

COMMUNITY WATER SUPPLY STUDY

Significance of National Findings

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Environmental Health Service
Bureau of Water Hygiene

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U.S. Public Health Service
Department of Health, Education and Welfare
July, 1970
Washington, D. C.

FOREWORD

The ecological crisis with which our Nation, and the world, are today confronted has been building for many years. Yet, for many, the magnitude of the damage which we have inflicted on our environment, in ignorance and carelessness, has come as a recent, stunning surprise. However, the urgency of our environmental problems can no longer be ignored or denied. President Nixon expressed the National mood about these sobering realities when he declared that "the nineteen seventies absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment."

Of special concern is the fact that the waste products of our highly urbanized and technological society --- many of them not even identified --- which pollute our land, air, and water, persist in the environment, and react, one with another, in complex and little understood ways, to affect the life cycles of plant, animal, and human organisms.

Our water resources, more perhaps than any other, illustrate the interaction of all parts of the environment, and also the recycling process that characterizes every resource of the biosphere. Everything that man injects into his environment --- chemical, biological, or physical --- can ultimately find its way into the earth's water and these contaminants must be removed, by nature or by man, before the water is again potable.

Concern for our water quality until quite recently has centered principally on the danger of bacteriological contamination from inadequately treated sewage discharged into our rivers and streams. Today we are confronted with the fact that chemical pollution of source waters poses additional, and possibly even more difficult, problems. Moreover, we deceive ourselves if we assume that even the most complete and effective treatment of municipal and industrial wastes can ever remove all threats of water contamination.

In a world subjected to growing burden of interacting pollutants, many other sources of contamination exist, so that the quality and safety of our drinking water must finally depend upon constant vigilance and application of the best techniques of water treatment and distribution.

That only recently has attention been focused on the problems of maintaining safe drinking water is illustrative of the dangerous complacency with which we have viewed the whole spectrum of environmental ills. This report by the Bureau of Water Hygiene, Environmental Health Service, represents the first real attempt to determine, on a nationwide basis, the efficacy of current practices in water treatment and to assess future prospects for maintaining safe, high quality drinking water.

It may be concluded, on the basis of the survey findings, that, while the overwhelming majority of the people of the United States can be assured that the water they drink today is safe, several million drink water containing potentially hazardous amounts of chemical or bacteriological contamination. Clearly there is an immediate need, in many localities, for upgrading present water treatment and distribution practices.

Moreover, as in so many other aspects of our environmental situation, the findings are not reassuring with regard to the future. It seems abundantly clear that we will need, in the years ahead, to give increasing attention to the broad problems of water supply in order to assure the public of an adequate supply of safe drinking water on a continuing basis.

Charles C. Johnson, Jr.
Assistant Surgeon General
Administrator

SIGNIFICANCE OF THE NATIONAL
COMMUNITY WATER SUPPLY STUDY

A Statement by the
Director of the Bureau of Water Hygiene

PREFACE

Contemporary American society recognizes a host of interrelated factors that determine the quality of urban life. In addition to the basic needs -- food, clothing and shelter -- we have recently begun to recognize two other daily necessities that were heretofore thought to be of unquestionable quality and available in unlimited quantities; ample quantities of clean air, from moment to moment, and safe drinking water, from hour to hour.

The Community Water Supply Study concerns the current and future healthfulness and dependability of the drinking water supplied to over 150 million Americans by community water supply systems. The remaining population drinks from private supplies. The purpose of the study was to determine the quality of drinking water being delivered to the over 18 million people in the study areas and the health risk factors that enabled scientists and engineers to evaluate the ability of these systems to continue to provide adequate supplies of safe water now and in the future. The Analysis of National Survey Findings of the National Community Water Supply Study (July 1970) is based on a survey of 969 representative public water supply systems located in nine areas of the Nation. This statement attempts to place the technical findings into a national perspective. It seeks to answer two questions about the nation's water supplies: (1) Are well established standards of good practice being applied to assure the quality and dependability of water being delivered to consumers' faucets today? and, (2) What needs to be done to assure adequate quantities of safe drinking water in the future on a National scale? While our study has helped provide answers to these important questions, not all the discussion that follows in this statement is derived solely from the results of this single investigation.

BACKGROUND

Americans generally assume that the water from their faucets is healthful, and free of bacterial or chemical contaminants that can bring disease. Usually, the assumption is correct. The drinking water supplies in cities and towns of the United States rank in quality, on the average, among the best in the world. Nevertheless, there is cause for serious concern about our drinking water. There are two good reasons for this paradox.

To begin with, it cannot be maintained that all of our drinking water is safe. It is true that the classical communicable waterborne diseases of years past -- typhoid fever, amoebic dysentery and bacillary dysentery -- were brought under control by the 1930's. However, we still have outbreaks of communicable disease from sewage contamination of water supply systems in the United States. Recent outbreaks are discussed later in this report. As we shall see in this report, we found evidence of bacterially contaminated water being served to consumers in communities ranging in size from less than 500 to 100,000 persons.

Disturbing as it is to find such evidence, there is a second, more far reaching problem of considerable importance to the country. That problem is the ability of all our present municipal water supply systems to continue to deliver water of good quality and adequate quantity in the decades ahead to a rapidly rising population. This is made all the more difficult by the growing amount of chemical pollutants entering our lakes, streams and aquifers.

