

ILLINOIS STATE WATER PLAN

CRITICAL ISSUES

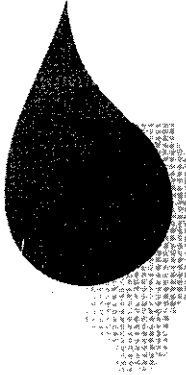
CROSS-CUTTING TOPICS

OPERATING ISSUES

Prepared by the:

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Illinois State Water Plan

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January 31, 1984

OFFICE OF THE
GOVERNOR

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ASSEMBLY, WATER
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COMMISSION

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GOVERNOR OF THE STATE OF ILLINOIS

PRESIDENT OF THE SENATE

SPEAKER OF THE HOUSE

Gentlemen:

I am pleased to transmit the report "Illinois State Water Plan," which has been prepared after a three-year study by a Water Plan Task Force drawn from 12 Executive and Legislative Branch agencies.

The report addresses 10 critical issues and three cross-cutting topics which have either received inadequate attention or have been recognized as new problems. The report also deals with seven operating issues in which improvements can be made in the effectiveness of Illinois water resources management. A companion document outlines Water Plan implementation costs.

Water is a resource of great value to Illinois because of its relative abundance. Its wise management involves the challenges of achieving optimum benefits for our citizens, recognizing the limitations of the resource, conserving it, and mitigating the problems associated with the resource such as the extremes of flood and drought.

The Task Force is ready to assist the Executive and Legislative Branches in implementing the recommendations of the report.

Sincerely,

Donald R. Vonnahme
Chairman

Enclosure



EXECUTIVE SUMMARY

Introduction

The Illinois State Water Plan is intended to provide policy and program guidance in water resource management to State and local agencies, and non-governmental organizations.

A previous water plan issued in 1967 had become increasingly obsolete as a result of subsequent events such as the environmental movement, the energy crisis, changing and potential new demands upon the water resources, and the need to better coordinate the programs of existing agencies.

Task Force Activities and Interim Products

In 1980 Governor Thompson appointed a Task Force to prepare this State Water Plan. Activities during 1980, 1981, and 1982 are described in annual progress reports. The Task Force also issued a series of Special Reports, two Information Papers, and a periodic newsletter.

The work of the Task Force was greatly aided by two advisory groups, five regional committees, and by widespread public hearings held each year.

The water plan effort was aided by grants of \$245,200 and \$192,300 from the U.S. Water Resources Council in fiscal years 1980 and 1981, respectively. Regional communication was established with neighboring states which were engaged in similar planning activities. The Plan considers the broad social and economic trends reported in two recent reports, "Illinois: The Future" and "Illinois 2000".

Finally, since implementation of the Water Plan depends on agency programs, a consistency statement was adopted to ensure that agency programs will not conflict with the agreed Plan.

Problems Requiring Attention

The mission of the Task Force was established as the development of an improved water management system that is socially acceptable and operates within resource constraints. Goals were to utilize coordinated planning and implementation, to provide public participation, and to identify and establish any needed mechanisms for conflict resolution. The focus of the Water Plan became ten critical issues, three cross-cutting topics, and seven operating issues.

Critical Issues - These are identified as statewide problems which have either received inadequate attention or have been recognized as new problems. The 10 critical issues are: Erosion and Sediment Control, Protection of Underground Water, Flood Damage Mitigation, Water Conservation, Competition for Water, Aquatic and Riparian Habitat, Water-Based Recreation, Atmospheric Changes and Management, Drought and Emergency Interruption of Supplies, and Illinois Water Use Law.

Cross-Cutting Topics - These are broad problems or required actions which relate to and interact with other issues. The topics are: Integrated Water Management, Conflict Resolution, and Public Participation.

Operating Issues - These are concerned primarily with ongoing multi-agency programs which can be made more efficient through coordination and joint action. They are: Stream and Lake Use Management, Stream Data Measurements, Stream Indexing, Natural Resource Information System, Water Resources Permit Coordination, Water Research and Education, and Reservoir and Lake Operations.

Priority Order - The issues and topics within each category are shown in their general order of importance using criteria such as statewide importance, the involvement of multiple agencies, immediacy of need for action, and readiness of information and institutional mechanisms. Many of the issues and topics are highly interrelated.

Findings and Recommendations

The heart of the Water Plan is contained in the report's Findings and Recommendations summarized in the following compressed statements for each of the ten critical issues, three cross-cutting topics, and seven operating issues.

CRITICAL ISSUES

Erosion and Sediment Control - Excessive soil erosion on 9.6 million acres of Illinois farmland is threatening their productive capacity, degrading water quality, accelerating eutrophication of reservoirs, silting streams, and degrading fish and wildlife habitat. Control of erosion and sediment is difficult because of the large number of individual farms; the technical effort in locating specific high problem areas; the unquantified link between erosion and water quality; the large number of agencies involved; limited incentives; the attitudes, levels of knowledge and action of individual landowners; and reduced federal program assistance.

Recommendations call for the Department of Agriculture and cooperating agencies to continue program coordination with existing advisory committees and implementation of long-range plans. They also call for meeting established soil erosion goals by completing soil surveys and adding additional staff which will be directed into areas of the greatest problems. Some 900,000 acres now in row crop production will need to be converted to less intensive use; a strengthened educational program is required, and more effective incentives need to be developed. Erosion control programs will be evaluated and deficiencies corrected.

Protection of Underground Water - More than 1700 community water supplies and approximately 40 percent of the State's population are dependent on underground water sources. Concern over the protection of this resource against contamination and overdrafts is widespread. This issue was added late in the Water Plan process, and progress to date is limited.

Recommendations include a policy statement to protect and manage underground water for the economic, health, and social well-being of the people. Levels of protection will be established, uses and responsibilities will be determined, and the resource inventoried. Areas of degradation and depletion will be identified. Implementation programs will be developed, and although statutory and regulatory changes may be required, these are not yet determined.

Flood Damage Mitigation - Flooding continues to cause significant damage as a result of existing and continuing unwise development of floodplains. A vigorous program of structural and non-structural measures is required in planning, construction, and regulatory programs at all levels of government.

