A COMMISSION REPORT

Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas

ADVISORY COMMISSION ON INTERGOVERNMENTAL RELATIONS
OCTOBER 1962
A—13*

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INTERGOVERNMENTAL RESPONSIBILITIES FOR WATER SUPPLY AND SEWAGE DISPOSAL IN METROPOLITAN AREAS

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*Implementing suggested State legislation added.

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The Commission and its staff profited from an informal review of the findings and recommendations of the report by a number of individuals and organizations including William Cassella; Roscoe Martin; Lowdon Wingo and his Associates in Resources for the Future; Leonard Dworsky of the Public Health Service, Department of Health, Education, and Welfare; and staff of the Federal Housing Administration, Community Facilities Administration and Office of the Administrator of the Housing and Home Finance Agency.

Final responsibility for the report and its contents, of course, rests with the Commission and its staff.

Wm. G. Colman
Executive Director

Norman Beckman
Assistant Director

PREFACE

The Advisory Commission on Intergovernmental Relations was established by Public Law 380, passed by the first session of the 86th Congress and approved by the President September 24, 1959. Sec. 2 of the act sets forth the following declaration of purpose and specific responsibilities for the Commission:

> "Sec. 2. Because the complexity of modern life intensifies the need in a federal form of government for the fullest cooperation and coordination of activities between the levels of government, and because population growth and scientific developments portend an increasingly complex society in future years, it is essential that an appropriate agency be established to give continuing attention to intergovernmental problems.
>
> It is intended that the Commission, in the performance of its duties, will--
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> "(1) bring together representatives of the Federal, State, and local governments for the consideration of common problems;
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> "(2) provide a forum for discussing the administration and coordination of Federal grant and other programs requiring intergovernmental cooperation;
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> "(3) give critical attention to the conditions and controls involved in the administration of Federal grant programs;
>
> "(4) make available technical assistance to the executive and legislative branches of the Federal Government in the review of proposed legislation to determine its overall effect on the Federal system;
>
> "(5) encourage discussion and study at an early stage of emerging public problems that are likely to require intergovernmental cooperation;
>
> "(6) recommend, within the framework of the Constitution, the most desirable allocation of governmental functions, responsibilities, and revenues among the several levels of government; and

"(7) recommend methods of coordinating and simplifying tax laws and administrative practices to achieve a more orderly and less competitive fiscal relationship between the levels of government and to reduce the burden of compliance for taxpayers."

Pursuant to its statutory responsibilities, the Commission from time to time singles out for study and recommendation particular problems, the amelioration of which in the Commission's view would enhance cooperation among the different levels of government and thereby improve the effectiveness of the Federal system of government as established by the Constitution. One subject so identified by the Commission relates to the problem of achieving satisfactory water supply and sewage disposal services in metropolitan and urban areas and the need for adjusting governmental policies and practices to accommodate current and anticipated increases in population and water use in these areas.

The following report focuses attention on problems of inadequate investment, uneconomical water utility development and fragmented responsibility. Attention is also given to questions of industrial pollution control, Federal incentives to comprehensive approaches to urban water and sewer services and State and Federal regulatory and developmental activities in the water resources field so far as they affect provision of urban water and sewage services. The Commission has endeavored to analyze the responsibilities and activities of each level of government in providing these services and respectfully submits its findings and recommendations thereon to the President, the Congress, the State Governors and legislatures and to the local governments of the Country's growing urban areas.

This report was adopted at a meeting of the Commission held on October 11, 1962.

Frank Bane
Chairman

WORKING PROCEDURES OF THE COMMISSION

This statement of the procedures followed by the Advisory Commission on Intergovernmental Relations is intended to assist the reader's consideration of this report. The Commission, made up of busy public officials and private persons occupying positions of major responsibility, must deal with diverse and specialized subjects. It is important, therefore, in evaluating reports and recommendations of the Commission to know the processes of consultation, criticism, and review to which particular reports are subjected.

The duty of the Advisory Commission, under Public Law 86-380, is to give continuing attention to intergovernmental problems in Federal-State, Federal-local, and State-local, as well as interstate and interlocal relations. The Commission's approach to this broad area of responsibility is to select specific, discrete intergovernmental problems for analysis and policy recommendation. In some cases, matters proposed for study are introduced by individual members of the Commission; in other cases, public officials, professional organizations, or scholars propose projects. In still others, possible subjects are suggested by the staff. Frequently, two or more subjects compete for a single "slot" on the Commission's work program. In such instances selection is by majority vote.