Current forecasts provide an indication of how much water we will be needing in the future. According to one calculation, we used 270 billion gallons of water per day in 1965 in support of industry, agriculture, and for domestic drinking purposes. By the year 2020, our water requirements are expected to exceed 1300 billion gallons each day. But hydrologists estimate that the total usable surface water supply from rainfall is only 700 billion gallons per day.

Even today, when we return our used waters to streams or lakes we find ourselves using them over and over again. The need for multiple reuse of water will become greatly amplified in major sections of the country in years ahead. If the future population growth rate is only half of current projections, and even where desalinization of salt and brackish waters is a practical and economically feasible alternative, major sections of the country will find it increasingly necessary to practice multiple reuse in the years ahead. Much of the future problem relates to the need for having this water available when and where it is needed. For this reason, ground water has emerged as a significant source now accounting for more than 20 percent of the Nation's water supply requirements.

Where both surface and ground sources are insufficient, it will become necessary to directly recycle our wastewaters. This means taking wastewaters and using them over again in a closed system without first discharging them into our streams and lakes. With our present technology we cannot use water in this fashion for drinking, recreation or other intimate uses. It is true that during the past decade, much has been learned about the treatment of wastewaters for removal of some organic substances and bacteria, and processes for renovating wastewaters for direct reuse have even proceeded to the pilot plant stage. But the reuse of wastewaters over and over again presents us with new problems; with present treatment processes, chemicals would be concentrated, and therefore, new treatment processes must be developed; fail-safe warning systems must be found; and new methods must be developed to detect and remove such impurities as the pesticides and viruses which currently are present in almost undetectable concentrations. Little is known about the concentrations of carcinogens, antibiotics or hormones present in wastewaters.

Even though wastewater control efforts will be expanded in the future and are sorely needed to minimize future pollution of our drinking water sources, it is clear that water pollution control efforts alone cannot assure a safe drinking water quality. It is highly unlikely that even the best conventional waste treatment will produce a discharge of drinking water quality. As such, treatment does not remove all of today's known potential toxicants or biological agents prior to discharge. In addition, there are pollutants which have an effect on source of drinking water which are not subject to waste treatment. Such pollutants are found in uncontrolled runoff from our fields and forests, and from chemicals spilled in transportation accidents. Both of these examples adversely affect quality at the community water treatment plant intake. Both today and in the future, delivery of adequate supplies of safe water at the consumer's tap will be dependent upon properly designed, constructed and operated municipal water treatment plants and distribution systems.

SCOPE OF THE STUDY

The National Community Water Supply Study was designed to cover a variety of natural and demographic situations across the country. It surveyed 969 public water systems -- in the State of Vermont and in eight standard metropolitan statistical areas -- New York, New York; Charleston, West Virginia; Charleston, South Carolina; Cincinnati, Ohio; Kansas City, Missouri-Kansas; New Orleans, Louisiana; Pueblo, Colorado; and San Bernardino-Riverside-Ontario, California. The survey investigated every public water system in each of the designated areas. Twenty-two big city systems in the study areas served over 13 million people. The remaining 947 systems served 5 million people in communities of less than 100,000 people and 760 of those 947 systems each served populations of less than 5,000 people.

The survey was not expected to provide a perfect random sample of water supply systems throughout the country, but the results are reasonably representative of the status of

the water supply industry in the United States. As detailed in the Analysis of National Survey Findings, and in the nine supportive reports presenting findings for the specific study areas, the Public Health Service Drinking Water Standards of 1962 were used to evaluate both the current quality of drinking water and the health risks associated with the systems delivering that water.

Each water supply system was investigated to determine the quality of water being delivered to the consumer's tap, the adequacy of physical facilities and operating procedures, and the status of surveillance programs so necessary to the delivery of adequate quantities of safe water on a continuing basis consistent with the U.S. Public Health Service Drinking Water Standards. Two or more water samples, depending on the size of the community population, were analyzed for chemical, bacteriological and other constituents. Each sample indicated the quality of water at a particular point in time, and when all samples from a given system were evaluated together, the average quality of water being served during the study was determined.

The evaluation of each system was designed to identify deficiencies which could lead to a system failure in the future that, in turn, could lead to the delivery of potentially hazardous water quality to the consumer. Past records were studied to determine operational practices, including the frequency of past failures of equipment. The current condition of physical facilities was examined for such deficiencies as inadequate disinfection equipment in the event of an emergency, or finished water reservoirs poorly protected from contamination. The surveillance programs were reviewed with an eye on such problems as collection of bacteriological samples on a regular basis and the regular inspection of the distribution systems to prevent recontamination of the drinking water between the treatment plant and the consumer's tap.

FINDINGS IN THE STUDY AREAS

Drinking water quality defects and health risk problems involving poor operating procedures, inadequate physical facilities, and poor surveillance activities were found in both large cities and small towns irrespective of geographical location. In general, the larger systems, those serving in

excess of 100,000 persons including the 10.4 million people in the cities of New York, Cincinnati, Kansas City, and New Orleans, were delivering an "average" acceptable water quality consistent with the Drinking Water Standards. On this average basis, 86 percent of the approximately 18 million people covered by this study, or about 15.5 million served by 59 percent of the 969 systems investigated, were receiving good water during the study. The larger systems also evidenced better operation of treatment and distribution facilities. While sanitary defects were found in larger systems, the overall health risk was generally judged to be low, even though improvements in operational procedures and physical facilities are believed warranted in many instances.