Recommendations call for an accelerated program to reduce the \$250 million backlog of projects. State leadership will be established in rural flood control, including the evaluation of the cumulative effect of levees. The flood insurance and floodplain regulatory management programs will be actively supported. The State will assist local governments in dealing with stormwater through the use of model ordinances and manuals.

Water Conservation - The conservation of water is an important element in wise management to preserve the resource, to reduce costs, and to minimize the use of energy. Except for the regulated area in the Lake Michigan service area attention to water conservation has been primarily limited to periods of drought.

Recommendations of the Task Force call for continued promotion of water conservation programs through information and education programs. Attention will be focused on water-deficient regions. Water conservation devices will be marketed to plumbing wholesalers, retailers and contractors. Model plumbing codes will be encouraged, as will industrial conservation. Water conservation devices will be installed in up to 17,000 low income residences. The State will work with local officials and will monitor the effectiveness of the program.

Competition for Water - There is rising concern that water demands may exceed available supplies in some regions of Illinois resulting in water shortages and conflicts between competing users. Proposals for major new water demands include coal slurry pipelines, synthetic fuel plants, and increasing irrigation. Additionally, there is increased interest in protecting the ecology of our streams by the maintenance of minimum instream flows and water levels.

The Task Force has conducted an evaluation of the balance of supplies vs. projected demands to the year 2000 for regions of the State. This has identified specific areas of potential competition for water. Monitoring of emerging water demands will be continued with attention given to directing new, consumptive uses to regions with ample supplies.

Aquatic and Riparian Habitat - Illinois' streams, lakes, wetlands, and their adjacent lands are important in maintaining ecological balance, because they have economic and aesthetic value, and because they are essential to recreation. Yet there has been a relentless loss of riparian habitat in the absence of adequate understanding and limited regulatory authorities.

Improved habitat protection will result from planning based on accurate information provided by computerized data bases such as the Illinois Streams Information System (ISIS) and the proposed inventory of Illinois wetlands. This planning by targeting existing resources will improve the effectiveness of existing and lead to new programs. Rules and regulations for the Act in Relation to Rivers, Lakes, and Streams of 1911 will be adopted that specifically include environmental considerations in water resources planning, permitting, and development. Interim standards will be set for a minimum protected flow in Illinois streams for water quality, aquatic life, recreation, and other benefits.

Water-Based Recreation - There is increasing disparity between the demand for and supply of opportunities for water-based recreation in Illinois. Creating artificial lakes has slowed for economic and environmental reasons. Therefore, there is need for more effective planning and management to improve the stream and lake environments, provide better access, and revitalize urban waterfronts for recreational and economic benefits.

The Task Force will soon recommend an urban waterfront renewal policy based on its 1983 sponsored study. Existing recreational data will be added to the Illinois Streams Information System (ISIS) to identify and better manage Illinois' most recreationally important waters. Access site information recently collected will be analyzed to better guide the State's local boating assistance program.

Atmospheric Changes and Management - Illinois climate is changing with greater precipitation extremes causing both floods and droughts. Man's influence is also leading to increasing urban storminess and acid rain. Studies of long-range climate prediction and weather modification are hindered by the withdrawal of federal support.

A research and monitoring program for climate change and man-made effects will be maintained. Public awareness and access to climate data will be improved, and research on weather modification will be maintained. A Climate Detection and Assistance Team should be established to develop policy and plans for floods, droughts, and unfavorable atmospheric modifications.

Drought and Emergency Interruption of Supplies - Droughts are a recurring experience with major effects on crops, water supplies, and aquatic environments. Similarly, supplies may be interrupted as a consequence of the release of contaminants or failure of facilities.

Existing State and federal programs for drought and emergency interruption of supplies will be organized and maintained in a state of readiness. This involves a continuation of monthly water condition reports, formation of a special Task Force, and execution of a series of specific response steps. It is also recommended that rate adjustments be considered by the Illinois Commerce Commission for proprietary water systems during water emergencies.

Illinois Water Use Law - Water use law in Illinois is an uncodified collection of court decisions and statutes which can lead to uncertainty. Specific shortcomings are the inability to prevent water shortages or to protect instream flow uses.

The powers of the State to preserve and protect public waters will be precisely defined and identified, and appropriate rules developed. State agencies will work with groundwater users to create local groundwater management districts where needed. Legislation should be introduced for the protection of minimum flows and lake levels. When regional imbalance cannot be rectified by local action, legislation may be required to use State emergency powers to manage and allocate water for the duration of the shortage.

CROSS-CUTTING TOPICS

Integrated Water Management - Most water quality and quantity programs are managed under single-purpose, agency authorities. However, recently recognized problems such as minimum stream flows and the need for improved coordination point to the need to coordinate program authorities for improved problem resolution.

A successor to the Water Plan Task Force will be established as the appropriate forum for policy and technical exchanges and resolution. Geographic priorities will be identified, required data bases will be managed, and a system of accountability will be established in part through annual interagency agreements.

Conflict Resolution - Conflicts involving water rights among individuals or institutions in Illinois have not been frequent except for the problems of limited resources and their allocation in the Chicago region.

The Task Force concludes that conflicts can be avoided or minimized without creating new mechanisms and by adherence to available concepts of resolution at the lowest feasible level, clarifying the law with respect to public waters, using supply/demand information to anticipate shortages, encouraging local districts to allocate water resources, having the Task Force and the Natural Resources Sub-Cabinet resolve issues between agencies, utilizing interstate agreements, employing existing institutions regarding Great Lakes questions, and using courts as the means of last resort for conflict resolution.

Public Participation - Water is not only a subject of considerable importance, but is one in which there is widespread public interest and desire for involvement. Furthermore, active public participation assures that the Water Plan will reflect public values and priorities, and thereby enhance the probability of Plan implementation.

The Task Force will provide widespread visibility to the Plan, and means will be continued for incorporating refinements and additions. An awareness program will be conducted with committees of the legislature, to be followed by public hearings and other available means for visibility.

OPERATING ISSUES

Stream and Lake Use Management - Although existing authorities provide for hazard intervention, they generally are inadequate for normal periods with respect to conflicting instream and offstream demands.

