water. In 1965, these withdrawals were 63 bgd of fresh water and 22 bgd of saline water, mostly from the ocean or bays; however, in 2020, these are expected to increase to 411 and 504 bgd, respectively.

Withdrawal for agricultural use, chiefly for irrigation, was 113 million in 1965 and is expected to increase to 166 bgd in 2020. Consumptive use for agricultural purposes is greater than all other uses combined and was 66 bgd in 1965 and should rise to 101 bgd in 2020.

The large withdrawals estimated for 2020 indicate that even with increased inplant recycling by industry a large increase in water reuse would be required--calling for increased investment in water development, water conditioning, waste treatment, and water management.

The Council's assessment included summaries of expected water conditions in the Nation's 20 major water resources regions. The Council estimates that the following conditions will be found in the South Atlantic Region, including North Carolina. Encompassing 24 distinct river systems, the area has an average natural runoff of 197 bgd with freshwater withdrawals expected to increase to 85 bgd and saline water withdrawals to 45 bgd by 2020. Recreation needs will double, and there is a need for flood-plain management, pollution control, and the protection of beaches, estuaries, and wetlands.

RFF FELLOWSHIPS ON NATURAL RESOURCES

Resources for the Future has announced the availability of doctoral dissertation fellowships for the 1969-70 academic year. These are available for qualified graduate students whose dissertations involve the application of social science disciplines to problems in the field of natural resources. Candidates must be nominated by their academic departments. Further information and a limited supply of forms are available from the Institute office.

USGS REPORT ON WATER RESOURCES CONDITIONS IN NORTH CAROLINA

The November report by USGS on Water Resources Conditions in North Carolina disclosed that streamflow was above normal in the mountains and western Piedmont and below normal in the eastern Piedmont and Coastal Plain. Groundwater levels declined in the mountains, eastern Piedmont, and Coastal Plain. In general, the groundwater levels were below the long-term average.

BUDGET BUREAU TO PUBLISH CATALOG OF U. S. ASSISTANCE PROGRAMS

The Bureau of the Budget plans to publish each year a catalog identifying every type of Federal domestic assistance available, with guidance on who is eligible and how and where to get it. The first issue, titled "Catalog of Federal Domestic Assistance," will be published at the end of 1968 or early 1969.

Charles J. Zwick, Director of the Bureau of the Budget, said the new publication is designed to help both private organizations and individuals, as well as state and local governments, who might be eligible for financial assistance, such as grants, loans, loan guarantees and shared revenue; assistance in the form of direct construction or provision of Federal facilities, goods and services; donation or availability of surplus property, facilities and equipment; technical assistance or counseling; statistical or other informational services.

----Environmental Health Letter

INSTITUTE RESEARCH PROGRAM

Part VIII. Water Law

1. Legal Framework for the Delivery of Stored Water from Impoundments

When a stream is impounded for water supply storage, some arrangement must be made to convey the water from storage to the point of its ultimate use. Plans for the distribution of municipal water supplies stored in Federal reservoirs, such as the New Hope and Falls of the Neuse, and plans for the use of stored waters for streamflow augmentation pose legal questions which need investigation. This project will examine the law concerning rights in natural and artificial watercourses and study the Department of Water and Air Resources statutory authority concerning the monitoring of releases from storage to local governments, demand entitlement of participating localities, and Department discretion regarding these and such related matters as the timing of releases.

Principal Investigator: Professor Milton S. Heath, Jr., Associate Director, Institute of Government, University of North Carolina at Chapel Hill

Starting Date: July 1, 1968

Completion Date: June 30, 1969

2. Review and Recodification of Drainage and Watershed Improvement Legislation in North Carolina

Since enactment of the original North Carolina small watershed law in 1959, the program has been expanded and diffused in many directions. Counties and drainage districts have displaced watershed improvement districts as the primary organizational forms. Program definition has enlarged to encompass a number of related water resources activities--including recreation, municipal and industrial water supply, fish and wildlife habitat preservation, and flood plain management. The exclusively rural flavor has now been modified to include urban as well as rural problems. The North Carolina General Assembly has struggled to keep up with this decade of change, but the present statutes--never having been reviewed and overhauled--are somewhat confusing and disorganized. The soil and water conservation organizations of North Carolina have for some time recognized the need for a recodification effort that would bring some pattern into the present laws concerning small watersheds. This project entails the review of North Carolina's small watershed and drainage laws and preparation of the basis for recodification.