Conversely, 41 percent of the 969 systems were delivering waters of inferior quality to 2.5 million people. In fact, 360,000 persons in the study population were being served waters of a potentially dangerous quality. This was particularly true of community systems serving less than 100,000 persons. Even where average quality was good, occasional samples were found to contain fecal bacteria, lead, copper, iron, manganese and nitrate and a few even exceeded the arsenic, chromium, and selenium limits. After all, people do not drink "average" water. They drink "samples" of water from their kitchen faucets or a drinking fountain at work or play. It is particularly important to note that communities of less than 100,000 people evidenced a prevalence of the water quality deficiencies and health risk potential. Some of the very small communities were even drinking water on a day-to-day basis that exceeded one or more of the dangerous chemical limits, such as selenium, arsenic or lead.

The major findings from the study, in the light of today's water treatment technology are as follows:

QUALITY OF WATER BEING DELIVERED

- * 36 percent of 2,600 individual tap water samples contained one or more bacteriological or chemical constituents exceeding the limits in the Public Health Service Drinking Water Standards.

...9 percent of these samples contained bacterial contamination at the consumer's tap evidencing potentially dangerous quality.

..30 percent of these samples exceeded at least one of the chemical limits indicating waters of inferior quality.

..11 percent of the samples drawn from 94 systems using surface waters as a source of supply exceeded the recommended organic chemical limit of 200 parts per billion.

STATUS OF PHYSICAL FACILITIES

- * 56 percent of the systems evidenced physical deficiencies including poorly protected groundwater sources, inadequate disinfection capacity, inadequate clarification capacity, and/or inadequate system pressure.
- * In the eight metropolitan areas studied, the arrangements for providing water service were archaic and inefficient. While a majority of the population was served by one or a few large systems, each metropolitan area also contained small inefficient systems.

OPERATORS' QUALIFICATIONS

- * 77 percent of the plant operators were inadequately trained in fundamental water microbiology; and 46 percent were deficient in chemistry relating to their plant operation.

STATUS OF COMMUNITY PROGRAMS

- * The vast majority of systems were unprotected by cross-connection control programs, plumbing inspection programs on new construction, or continuing surveillance programs.

STATUS OF STATE INSPECTION AND TECHNICAL ASSISTANCE PROGRAMS

- * 79 percent of the systems were not inspected by State or County authorities in 1968, the last full calendar year prior to the study. In 50 percent of the cases, plant officials did not remember when, if ever, a state or local health department had last surveyed the supply.

- * An insufficient number of bacteriological samples were analyzed for 85 percent of the water systems -- and 69 percent of the systems did not even analyze half of the numbers required by the PHS Drinking Water Standards.

NATIONAL SIGNIFICANCE OF THE STUDY FINDINGS

Well established standards of good practice, in terms of the full application of existing technology, are not being uniformly practiced today to assure good quality drinking water. While most professionals hold the USPHS Drinking Water Standards in high esteem, the study shows that an unexpectedly high number of supplies, particularly those serving fewer than 100,000 people, exceeded either the mandatory or recommended constituent levels of bacterial or chemical content, and a surprisingly larger number of systems evidence deficiencies in facilities, operation and surveillance.

The National significance can be placed in perspective by considering the size-distribution of municipal water supply systems that were the subject of comprehensive facilities census conducted during 1963. At that time, 150 million Americans were being served by 19,236 public water supply systems including 73 million people dependent upon 18,837 small systems, each serving communities of less than 100,000 people. When these statistics are compared with the fact that over 40 percent of the small systems investigated during the current study evidenced current quality deficiencies on the average and both large and small communities were judged to be giving inadequate attention to quality control factors, there can be little doubt that this situation warrants major National concern.

Most of our municipal water supply systems were constructed over 20 years ago. Since they were built, the populations that many of them serve have increased rapidly -- thus placing a greater and greater strain on plant and distribution system capacity. Many systems are already plagued by an insufficient supply, inadequate transmission or pumping capacity, and other known deficiencies that become most evident during peak water demand periods. Moreover, when these systems were built, not enough was known to design a facility for the removal of toxic chemical or virus contaminants. They were designed solely to treat raw water of high quality for the removal of coliform bacteria. Such facilities are rapidly becoming obsolete as demands rise for water. The task in the future for our water treatment plants can be visualized by examining our population trend. By the year 2000 -- only 30 years from now -- our present population of about 205 million is expected to spurt to 300 million. By that time, it is expected that 187 million people (the total U.S. population just eight years ago) will be concentrated in four urban agglomerations -- on the Atlantic Coast, the Pacific Coast, on the coast of the Gulf of Mexico and on the shores of the Great Lakes. Most of the remaining population will be living in cities of 100,000 or more.

In the past, communities and industries were in the favorable position of being able to select the best source of supply consistent with their quantity and quality requirements. The demand for more water to quench the thirst of a growing population and meet the needs of expanding industry have led many people to ask how future quantity requirements will be satisfied. Concurrently, expanding water use comes at a time of greatly increased pollution of ground water aquifers, as well as streams, lakes and rivers. Historically and traditionally, ground water coming from its natural environment has been considered of good sanitary quality -- safe to drink,

if palatable. Nevertheless, 9 percent of the wells sampled during this survey showed coliform bacterial contamination. It seems fair to say that a similar situation prevails nationwide.

Chemical contaminants in our environment have been on the increase for about 25 years, due to the dramatic expansion in the use of chemical compounds for agricultural, industrial, institutional and domestic purposes. There are about 12,000 different toxic chemical compounds in industrial use today, and more than 500 new chemicals are developed each year. Wastes from these chemicals -- synthetics, adhesives, surface coatings, solvents and pesticides -- already are entering our ground and surface waters, and this trend will increase. We know very little about the environmental and health impacts of these chemicals. For example, we know very little about possible genetic effects. We have difficulty in sampling and analyzing them -- we have much greater difficulties in determining their contribution to the total permissible body burden from all environmental insults.