The Task Force proposes to use the Illinois Water Quality Management Plan (WQMP) as a vehicle to codify state agency water authorities and management priorities.

The Task Force recommends the identification of state management authorities and priorities on a watershed and reach basis, the codification of this information in the WQMP, resolving conflicts, and identification of the roles of each agency leading to interagency agreements.

Stream Data Measurements - The collection and dissemination of streamflow, water quality, and suspended sediment data suffer from reduced funding resulting in part from program fragmentation and the non-participation of many users.

Network analyses are now underway as is a survey of the data needs of users.

The Task Force agrees that upon completion of the analyses and surveys now underway, it will identify minimum networks required and seek future funding for them. It is also recommended that the base of support for funding be broadened.

Stream Indexing - Water resources planning, management, and research would be enhanced if a uniform system of stream and river mile identifications were devised and adopted. The problem is complicated by the fact that substantial investments have been made in a variety of existing agency systems.

Since no agreement could be reached on a single, uniform system at this time, a cross-reference table will be prepared by the Water Survey to facilitate coordination of interagency activities. Changed river mile data will be identified by the Department of Conservation and made available to and adopted by the other State agencies.

Natural Resource Information System - Major issues involving natural resources could be resolved more efficiently through a centralized information facility.

An Illinois Natural Resources Information Center (INRIC) has been established. It began operation in August 1983 as a referral service relating to any aspect of natural resources data or expertise.

The concept of INRIC will be continued by the State Water Survey while continuing to explore the use of computer storage of additional information and eventual direct user access to the system.

Water Resource Permit Coordination - The permitting process is a widespread activity of State government and one which can be improved through coordination, and expansion of permit participation to agencies not now covered.

Substantial progress has been made through the activity of a Work Group which has identified common problems, and has dealt with several problem areas such as land application of sludge and control of erosion at construction sites.

The Water Resources Permit Coordination Work Group will continue the discussion and resolution of issues. Several have been identified such as procedures for permit review, the construction grants program, and landfills on floodplains.

Water Resources Research and Education - Development of the Water Plan has identified many problems which require study to provide the basis for State water policies and improved management. Periodic assessments and continuing coordination are required for ongoing research and research needs. A need for funds also exists to provide training at the universities for water resources professionals.

State agency personnel and university and Scientific Survey staff will maintain a mutually beneficial dialogue. A means for this is annual meetings and special topic workshops which should include managers of industry and utilities. Particularly in light of reduced federal support, Illinois will maintain a vigorous and responsive program of research and training.

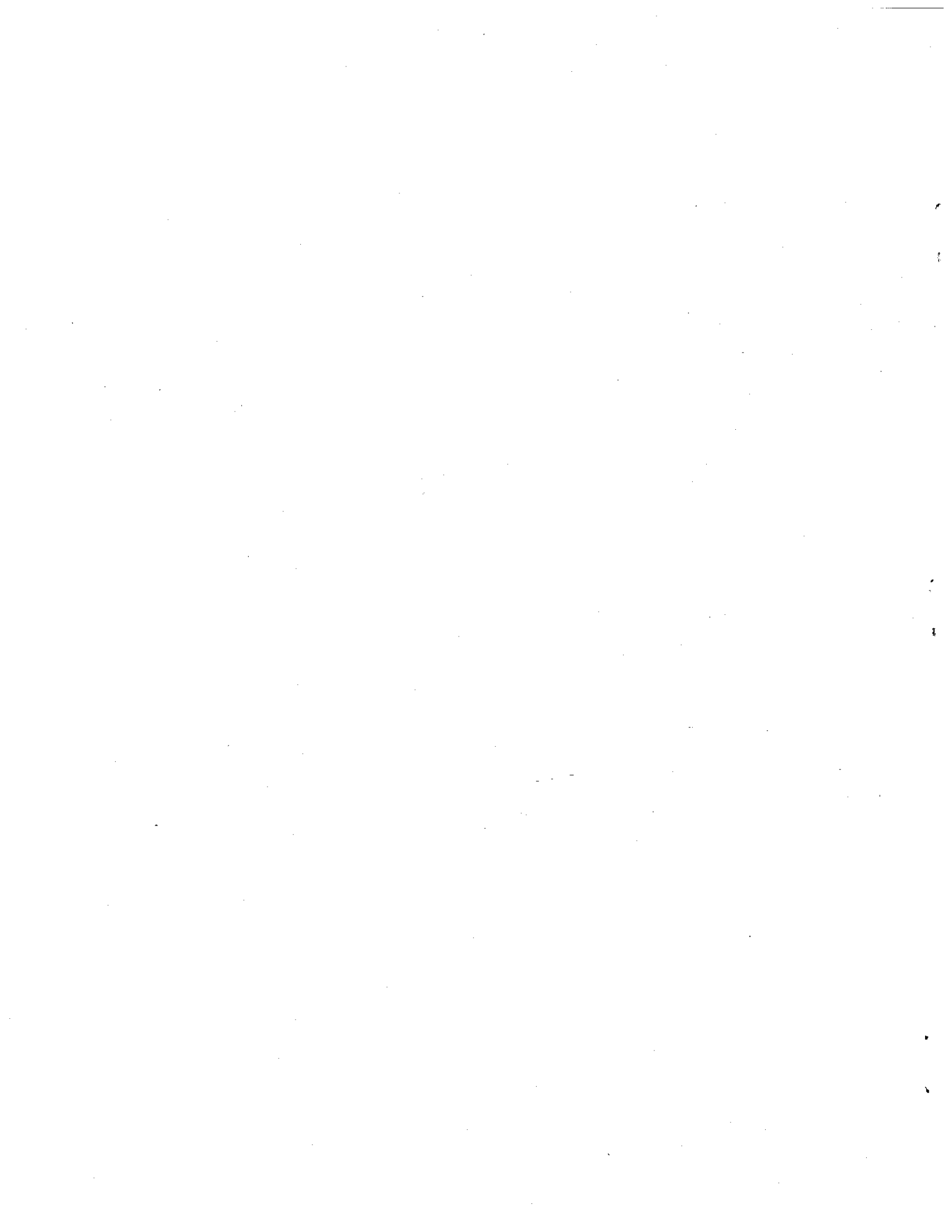
Reservoir and Lake Operations - Manmade impoundments are valuable developments, but do create management problems such as low flow regulation, flooding, sedimentation, and water quality deterioration.