Principal Investigator: Professor Milton S. Heath, Jr., Associate Director, Institute of Government, University of North Carolina at Chapel Hill

Starting Date: July 1, 1968

Completion Date: June 30, 1969

Part IX. Water Resources Information

1. Water Resources in North Carolina: An Inventory of Information and Data

Knowledge of available information on North Carolina's water resources is important to public agencies, engineers, planners, university research personnel, libraries, and private citizens. This project involves an extensive bibliographic search of the holdings of the universities, State Library, State and Federal agencies, major political subdivisions, industries, and private consultants together with the preparation of a report for wide distribution throughout the State of North Carolina.

Principal Investigator: Mr. Frederick E. McJunkin, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill

Starting Date: July 1, 1967

Completion Date: March 31, 1969

FEDERAL GRANTS FOR WASTE TREATMENT IN NORTH CAROLINA

The following grant for the construction of municipal waste treatment works in North Carolina was announced by the Federal Water Pollution Control Administration this month:

	Grant	Total Project	
Lenoir	$356,400	$1,230,000	New interceptor sewer and secondary sewage treatment plant.

NEW PUBLICATIONS RECEIVED BY THE INSTITUTE

(These may be borrowed from the Institute for a two-week period or may be ordered from the organization issuing the publication.)

Water Resources Planning

"Economic Evaluation of a Water Resources Development Project in a Developing Nation," F. Mobasheri, WRC Contribution No. 126, University of California at Berkeley, July, 1968.

"Flood Control Policy and Flood Management," W. Whipple, Jr., WRRI, Rugers University, Oct., 1968.

"Intergovernmental Relationships in the Administration of Water Resources," N. G. P. Krausz, Research Report No. 18, WRC, University of Illinois, Urbana, Sept., 1968.

"Metropolitan Area Water Resource Problems," W. Whipple, Jr., WRRI, Rutgers University, Nov., 1968.

"The Nation's Water Resources," U. S. Water Resources Council, Washington, D. C., 1968 (Full report $4.25, Summary Report $0.65, U. S. Gov't Printing Office, Wash., D. C. 20402).

"Politics and Planning: Toward a Model of Planning - Related Policy Outputs in American Local Government," R. J. Burby, III, PhD Thesis, Dept. City & Reg. Planning, UNC-CH, 1968.

"Pilot Test of Sampling Procedures for Estimating Recreation Use on Winter Sports Sites," USDA, Forest Service Research Paper SE-42, SE Forest Exp. Sta., Asheville, N. C., Sept., 1968.

"Rivers and Regionalism in New England," E. A. Gere, Bu. Gov't Research, University of Mass., Amherst, 1968.

"Development of Water Resources in Appalachia"
Appendix E - Economics Base Study
Appendix H - Groundwater Resources
Chapters 19 & 20 Main Report - Shaping the Plan for Water
Office of Appalachian Studies, Corps of Engineers, P. O. Box 1159, Cincinnati, Ohio 45201.

Water Quality Management

"Fate of DDT and Nitrate in Ground Water," R. S. Kerr WRC-FWPCA-USDI, Ada, Oklahoma, and S. W. Great Plains RC, USDA, Bushland, Texas, April, 1968.

"Fluoridation Census 1967," Dept. HEW, Bu. Hlth. Manpower, Div. Dental Hlth, Bethesda, Md. 20014.

"Mine Water Research - The Limestone Neutralization Process," Bu. Mines Report 7191, USDI, Sept., 1968.

"Removal of Phosphate from Water by Aluminum and Iron," P. H. Hsu, WRRI, Rutgers University, Oct., 1968.

"Water Pollution Problems & Improvement Needs," Lake Ontario & St. Lawrence River Basins, FWPCA - USDI and N. Y. Dept. Hlth., June, 1968.

"Status of Water and Sewage Facilities in Communities without Public Systems," AE Rept. 143, ERS-USDA, Wash., D. C. 20250, Oct., 1968.

"Water & Sewer Bond Sales in the United States, Jan. - Dec., 1967," FWPCA-USDI, Wash., D. C. 20242.

Water Quantity Management

"A Study of Surface Runoff Due to Moving Rainstorms," B. C. Yen & V. T. Chow, Hyd. Engr. Series No. 17, Dept. Civil Engr., University of Illinois, Urbana, June, 1968.

"Hydrodynamics of Mathematically Simulated Surface Runoff," C. L. Chen and V. T. Chow, Hyd. Engr. Series No. 18, Dept. Civil Engr., University of Illinois, Urbana, Aug., 1968.

"Water & Sediment in the Norris Glacier Outwash Area, Upper Taku Inlet, Southeastern Alaska," Slatt, R. M. & Hoskin, C. M., WRRI, University of Alaska, June, 1968.

Miscellaneous

Annual Reports - Water Resources Research Institutes
University of Alaska
Auburn University
University of Rhode Island

"Education and Outdoor Recreation," BOR-USDI, Aug., 1968 (Supt. Doc. @ $0.75).

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