Consideration of the findings of this study leaves no doubt that many systems are delivering drinking water of marginal quality on the average, and many are delivering poor quality in one or more areas of their water distribution systems today. To add to this quality problem, the deficiencies identified with most water systems justifies real concern over the ability of most systems to deliver adequate quantities of safe water in the future.

RECOMMENDATIONS

Modern facilities operated by qualified personnel under adequate surveillance will provide high quality water with the lowest possible risk that current technology can offer. The following recommendations are made to those state and municipal officials concerned with the responsibility for safe, adequate water supply:

- * Apply available water treatment and distribution technology, more intensively.
- * Determine manpower needs of the state and county programs now in order to develop a program to provide technical assistance, training, and adequate surveillance to the Nation's numerous community water supply systems.
- * Upgrade the skills of personnel responsible for the operations and maintenance of the water supply systems themselves, particularly in the case of those systems serving fewer than 100,000 people, through short courses, seminars, and correspondence courses to employees presently employed in the field as well as those wishing to enter it.
- * Expand state laboratory resources to add the capability of routinely analyzing water samples for biological and chemical agents of health significance.
- * Provide educational opportunities in water hygiene at the university level to assure the availability of qualified personnel to meet existing and future needs.

In addition to defining the need for improvements at the state and community level, this study's findings also show a need for research, development and planning to improve current practices and to provide adequate supplies of safe water in the future. The study clearly evidences the need to develop:

- * Improved systems including surveillance procedures, to assure continuous and effective disinfection programs, particularly in smaller communities.
- * Additional engineering research to simplify and lower the cost of removing excess nitrates and fluorides.
- * Improved systems to control aesthetically undesirable concentrations of iron, manganese, hydrogen sulfide, and color, as well as taste and odor-causing organic constituents.

- * Analytical surveillance techniques and control procedures to eliminate the deterioration that is occurring in water quality between the time the water leaves the treatment plant and the time it reaches the consumer.
- * Improved planning to provide adequate quantities of safe water to the majority of our people who live in urban areas, and to assure optimum resource development and utilization to meet the needs of major population complexes.

History gives ample evidence of the inescapable penalties paid by past civilizations which failed to provide for the safety of their drinking water systems. Modern history shows that such waterborne diseases as typhoid, dysentery, and cholera are controllable and, in fact, were all but eliminated in the United States by the 1930's by applying the principles identified in the Drinking Water Standards. This study demonstrates that we have begun to backslide, which in turn, explains why it is that waterborne disease persists as evidenced by the epidemic at Riverside, California in 1965 which affected 18,000 people, the 30 percent gastroenteritis attack rate in Angola, New York in 1968 due to a failure in the disinfection system, and the 60 percent infectious hepatitis attack rate which afflicted the Holy Cross football team in 1969 as a result of the ineffective cross-connection control procedures. These recent episodes, reinforced by the findings of the current study, provide ample evidence of the increasing potential for similar episodes unless we improve water system operations consistent with currently accepted standards of practice.

We must also recognize numerous voids in existing technology which do not allow measurement of the current effectiveness of existing procedures. The current Drinking Water Standards do little more than mention viruses, neglect

numerous inorganic chemicals which are known to be toxic to man, and identify only one index that is supposed to cover the entire family of organic chemical compounds. These standards must be updated.

The need for knowledge about the health effects of waterborne contaminants is acute. Research is required, for example, to develop improved treatment control and surveillance procedures for viruses. The chronic long-term effects of chemical contaminants requires thorough investigation. For instance, we must determine the concentration levels at which numerous contaminants, such as mercury, molybdenum or selenium, cause adverse health effects. Similarly, we must mount a major attack on a host of synthetic organic chemicals which are growing at a rate of 500 new compounds per year. In addition to the threats posed by such well-publicized materials as pesticides, we now have to face a multitude of new organic chemical compounds. Recognizing our relatively fixed amount of ground and surface water supply, the increasing water needs of the general population and industry, and the need to reuse our available supplies to satisfy future demands, we can no longer afford to "wait and see what happens." We must begin to investigate before we introduce new compounds into the environment.

All this research is essential if we are to maintain at least the status quo for the current generation. These are issues confronting scientists and engineers today at all levels of government. But the overall water hygiene effort is this generation's responsibility to future generations. Indeed, answers to many of the currently identifiable research problems of today must be gained quickly if the current and future planners of our environment are to begin to formulate rational, economic and effective plans for the continued growth and development of our society.

James H. McDermott, P.E.
Director
Bureau of Water Hygiene

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Reports on what's happening
on water and waste disposal
for rural America.

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DWP Holds Annual Meeting

Richard (Dick) Goodling, State Director of the Farmers Home Administration in Virginia, was the principal speaker at the annual stockholders meeting of Demonstration Water Project, held in Roanoke on November 30.

He expressed his appreciation for DWP's excellent cooperation in making FmHA's program more effective. He called particular attention to the fact that 16 FmHA financed homes are currently under construction in DWP project areas -- which he visited during the day -- and he expected this trend to continue. Virginia FmHA expects to be number one in the nation this year in rural housing and home improvement loans.



Elizabeth Spencer of the Office of Economic Opportunity, Virginia FmHA State Director Richard Goodling and DWP President C. M. Reynolds III, at the DWP Annual Meeting.