State agencies will carry out improved management steps during the planning phase of all new reservoirs and the interaction of State and Federal agencies in the operation of existing lakes. Interim low-flow standards, lake water quality and watershed protection, annual meetings of the concerned agencies, attention to agricultural flooding, coordinated reviews, optimization of available storage, and a continuation of reservoir sedimentation surveys will be carried out.

FUTURE DIRECTIONS

Water Plan Implementation Costs - Since implementation of the Water Plan involves considering the cost of Plan recommendations, the Task Force has prepared a companion report entitled, "Illinois State Water Plan Estimated Cost of Implementation, Fiscal Years 1984 through 1986".

Task Force Continuation - A successor Task Force of the same character will be continued to monitor implementation of the Plan; to continue the process of communication, coordination, and joint actions of the agencies; and to deal with new problems and priorities.



PREFACE

Introduction

The report which follows is a final report on the Illinois State Water Plan, which is intended for policy and program guidance. This effort began during the spring of 1980 with the appointment of a Water Plan Task Force by Governor Thompson. Activities and accomplishments during 1980 are contained in the report "Plan of Study, Illinois State Water Plan," dated March 1981. Activities during 1981 are summarized in the report "1981 Progress Report, Illinois State Water Plan," dated January 1982. Activities during 1982 are in the report, "1982 Progress Report, Illinois State Water Plan: Emerging Issues", dated January 31, 1983.

Need for State Water Plan

The need for an Illinois State Water Plan has been increasingly evident for several years. The most recent plan was published in 1967 and has become obsolete in a number of respects. During the intervening years a number of events on a state, national, and international scale have resulted in changing and competing demands upon the available water resources. Among these were the energy crisis and the strong demand for Illinois crop production. There has also been a dramatic increase in environmental concern which has resulted in changed values. More recently attention has focused upon conservation and non-structural approaches to solving water problems. On the State level a number of changes in water-related agencies have taken place, and the lack of adequate program integration is still present.

Under consideration for about two years, the decision to proceed with a State Water Plan was triggered by action of the Executive Branch of the U.S. Government. Through administration by the Water Resources Council, funding under Title III of the Water Resources Planning Act of 1965 (P. L. 89-80) was substantially increased. This provided a grant to Illinois and other states to increase planning for the management of water and related land resources at the state level. The U.S. Water Resources Council and its planning grant were terminated on September 30, 1982.

Water Plan Task Force

Membership of the State Water Plan Task Force consists of policy level individuals from State water agencies. The Governor designated the Director of the Division of Water Resources in the Department of Transportation as Task Force Chairman. The Chairman, in turn, retained an Executive Director and provided professional and supporting staff. The Task Force met first on May 6, 1980, and generally has met monthly since that time.

The Illinois State Water Plan represents a consensus of those agencies who participated in the Task Force.



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SUMMARY OF TASK FORCE ACTIVITIES

1980 TO 1983

Development of Plan Concept

An early decision of the Task Force was that the Water Plan should primarily provide policy guidance, and deal with the adequacy of programs and their coordination rather than with specific projects. It was further agreed that the Plan would not be a one-time effort, but instead, would initiate a dynamic process which can be updated periodically. Thus, it addresses problems in an order of priority and current relevance.

It was decided not to focus directly upon institutions or agencies with respect to organization or reorganization, or to concentrate upon traditional and well-established programs, but instead to focus on problems at the margin of attention. That is, consideration was directed toward programs whose effectiveness in meeting current problems could be increased and on emerging issues not yet fully addressed.

Similarly it was decided in 1980 that this planning effort did not require a major, new inventory of water resources. A brief summary of Illinois water resources and uses was included in the 1981 report, and was subsequently issued as the first in a series of special reports.

Existing State agency staff was assigned to Plan development, with responsibilities for development of elements of the Plan established through a system of assignments to lead and supporting agencies. The agencies and individuals who participated in the Plan development are cited in the Appendix. Expanded descriptions of the missions and programs of the agencies are given in Appendix A of the 1981 Progress Report.

From Task Force deliberations there emerged agreement on the Water Plan mission, goals, and initial focus as follows:

Mission - Develop an improved water management system that is socially acceptable and that operates within resource constraints.

Goals - Achieve more efficient resource utilization through (a) coordinated planning and implementation, (b) public participation, and (c) establishing any needed mechanisms for conflict resolution.

Initial focus - The Water Plan focused initially on critical water issues not being sufficiently addressed by current programs, or emerging issues which can be anticipated to lead to future problems or conflicts.

A preliminary list of 18 issues which emerged in 1980 was reduced to 10 plus three cross-cutting topics and seven operating issues, all of which are subsequently defined.

External Review

Considerable Task Force time was devoted to public participation in the program. Although Water Plan decisions were made by the Task Force, outside advice was sought and was clearly beneficial in Plan development.

Public Hearings - Public meetings were conducted late in 1980 before the Plan of Study was finalized so that public response could be considered as soon as possible in the planning process. Subsequently, public hearings were conducted throughout the State early in 1982 and 1983 as annual progress reports became available for public discussion. These were conducted by the Water Resources Commission with support by State agency personnel.

Public hearings held in the fall of 1980 were in Chicago, Peoria, DeKalb, Carbondale, and Edwardsville. Those held early in 1982 were at Grayslake, Quincy, Fairfield, Carlyle, Decatur, Starved Rock, and Freeport. Those held in 1983 were at Danville, Lawrenceville, Rock Island, Alton, Herrin, Orland Park, Rockford, and Macomb. Members of the Illinois General Assembly were present at each hearing.

The public hearings were helpful in setting the relative priorities of problems, they led to the addition of an issue on "Protection of Underground Water", and raised a variety of concerns for the Task Force to address. There was general endorsement of the plan and identified problems.