DWP President C.M. Reynolds III -- who was re-elected to serve another term -- reported on the past years accomplishments and future plans and presided over the election of the new DWP Board of Directors. The DWP board is made up of representatives from the five Roanoke area counties where DWP operates. Each company member is a stockholder and participates in the annual election.

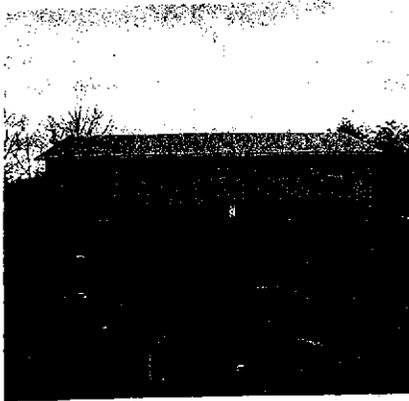
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Report Progress on Local Projects

DWP Roanoke reports loan closings with FmHA on two of its companies. Loans and grants totaled \$75,000 for Glen-Wilton Water, Inc. and \$65,000 for the Hollins Community Water Co. Both companies should be in operation shortly after the 1st of the year...The Franklin Water Development Co., which includes single family and cluster wells, is now awaiting funding from Virginia FmHA: It should be available on February 1...A new company is being formed in the small community of Eagle Rock, whose previous water system was condemned by the state health department. All 90 families in Eagle Rock are working with DWP to form a non-profit company...Project Director Joe Van Deventer also reports that 16 new homes -- mostly financed by FmHA -- are now under construction in the Southern Rural and Delaney Court Water Co. areas as a direct result of new water systems there.

Guyandotte Water and Sewer Development Corp. in Logan County, W.Va. has received a revised engineering report from its consultant for its initial project in the Big

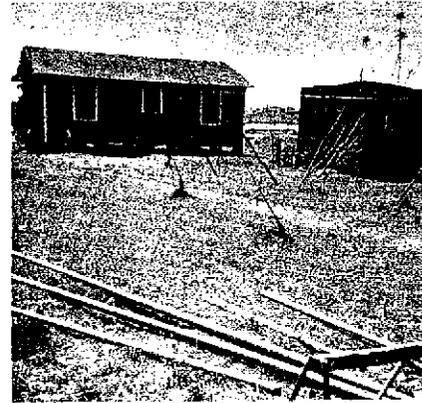
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New housing follows new water in the Roanoke area.



Typical house in Big Creek area.



Laying pipe in Possum Hill area.

Creek area. Subject to the approval of FmHA and the state health department, the new plan includes six separate water and eight sewer systems to serve the 250 families involved. The final plan will be reviewed by FmHA in February.

The Beaufort-Jasper Special Water Project in South Carolina celebrated the "turning-on" of water for the 23 families involved in its project in the Possum Hill area of Beaufort County. Using Special Water Project and DWP funds, the families were hooked-up to the lines of the Beaufort Water Authority... Revised plans for central systems in the Bluffton and St. Helena Island communities have been received and are being studied... Congressman Mendel Davis (D. S.C.) recently visited the Beaufort-Jasper project to get first hand knowledge on their efforts to improve the local sanitation situation. Congressman Davis was a co-sponsor of the Rural Drinking Water Assistance Act, which is expected to be re-introduced in the next session of Congress.

Local Groups Can Get a Helping Hand

DWP and the Commission on Rural Water have recently received funding that will enable them to start two additional local model projects. Details on the projects chosen will appear in the next issue of Rural Water News.

A limited amount of funding will also be available to help the Commission respond to the needs of non-model local projects who can benefit from organizational and technical assistance in their efforts to help low-income rural people improve their water and sewer facilities. The assistance could include consultation by Commission members, use of materials and concepts developed by the Commission and DWP and a small cash grant, if necessary. Projects chosen will have to demonstrate that such assistance will result in a viable program that is likely to aid large numbers of rural people and will have good prospects of developing its own funding base.

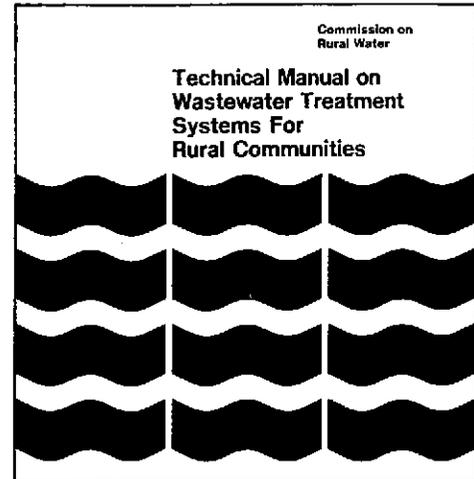
If you feel your local group can benefit from such a program and also help us to learn more about ways to solve the problem nationally, please write, giving as many details about your current organization and programs as possible, to Mr. Stanley Zimmerman, Commission on Rural Water, 3400 Patterson St., N.W., Washington, D.C. 20015.

Rural Water-Sewer Guides Available Soon

Commission technical manuals on water and waste disposal systems design have been circulated in draft form to an expert group of reviewers and will soon go to the printer in their final form.

Written primarily for rural water-sewer companies and their engineering consultants, the manuals will also be valuable aids to government agencies, such as the Farmers Home Administration, who are active in providing loans and grants for these facilities. Several universities have also expressed interest in using the manuals in their courses in agricultural and civil engineering.

The Engineering Guide for Rural Water Systems Development was written jointly by Michael Campbell and Commission member Dr. Jay Lehr, both of the National Water Well Association. It includes chapters on water system development, construction, pumping and treatment facilities, and relative costs and maintenance. It stresses the complete evaluation of all available alternatives for both water source and distribution.



Commission member Steven Goldstein, assisted by Walter Moberg, Jr., is the author of the Technical Manual on Wastewater Treatment for Rural Communities. Similar in scope to the water systems manual, it is intended to be a guide to systems and components which are available for treating wastewater in rural situations. It includes information on traditional systems, such as septic tanks, and on innovative systems that are now available commercially or in the advanced testing stage. Several of these are discussed in detail.

Both manuals, to be published as separate volumes around Feb. 1, will be completely illustrated. Readers who would like to receive pre-publication ordering information should fill out the enclosed reply card, or write to the Commission, 221 N. LaSalle St., Chicago, Ill. 60601.

Commission Spreads the Word

Representatives of the Commission on Rural Water have recently been "on the road" telling a variety of audiences the DWP rural water-waste story.

Patrick Cannon, Commission Public Information Director, attended the annual convention of the National Association of County Agricultural Agents in Atlanta on November 8, and participated in a professional improvement session on rural water and waste disposal problems. The two hour program included a showing of the Commission slide film, "Better Water for Rural America," and a discussion of forthcoming publications. County agents from all parts of the country attended the session and there was a lively interchange of ideas.



Commission member Durward Humes tells the DWP story to health officials.

Mr. Cannon gave a similar presentation on November 15-16, at the annual meeting of the American Public Health Association in Atlantic City. Members of the Conference of Local Environmental Health Administrators -- a group affiliated with APHA -- heard Commission member Durward Humes explain the DWP program during their annual luncheon meeting.

Regional and national groups whose memberships would also find such presentations of interest are urged to contact the Commission about the availability of speak-

ers and programs. While the Commission can't promise to have a speaker available for your particular meeting or convention, it will do everything possible to meet your needs. If interested, please write with full details to Patrick Cannon, Commission on Rural Water, 221 N. La Salle St., Chicago, Ill. 60601.

We Get Letters

The Commission and DWP Information Clearinghouse has just sent out its 2000th Rural Water Information Kit. When we first offered the kit in Rural Water News, we were hoping for a large response, but the actual number of inquiries received has been far above what we had expected. We still have a backlog of unfilled requests, and are filling them as fast as possible.

Requests for more specific information about our program have also steadily increased since we began our Clearinghouse operations in April. These come not only from readers of Rural Water News, but from the thousands of people who have read about us in their local newspapers and in such publications as The Nation's Health, Clean Air & Water News, Ground Water Age, Water Well Journal and World Reporter, among others. As a result, we now receive as many as 30 letters a week that require individual replies. These are answered promptly, usually within a week.

The Clearinghouse is also responsible for distributing loan copies of the Commission slide film, "Better Water for Rural America." Beginning in September, the film has been seen by more than 30 local and national groups. All available loan copies are continuously in circulation, but we hope to eventually satisfy the requests of all those who want to see it.

We also arrange appearances by Commission speakers at regional and national meetings, and will continue to distribute Commission publications. (See stories this issue) All of our services are available to you and we urge you to take advantage of them by writing to the Clearinghouse c/o the Ground Water Council, 221 N. La Salle St., Chicago, Ill. 60601, or call us at 312/346-1862.

New Water Pollution Control Act Can Help

The \$24 billion Water Pollution Control Act, recently passed into law by the Congress over the President's veto, contains provisions designed to improve the rural sewer situation.

Section 104 (q) directs the Administrator of the Environmental Protection Agency to "conduct a comprehensive program of research and investigation and pilot project implementation into new and improved methods of preventing, reducing, storing, collecting, treating, or otherwise eliminating pollution from sewage in rural and other areas where collection of sewage in conventional, community-wide sewage collection systems is impractical, uneconomical, or otherwise infeasible, or where soil condition or other factors preclude the use of septic tank and drainage field systems."

Section 105 authorizes the Administrator to follow-up on this research by making grants for demonstration projects using these "new and improved methods." These grants can be up to 75% of the total cost of the project. Authority for Section 104 is \$100 million and for Section 105, \$75 million, for the fiscal years ending June 30, 1973 and 1974.

Just what part of these funds will be spent for the rural research and demonstration provisions will await future decisions on priority by the Administration. And, of course, other general provisions of the Act will benefit rural communities whose need will be best met through the construction of conventional central sewage treatment facilities.

Commission on Rural Water

PUBLIC INFORMATION OFFICE:
Demonstration Water Project

Ground Water Council
221 North LaSalle Street
Chicago, Illinois 60601

312/346-1862

NATIONAL RURAL WATER

April 28, 1972

COMMISSION FORMED

FOR IMMEDIATE RELEASE

WASHINGTON, D.C. -- The national Commission on Rural Water, organized to work toward improved water and sewage facilities for America's rural families, has just been established.

The announcement was made by Stanley Zimmerman of Demonstration Water Project, Inc. (DWP), a Roanoke, Va.-based organization which has initiated new methods for setting up rural water districts in southwestern Virginia. Zimmerman will coordinate Commission activities.

The Commission will serve as national spokesman for DWP concepts and practices, seeking to make them effective throughout the country. Membership will initially be composed of representatives of the organizations involved in the DWP effort, together with related government agencies. These include the National Water Well Association (technical support on water systems), Mitre Corporation (waste disposal studies), Ground Water Council (national information clearinghouse), Office of Economic Opportunity, and the Environmental Protection Agency. Directors of local projects established by DWP will automatically become members. Additional members will be sought from interested national groups including farm, public health, rural consumer, and government.