Advisory Groups and Regional Advisory Committees - A Federal Agency Advisory Group was established and held its first meeting on October 16, 1980. It has subsequently met twice annually to review progress and draft reports.

Similarly, a Future Development Advisory Group was established and held its first meeting on October 21, 1980. This diverse group of Illinois citizens and representatives of interested groups and associations also met semi-annually. The purpose of this group is to ensure that the State Water Plan is developed with full consideration of broader environmental and developmental trends.

Five Regional Committees were organized in the fall of 1980 and have continued to contribute valuable suggestions as the Water Plan evolved.

Names of active members of the advisory groups and regional committees are cited in the Appendix.

Problems Requiring Attention

Problems requiring attention under the Illinois State Water Plan fall into three categories: Critical Issues, Cross-Cutting Topics, and Operating Issues. These are defined as follows:

Critical Issues - These are statewide problems not being sufficiently addressed by current programs, or emerging concerns that may lead to future problems or conflicts.

Cross-Cutting Topics - These are broad problems or required actions that relate to and interact with the other issues.

Operating Issues - These are concerned primarily with ongoing multi-agency programs which can be made more efficient through multi-agency coordination and joint action.

Priority Order of Issues and Topics

Issues and topics and their lead agencies are shown below in their general orders of importance within each category. This ordering focuses attention on the most critical statewide problems, but does not include all water resource problems requiring attention for management, development, or conservation. Regional priorities may vary from this State-wide ranking. The criteria for this judgement are complex and have evolved over the three-year life of the Water Plan activity, and represent the judgement of the Task Force in consideration of the views of the advisory groups, the regional committees, and repeated public hearings. They employ the following considerations:

1. The problems are of statewide importance.
2. They involve two or more agencies.
3. The ordering within the issue and topic categories involves a consideration of immediacy of need for action.
4. The issues consider the readiness of existing or recommended institutional mechanisms for immediate action with proper funding.
5. The information bases for the recommendations related to each issue and topic are sufficiently complete to assure success of the recommended course of action.

Many of the issues and topics are highly interrelated and the success in achieving action in one is dependent upon action to implement other issue recommendations.

INSTITUTIONAL LEADERSHIP OF ISSUES AND TOPICS

<u>Critical Issues</u>	<u>Lead Agency</u>
Erosion and Sediment Control	Department of Agriculture
Protection of Underground Water	Environmental Protection Agency
Flood Damage Mitigation	Division of Water Resources
Water Conservation	Department of Commerce and Community Affairs
Competition for Water	Water Survey
Aquatic and Riparian Habitat	Department of Conservation
Water-Based Recreation	Department of Conservation
Atmospheric Changes and Management	Water Survey
Drought and Emergency Interruption of Supplies	Division of Water Resources
Illinois Water Use Law	Division of Water Resources

INSTITUTIONAL LEADERSHIP OF
ISSUES AND TOPICS, Cont.

Cross-Cutting Topics

Integrated Water Management	Environmental Protection Agency
Conflict Resolution	Water Plan Executive Director
Public Participation	Water Resources Commission

Operating Issues

Stream and Lake Use Management	Environmental Protection Agency
Stream Data Measurements	Water Survey
Stream Indexing	Department of Conservation
Natural Resource Information System	Water Survey
Water Resources Permit Coordination	Environmental Protection Agency
Water Research and Education	Water Survey/ Water Resources Center
Reservoir and Lake Operations	Division of Water Resources

The nature, progress, and recommendations for each issue and topic are given in a later section of this report.

Water Resources Council Grant

Support of the Water Plan effort under Title III of the Water Resources Planning Act was provided by the U.S. Water Resources Council. The amounts received were \$245,200 in FY 1980 and \$192,300 in FY 1981 which were required to be at least matched by State funds. The start of the grant year was established by the Task Force as June 1, 1981. Grant funds were allocated by internal action of the Task Force among the several issues and topics according to priorities and needs.

Title III planning support expired on September 30, 1982, and the Water Resources Council became inactive.

Consistency of Water Plan with Agency Programs

At its July 1981 meeting, the Task Force considered and adopted a Statement on Consistency for the Illinois State Water Plan. Consistency is interpreted to mean that agency programs are not in conflict with the agreed State Water Plan.

Since developing the State Water Plan is not an end in itself, the value of the Plan rests in whether or not there is a commitment on the part of the planning participants to seek to implement the Plan. Moreover, the Plan is to be utilized as the basis for coordinated, consistent, and informed decision making through agency programs. Further detail is given in the 1981 Progress Report.

Reports on the Future of Illinois

The State Water Plan Task Force considered broad social and economic trends and the future problems and opportunities of the State. This concept was incorporated during 1981 by reviewing two recent and authoritative reports, "Illinois: The Future" and "Illinois 2000" which are briefly referenced here and treated in some detail in Appendix C of the 1981 Progress Report.

The report "Illinois: The Future" dated January 1980 was authored by a statutory Task Force. It presents a future of the State and its government, projects population and the economy to the year 2000, and considers transportation, natural resources, and energy. An updated State Water Plan is recommended.

The report "Illinois 2000" was released in 1979 by an organization affiliated with the Illinois State Chamber of Commerce. It projects population, and considers resources and various influences for future growth. It is particularly concerned with Illinois' economic climate.

Illinois Water Resources

To plan for wise use and to solve and anticipate our future water problems, it is necessary to know the quality and quantity of the water resources available and what uses are presently being made of them.

An early decision of the Task Force was that a detailed inventory of water resources and uses was not required to be an initial major occupation of Water Plan development. The 1967 report "Water for Illinois, a Plan for Action" remains generally useful in this regard, and the reports of State and Federal agencies on the subject are readily available. However, as noted in several issues, organization of existing water resources information for particular planning needs is a pressing problem.

The 1981 Progress Report contains a summary section on Illinois water resources and uses. This same material was published as Special Report No. 1.

The Regional and National Setting

It is an old truism that nature, including the location and movement of water resources, does not respect political boundaries. Yet, our political areas such as states, are in many ways the logical units within which to organize activities including planning.

Since about 1980 there has been a trend to shift water resources planning from the federal level to the states, from which the regional and national plans will be built. This gave a great deal more importance to the Illinois State Water Plan.