The major breakthrough in the DWP program is agreement in principle from the Farmers Home Administration -- primary funding source for rural water systems -- to fund water companies that include so-called "cluster" and single family wells in their systems, instead of only central well-pipe line systems as formerly.

The Commission will seek to have this flexible approach implemented on a national basis to insure that rural people, regardless of income or location, will be provided with adequate water and sewage disposal facilities.

Further information on Commission activities and membership is available from the national clearinghouse -- Ground Water Council, 211 N. LaSalle St., Chicago, Illinois 60601. Phone (312) 346-8717.

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Commission on Rural Water

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NEWS RELEASE

TECHNICAL HELP COMING FOR
RURAL WATER-WASTE PLANNERS

May 15, 1972

FOR IMMEDIATE RELEASE

CHICAGO, ILL. -- Rural people planning new community water and waste disposal systems will have an easier time of it later this year when the National Water Well Association (NWWA) and the Mitre Corporation publish a new manual, Engineering Guide for Rural Water and Waste System Development.

NWWA and Mitre are preparing the manual for the Commission on Rural Water, which is innovating new methods of providing water and waste disposal facilities for low-income rural residents.

The guide is meant to assist local project personnel in choosing the most appropriate and economical systems for their particular area. It will thoroughly cover development procedures, design, cost factors, operation and maintenance. It should prove valuable to local engineers, geologists, and Farmers Home Administration officials. Farmers Home is the primary funding agency for rural water and waste disposal systems.

In addition to the water and waste systems guide, the Commission has sponsored a series of training manuals in water company operations. When all of these are complete, rural residents will be able to take advantage of proven procedures in setting up and operating their local projects.

Further information on the Commission is available from the National Clearinghouse -- Ground Water Council, 221 N. LaSalle St. -- Chicago, Ill. 60601.

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20 MILLION IN RURAL AMERICA

July 7, 1972

STILL WITHOUT WATER

FOR IMMEDIATE RELEASE

WASHINGTON, D.C. - There are still more than 20 million rural Americans who lack running water in their homes, according to the Commission on Rural Water.

The Commission, organized to assist rural families in getting adequate water and waste disposal facilities, said this estimate is based on preliminary 1970 Census figures. The estimate is conservative, with the actual number likely to be closer to 25 million.

Aggravating this serious lack is an equally critical waste disposal problem. The Commission estimates that more than 30 million families are using systems that dump untreated effluent into our soil and surface waters. The "outhouse" is not a thing of the past in rural America, nor is the pipe that runs directly from a house to a nearby stream.

In commenting on these statistics, Stanley Zimmerman, coordinator of the Commission's activities, said, "The extremely high number of rural people still lacking these essential services is yet another indication of our inability to come to terms with the problem. The new rural development legislation, recently agreed upon by House-Senate conferees, will go a long way toward closing the gap, but only if the 300 million in yearly water and sewer grant money authorized by Congress is actually spent. With \$58 million in already appropriated Farmers Home Administration water and sewer grant money being held up by the Office of Management and Budget, we are not optimistic that this will happen."

The Commission said that the FmHa water and sewer grant and loan program, while it has done much good, needs to be made more flexible and responsive, particularly to the low-income families who suffer most from a lack of pure drinking water and adequate waste disposal facilities.

Commission on Rural Water

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RURAL WATER INFORMATION

August 7, 1972

KIT NOW AVAILABLE

FOR IMMEDIATE RELEASE

Chicago, Illinois. - Rural residents seeking to improve their drinking water and waste disposal facilities can now get a helping hand from the recently formed national Commission on Rural Water.

A new Rural Water Information Kit explains how new approaches to rural water and sewage districts can benefit rural residents -- particularly those with low incomes. The kit explains how the federal government's assistance programs can be used and how they can be improved, using "cluster" wells and decentralized sewage disposal. It explains new approaches to systems design, and who to see if you have a local area water or sewage problem.

The kit was prepared jointly with Demonstration Water Project (DWP), which has organized local projects in several areas of the country to assist low-income people in organizing their own water companies. Much of the material in the kit is based on DWP's successful innovations and practices.

"Many rural residents, regardless of income, simply aren't aware of the programs available to help them," said Stanley Zimmerman, national coordinator for the Commission. "With 22 million rural people still without water in their homes, we think the kit will fill a real need. It suggests ways to get started, including where to find loan and grant money. But most important, it proves -- using the DWP experience -- that rural people can be successful in helping themselves get better water and waste disposal."

The kit is available from Box NR, Commission on Rural Water, 221 N. La Salle St., Chicago, Ill. 60601

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RURAL WATER COMMISSION

September 27, 1972

SUPPORTS NEW LEGISLATION

FOR IMMEDIATE RELEASE

Washington, D.C. - The national Commission on Rural Water has announced its support of two bills, now pending before the Congress, that will have far-reaching impact on the water and waste disposal situation in rural America.

The first, known as the "Rural Drinking Water Assistance Act," was recently introduced in the House by Rep. Howard Robison (R. N.Y.). It calls for the Secretary of Agriculture, in cooperation with the Environmental Protection Agency, to initiate a thorough survey of rural water needs and report these findings to a newly created Rural Water Council. The Council, whose membership would come from both government and private life, would then recommend a program of action at the federal level.