To provide regional context, the Illinois Task Force concluded in 1981 that it should coordinate its activities with surrounding states. Thus, communications were established with our immediate neighbors - Iowa, Missouri, Kentucky, Indiana, Michigan, and Wisconsin.

The Illinois issues and topics appear among the activities of a number of other states. The most frequently mentioned problems and activities in neighboring states are water quality including groundwater pollution, flooding problems, and water conservation. Various activities such as public information and participation, data acquisition and management, and determination of funding priorities have been seen by neighboring states as essential steps in solving the major water resources problems.

Publications of the Water Plan Task Force

Prior to release of the final report on the State Water Plan, several reports have been published by the Task Force, as identified below. These reports were useful in reporting progress to State agency personnel, members of the Legislature, members of advisory groups and regional committees, and to the general public, especially those people who attended the public hearings. These reports are identified by title and date in each of the several categories as follows:

Progress Reports - These were printed and issued annually by and are available at the Division of Water Resources, Department of Transportation. Titles and dates are:

"Plan of Study, Illinois State Water Plan," March 1981.

"1981 Progress Report, Illinois State Water Plan," January 18, 1982.

"1982 Progress Report, Illinois State Water Plan, Emerging Issues, January 31, 1983.

Special Reports - These reports are products of the Water Plan effort which are independently useful. Copies can be obtained from the Division of Water Resources, Department of Transportation. They are:

"Special Report No. 1, Illinois Water Resources and Uses," by University Water Resources Center, January 18, 1982.

"Special Report No. 2, Atmospheric Changes and Management Issues," by State Water Survey, August 1982.

"Special Report No. 3, Drought Contingency Planning," by Division of Water Resources, June 1983.

"Special Report No. 4, Water Conservation," by Department of Commerce and Community Affairs and University Water Resources Center, in press.

"Special Report No. 5, Illinois Water Research Needs and a Catalog of Water Research in Illinois," by University Water Resources Center, March 1983.

"Special Report No. 6, Instream Flow Protection: A Planning Standard for Illinois Streams," by Department of Conservation and Division of Water Resources, October 1983.

"Special Report No. 7, Urban Waterfront Renewal: The Illinois Experience," by Department of Conservation, in press.

Information Papers - At advisory group meetings and public hearings questions were frequently asked about hydropower and navigation. Although these subjects did not fit within the established criteria for issues or topics, it appeared desirable to publish brief reports on these subjects as noted below. These two reports were prepared and published by the Division of Water Resources, and summaries appear in the 1982 Progress Report.

"Information Report No.1, Hydropower," October 1982.

"Information Report No.2, Inland Waterway and Deep Draft Navigation," October 1982.

Newsletters - The widest distribution of Water Plan information on activities and progress occurred through periodic publication of five issues of a newsletter entitled "Illinois Water." This was prepared and published by the University of Illinois Water Resources Center.

FINDINGS AND RECOMMENDATIONS

The heart of the report is this section on Findings and Recommendations, in which 10 critical issues, three cross-cutting topics, and seven operating issues are discussed under brief statements of the problem and recommendations.

Where this is possible, specific agency responsibilities are indicated.

Ordering of Issues and Topics - The findings and recommendations reported in this chapter follow in the order of (1) Critical Issues, (2) Cross-Cutting Topics, and (3) Operating Issues. Within each of these three categories the individual issues or topics are arranged in a priority order as discussed in the earlier section on "Summary of the Task Force Activities - 1980 to 1983."

Interrelations of Issues - By definition the Cross-Cutting Topics relate to most of the 10 Critical Issues and may involve one or more Operating Issues. However, the Critical Issues and Operating Issues also involve numerous interrelations. For example, Illinois Water Use law is related to Competition for Water and to Conflict Resolution. Water Conservation is related to Drought and Emergency Interruption of Supplies. Stream Data Measurements and Water Research and Education clearly affect the ability to advance most of the issues. Numerous other examples could be cited.

Water Plan Implementation Costs - The Task Force is eager for its recommendations to be adopted, and advice from the several sources is strongly in support of Plan implementation.

Adoption of Plan recommendations must involve a consideration of the attendant costs. Therefore, the Task Force has estimated the costs of the recommendations associated with each of the issues, and topics, and these costs are displayed for the fiscal years 1984, 1985, and 1986. Implementation costs are also organized as to State or Federal sources, capital and operating charges, and as to whether additional appropriations are required.

These implementation cost estimates are not included in the present Final Water Plan Report. Instead they are given in a companion report entitled "Illinois State Water Plan Estimated Cost of Implementation, Fiscal Years 1984 Through 1986" which is being issued at the same time. Having a separate publication recognizes that budgetary circumstances will change from year to year. Thus, the implementation cost report can be updated as needed without rendering the Water Plan obsolete.

Task Force Continuation - The present report is designated as a final report, and it is hoped that it will serve as a policy and program guide to government for some years with respect to major State water problems.

However, it has been recognized from the outset that planning is a dynamic process, and thus, it is not possible to close the book for an indefinite time on needed actions. New problems arise and the State's priorities change. It has also been learned through the Task Force process that communication, coordination, and joint actions have been measurably improved through the regular meeting of agency representatives. Thus, it is recommended that a successor Task Force of essentially the same character be continued in the interest of good government and service to the citizens of Illinois to coordinate the programs of agencies and their interactions with other levels of government.

CRITICAL ISSUES

EROSION AND SEDIMENT CONTROL

Statement of Problem

Excessive soil erosion on 9.6 million acres of Illinois farmland is threatening the productive capacity of our soil resource base, degrading water quality, accelerating eutrophication of reservoirs, silting in streams and rivers, and degrading fish and wildlife habitat. Excessive suspended sediment, resulting from soil erosion on cropland is the major non-point source pollutant in Illinois. The control of non-point source pollutants is a critical step towards improving overall water quality.

The development of a program to control soil erosion and promote soil and water conservation is difficult because of (1) the large number of individual farms, (2) the technical effort needed to locate specific problem areas, (3) unquantified link between soil erosion and degraded water quality, (4) the large number of agencies working with soil and water conservation programs, (5) limited incentives to promote conservation work, (6) the attitudes, levels of knowledge and actions of individual landowners, and (7) reduced federal technical and financial assistance.

Recommendations

Under the Illinois Department of Agriculture and its cooperating federal and district cooperators and committees:

1. Continue soil and water conservation program coordination.
 - a. Maintain the Soil Erosion and Water Quality Advisory Committee (SEWQAC) and two subcommittees.
 - (1) State Watershed Priority Committee
 - (2) Education Committee
 - b. Complete a State soil erosion and water quality long-range plan.
 - (1) Encourage all state and federal agencies to develop long-range and annual work plans consistent with the plan.
 - (2) Provide a forum to discuss annual work plans.

2. Encourage all SWCD's to meet established soil erosion goals.
 - a. Complete a modern soil survey in all counties by the year 1991, with additional federal, state, and local resources as specified in the report "Estimated Cost of Implementation Fiscal Years 1984 through 1986".
 - b. Add employees to the Soil and Water Conservation District staffs.
 - c. Assure the efficient and effective use of financial and technical resources by targeting resources into areas with the greatest resource concerns and needs.
 - d. Provide state cost-sharing assistance for the installation of conservation practices on land for which a valid complaint has been filed under the soil erosion and sediment control program.
 - e. Convert 900,000 acres of land currently in row crop production to a less intensive land use (pasture, trees, etc.) because it cannot meet "T" values with current soil and water conservation technology.
 - (1) Initiate a statewide inventory to specifically identify all such areas.
 - f. Maintain and expand educational programs to increase the public awareness of soil and water conservation issues.
 - (1) Short range objective - educate adult decisionmakers.
 - (2) Intermediate range objective - target education programs to high schools and colleges.
 - (3) Long-range objective - target education programs for grade schools and junior high students.
 - g. Develop new and refine existing incentives to encourage landowners to adopt soil conservation practices.
 - (1) More effective use of existing incentive programs.
 - (2) Development of new incentives.
 - h. Encourage and support expanded research in conservation economics and the development of new conservation practices.
 - i. Establish an interagency program to use and apply conservation research.
3. Evaluate implementation of the Water Quality Management Plan.
 - a. Utilize established IEPA evaluation criteria in the 1984 progress evaluation of the Water Quality Management Plan.

- b. Identify and correct program deficiencies.
 - c. Support the Statewide measurement programs for stream flow, water quality, and sedimentation as measures of the problem and progress.
4. Continue to coordinate existing watershed programs, and initiate a complimentary State program to direct resources into projects which will help protect important water resources and control erosion on agricultural land.

PROTECTION OF UNDERGROUND WATER

Statement of the Problem

Concern over the protection of underground water is widespread and growing. The addition of this topic to the State Water Plan's list of issues was the direct result of public comments expressed during the 1981 Progress Report hearings. Approximately 40 percent of the State's population is dependent upon underground water with its useage concentrated in the northern half of Illinois. There are over 1700 community water supplies dependent on underground water. Responsibility for protecting underground water resources in Illinois is distributed among nine state agencies. However, in many cases, protection of underground water use is included in the statutes as a secondary objective. As a result, some statutes and regulations are only partially effective for the protection of underground water.

Since this issue was adopted rather late in the Water Plan process, the recommendations which follow are limited to a policy statement and an outline of future steps to be taken. Considerable interagency coordination will be required.

Recommendations

The Water Plan Task Force has adopted a policy statement proposed by its Underground Water Work Group as follows:

"It is the policy of the State Water Plan Task Force to protect, preserve, and manage the underground water resources of the State, as a natural and public resource. The Task Force recognizes the essential and pervasive role of groundwater in the economic and social well-being of the people of Illinois and its vital importance to the general health, safety and welfare.

It is further recognized as consistent with this policy that the underground water resources of the State be utilized for beneficial and legitimate purposes; that unreasonable waste and degradation of the resource be prevented; and that the underground water resource be managed and developed to allow for maximum sustained utilization."

Seven recommendations follow:

1. Establishment of Levels of Protection Desired:

Under this recommendation, underground waters of the State will be classified into four categories based on existing and potential use as follows:

- a. Domestic Use and Food Processing Underground Waters are those which can be taken from the ground and used directly for domestic consumption and food processing with minimal or no treatment.

- b. General Non-Domestic Use Underground Waters are those which can be used for general non-domestic uses as defined in Section 11 of the Illinois Environmental Protection Act.
 - c. Limited Use Underground Waters are those which are unusable for domestic or other consumptive uses in the foreseeable future due to naturally occurring characteristics or man-made contamination.
 - d. Imminent Surface Return Flow Underground Waters are those flowing toward springs, streams, and ponds.
2. Determine Users and Uses of Underground Waters:

Identify users and uses of underground waters and compile these data to assist classification as part of the State Water Survey inventory program.
 3. Development of Resource Inventory:

Develop a resource inventory and assessment of the quality, quantity, and location of underground waters, recharge areas and regional flow systems by the State Water Survey.
 4. Analyze the Treatability and Interconnection of Underground Waters:
 - a. Treatability of water is concerned with the levels of contaminants (naturally occurring or caused by man) and options available to make the water usable for specific purposes. Emphasis is placed on prevention of contamination and adequate siting to minimize existing or future problems.
 - b. Interaquifer exchange may be caused by natural or man-made pathways by which the water in one aquifer may travel to others, thus affecting quality in the receiving aquifers. Fissures, for example, may provide a natural pathway. In addition, most industrial and water supply wells draw from multiple aquifers. Damaged casings and abandoned wells are examples of man-made pathways. Consideration of these aspects in permit issuance and renewal by the State will help minimize problems.
 5. Determine Local, State and Federal Responsibilities for Protection of Underground Water:

Evaluate the roles and responsibilities of public, private and governmental interests. Define the legal water rights and needs at the State level. While six State agencies have statutory jurisdiction significantly affecting underground waters, the Illinois Pollution Control Board and the Illinois Environmental Protection Agency have an extremely broad mandate to protect waters of the State.
 6. Identify Degradation and Depletion of Underground Waters:

Identify sources of degradation, susceptibility to contamination, and causes of depletion. Evaluate the control strategies available.