Other provisions would provide funding for research, and \$100 million a year each for direct loans and grants to rural water and sewer associations, with highest priority given to low-income groups. Grants of \$20 million a year would also be available to groups working to help poor people organize themselves.

Sen. Ernest Hollings (D. S.C.) has added similar survey provisions as an amendment to the Senate "Safe Drinking Water Act." This bill, given a good chance for passage this session, will set national standards for drinking water quality and Sen. Hollings' amendment would specifically recognize the special problems of rural people.

"We're hopeful that at least the Hollings' amendment will become law this year," said Stanley Zimmerman, national coordinator of the Commission. "The results of the survey will, we're sure, bear out the Commission's contention that millions of rural Americans are doing without these basic sanitary facilities. Although the Farmers Home Administration has done excellent work over the years in closing the gap and will be helped even further by the new "Rural Development Act," recently signed by the President, we feel that the Robison and Hollings' legislation will help to further focus national attention on the problem and will result in even higher priorities being given to solving it.

Commission on Rural Water

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RURAL DRINKING AND WASTEWATER SYSTEM

November 8, 1972

GUIDES AVAILABLE SOON

FOR IMMEDIATE RELEASE

Washington, D.C. -- Rural groups planning new or expanded water and waste disposal facilities will soon be able to refer to design manuals prepared especially for them by the Commission on Rural Water.

Written primarily for rural water-sewer companies and their engineering consultants, the manuals will also be valuable aids to government agencies, such as the Farmers Home Administration, who are active in providing loans and grants for these facilities. Several universities have also expressed interest in using the manuals as basic texts in their agricultural and civil engineering curriculum.

The Engineering Guide for Rural Water Systems Development was written for the Commission by Michael Campbell and Dr. Jay Lehr of the National Water Well Association (NWWA). It includes chapters on water system development, construction, pumping and treatment facilities, and relative costs and maintenance. It stresses the complete evaluation of all available alternatives for both water source and distribution.

Mr. Steven Goldstein and Walter Moberg, Jr., then of Mitre Corp., are authors of the Technical Manual on Wastewater Treatment Systems for Rural Communities. Similar in scope to the water systems manual, it is intended to be a guide to systems and components which are available for treating wastewater in rural situations. It includes information on traditional systems, such as septic tanks, and on innovative systems that are now available commercially, or in the advanced testing stage. Several of these are discussed in detail.

Both manuals, to be published as separate volumes around the 1st of the year, will be completely illustrated. Those who would like further information, or would like to receive pre-publication ordering information, should write to the Commission on Rural Water, 221 N. La Salle St. -- Chicago, Ill. 60601.

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RURAL WATER COMMISSION PUBLISHES

January 31, 1973

LOCAL DEVELOPMENT GUIDE

FOR IMMEDIATE RELEASE

Washington, D.C. -- Rural citizens seeking to improve their community's water and waste disposal facilities can now benefit from the experience of the Commission on Rural Water.

A new book, Guide for the Development of Local Water Projects, has just been published by the Commission and is available for ordering. Written by Stanley Zimmerman and Edwin Cobb, of Conset, Inc., the book draws upon the experience of Demonstration Water Project, Inc., in setting up model development projects in various parts of the country. It is the only publication available that covers the subject in a comprehensive manner.

Using a step-by-step approach, the guide covers assessment of local need ...organization of the development team...obtaining official approvals and project financing...establishment and training of the utility companies...and construction supervision and support company operation.

Written in easy to understand language, the guide takes the form of advice -- "do's and don't's" -- to the potential project developer. Problems faced in actual DWP project areas are used to illustrate many of the points made. In addition, appendixes at the end of each section include samples of the various forms and procedures required by the many agencies involved in the funding and approval process.

The cost of the guide is \$5.00, which covers the expense of duplication. Postage will be prepaid if payment accompanies order. To order a copy -- and to request information on other Commission publications, including technical manuals on rural water-sewer system development -- write to the Commission on Rural Water, Box DM, 221 N. La Salle St., Chicago, Ill. 60601.

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RURAL DRINKING AND WASTEWATER

February 6, 1973

SYSTEM GUIDES NOW AVAILABLE

FOR IMMEDIATE RELEASE

Washington, D.C. -- Groups active in the development of new or improved water and waste disposal facilities for rural areas can now order design manuals prepared especially for them by the national Commission on Rural Water.

Written primarily for rural water-sewer companies and their engineering consultants, the manuals will also be valuable to government agencies, such as the Farmers Home Administration, who finance such facilities. Universities should also find them useful as basic texts in their agricultural and civil engineering curriculums.

The Engineering Guide for Rural Water Systems Development was written for the Commission by Michael Campbell and Dr. Jay Lehr, both of the National Water Well Association. It includes sections on system development, construction, pumping and treatment facilities, and relative costs and maintenance. It stresses complete evaluation of all alternatives for both water source and distribution.

Mr. Steven Goldstein, assisted by Walter Moberg, Jr., is the author of the Technical Manual on Wastewater Treatment Systems for Rural Communities. It is intended to be a guide to systems and components which are available for treating wastewater in rural situations. It includes information on traditional systems, such as septic tanks, and on innovative systems that are now available commercially, or in the advanced testing stage.

Both manuals are completely illustrated and are bound in hard covers. Cost is \$12.50 each, or \$22.50 if ordered together. Postage will be pre-paid if payment accompanies order. Volume prices are also available. To order -- or to request additional information on these and other Commission publications -- write to the Commission on Rural Water, Box TM, 221 N. La Salle Street, Chicago, Ill. 60601.

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