7. Develop and Implement Programs

The preceding six recommendations help define the underground water problems, and provide a basis by which to protect, enhance and preserve underground water quantity and quality, and implement the programs which are developed. This may require statutory and regulatory changes, new authorities, and other basic changes to existing conditions.

FLOOD DAMAGE MITIGATION

Statement of the Problem

Flooding continues to cause significant property damage and disruption of business activity annually in the State of Illinois.

Flood damages are the result of unwise development of floodplains, and the State's policy is to protect such developments where economically justified and to prevent further damageable construction. The necessary technical and institutional means to mitigate flood damages and regulate floodplain development are available. They consist of a mix of planning, construction, and regulatory programs administered at the Federal, State, and Local levels. Flood damage reduction programs in Illinois are delayed by inadequate dedication of manpower and budgets at all levels of government. Federal assistance is impeded by conflicting policies and little resolve to address the problems. Inadequate staffing also limits administration and enforcement of regulatory programs to prevent future damages.

Recommendations

1. Urban flood damage mitigation planning in the State of Illinois has proceeded to a level where there is now a backlog of economical flood damage reduction projects. This backlog will require over 250 million dollars for implementation. Flood problem area planning is continuing, although the time required for planning is considered excessive and diminishes the level of local support. With respect to the Division of Water Resources, therefore:
 - a. Required State expenditures for flood damage reduction measures should, at a minimum, be maintained at a level of \$10 million annually in order to effectively reduce the backlog in planned projects.
 - b. Project planning procedures will be revised to include evaluations of realistic non-structural alternatives, shorten study duration, and assure early termination of unacceptable project proposals.
 - c. Policies for flood damage mitigation will stress local government participation and State-Federal cooperation.
 - d. Hydraulic, hydrologic, and economic analysis models for flood prone watersheds will include foreseeable, future changes.
 - e. Technical planning procedures and regulatory flood analyses will incorporate rainfall frequency values based on current climatic records and trends, to be assessed by the State Water Survey.

- f. Federal planning policies should be revised to remove arbitrary distinctions between types of flood damage problems and appropriate mitigation measures.
 - g. A flood warning system involving a weather radar and meteorologists should be implemented for a multi-year demonstration effort in northeastern Illinois by the State Water Survey.
2. Rural flood control project implementation has languished in Illinois due to the lack of State agency leadership and coordination further complicated by everchanging Federal priorities. Also, the cause of flooding problems in some rural areas is now being recognized as the cumulative increase on flood stages due to the construction of rural agricultural levees. Therefore:
- a. State leadership and programmatic responsibility for rural flood control project planning and implementation will be maintained through the staff of the Illinois Department of Agriculture.
 - b. A detailed basin by basin analysis of agricultural levee placement will be conducted in order to improve planning and permitting decisions in rural areas.
 - c. Land use planning for soil erosion and sediment control will be included as a component of rural flood control projects.
3. The State's flood damage mitigation program cannot exist successfully without a strong and broadly supported flood insurance and floodplain regulatory management program at the State and local level. Therefore:
- a. Statewide regulation of floodway construction will require an increased level of staffing in the Division of Water Resources.
 - b. All known violations of the State's floodplain regulations should be brought into compliance with timely investigation and enforcement.
 - c. Consideration for protecting natural conditions will become a part of the State's permit review process.
 - d. The Federal Emergency Management Administration's floodplain management technical program should be completed for all flood-prone communities and updated for developing communities in order for local governments to have a sound technical basis for floodplain regulation. Federal flood insurance rate reductions should be also allowed for non-structural flood proofing measures.

- e. The State should continue to seek federal funding and develop State and local funding of programs to rebuild or relocate flood damaged buildings so they are protected from future flooding.
 - f. The floodplain information repository will be maintained at the State Water Survey to (1) provide best available flood elevation data to floodplain managers (2) provide management support in the form of new flood-related reports and flood discharge values, and (3) assist local communities with amendments and revisions of insurance studies.
4. Inadequate stormwater management planning and regulation by local governments can often create localized and downstream flooding and drainage problems where none existed previously. Therefore:
- a. Local governments should address stormwater management with legislation, such as a model ordinance for stormwater management presented in the Division of Water Resources Local Assistance manuals on stormwater management.

WATER CONSERVATION

Statement of the Problem

There are increasing signs that serious water shortages loom in the future of this nation because of limited supplies and increased consumption. This forecast is somewhat in contrast to past Illinois experience where supplies have generally been adequate to meet demands. Shortages in Illinois, however, have occurred for limited geographical areas and during occasional periods of drought. Most of our water conservation efforts have been limited to those communities sharing in Lake Michigan allocations and to periods of drought, but far more can be accomplished, particularly through education. Water conservation contributes to energy conservation through reduced pumping and heating, as well as reduced costs of water and sewer system expansions.

State agencies have participated in intermittent water conservation efforts by developing educational materials and practical information, by conducting workshops, and by working with local communities. This is viewed as the appropriate role rather than the recommendation of further State regulations.

Recommendations

The Task Force will continue to promote water conservation statewide through information and educational programs, recognizing the general benefits of water conservation, especially its contribution to energy conservation. However, the Task Force will target State technical assistance resources at source-deficient water supply systems of the State where conservation can be a cost-effective alternative to resource development.

1. The Division of Water Resources (DWR) working with the Illinois Environmental Protection Agency and the Department of Commerce and Community Affairs will identify communities of the State that face eminent water shortages, and DWR will coordinate and target State technical assistance resources at these communities which will include the promotion of water conservation.
2. Under leadership of the Department of Commerce and Community Affairs (DCCA) the State will develop education materials on water conservation as well as utilize material from organizations such as the American Water Works Association. It will work with school officials and the media to educate the public and to promote water conservation.
3. The DCCA will promote the marketing of water conservation devices by working with appropriate trade associations and retailers.
4. The Department of Public Health will revise the State plumbing code to include water conservation fixtures. The adoption of the revised code will be recommended in water-deficient communities. The State will also adopt these codes for new State construction and building rehabilitation.