Once a subject is placed on the work program, a staff member is assigned to it. In limited instances the study is contracted for with an expert in the field or a research organization. The staff's job is to assemble and analyze the facts, identify the differing points of view involved, and develop a range of possible, frequently alternative, policy considerations and recommendations which the Commission might wish to consider. This is all developed and set forth in a preliminary draft report containing (a) historical and factual background, (b) analysis of the issues, and (c) alternative solutions.

The preliminary draft is reviewed within the staff of the Commission and after revision is placed before an informal group of "critics" for searching review and criticism. In assembling these reviewers, care is taken to provide (a) expert knowledge, and (b) a diversity of substantive and philosophical viewpoints. Additionally, representatives of the American Municipal Association, Council of State Governments, National Association of Counties, U. S. Conference of Mayors, U. S. Bureau of the Budget and any Federal agencies directly concerned with the subject matter participate, along with the other "critics" in reviewing the draft. It

should be emphasized that participation by an individual or organization in the review process does not imply in any way endorsement of the draft report. Criticisms and suggestions are presented; some may be adopted, others rejected by the Commission staff.

The draft report is then revised by the staff in light of criticisms and comments received and transmitted to the members of the Commission at least two weeks in advance of the meeting at which it is to be considered.

In its formal consideration of the draft report, the Commission registers any general opinion it may have as to further staff work or other considerations which it believes warranted. However, most of the time available is devoted to a specific and detailed examination of conclusions and possible recommendations. Differences of opinion are aired, suggested revisions discussed, amendments considered and voted upon, and finally a recommendation adopted (or modified as the case may be) with individual dissents registered. The report is then revised in the light of Commission decisions and sent to the printer, with footnotes of dissent by individual members, if any, recorded as appropriate in the copy.

TABLE OF CONTENTS

Chapter 1

SCOPE OF THE REPORT

This report examines the problems of water quantity and quality in metropolitan areas in the United States. It focuses on intergovernmental responsibilities at the local, State and Federal levels for urban water supply and distribution, sewage disposal and treatment, and pollution abatement. The planning, policy-making, operating, regulatory, and facilitating roles of each level of government are examined.

Problems of inadequate investment, uneconomical water utility development, fragmented responsibility, individual water and waste disposal systems and central city-suburban contract relationships are analyzed in detail. The potentialities of comprehensive intergovernmental approaches to urban water utility service are evaluated, particularly in terms of their political advantages and disadvantages. Abbreviated attention is given to the important questions of industrial pollution control and the relationship between Federal water resource policy development and urban needs. A final major area of inquiry is State and Federal regulatory, facilitating and developmental activities in the water resource field so far as they affect the provision of urban water utilities.

The report deals with the political and intergovernmental aspects of urban water and sewage problems. Consideration of technical elements of water and sewer utility planning, design, operation and research is beyond the scope of this investigation. Nor does the report deal with the nonutility aspects of water resource development, such as flood control, navigation, and recreation, although these matters have an obvious and important impact on the general welfare of metropolitan areas. Also excluded from consideration are those aspects of metropolitan organization which are not peculiarly relevant to urban water activities. Many of these questions have been dealt with in comprehensive fashion in the Advisory Commission on Intergovernmental Relations' report Governmental Structure, Organization, and Planning in Metropolitan Areas, (Washington, 1961).

The principal focus is on intergovernmental patterns, problems and potentialities in the provision of water and sewage service.

Chapter 2

THE SETTING OF THE URBAN WATER PROBLEM

Water Quantity and Quality

Man's demands for water are incessant. He needs water for human and animal consumption, agriculture, waste dilution and disposal, industry, power generation, and recreation. In addition he must protect himself from the ravages of floods and impure water. These ever-increasing demands have posed vexing problems for societies since the dawn of civilization. Although contemporary water needs have become extremely complex, all water problems are essentially questions of quantity and quality. Quantity involves insuring that a particular place or activity has adequate water to meet its needs and is protected against too much water at any one time. Quality concerns the fitness of water for the uses that will be made of it. Quantity and quality requirements vary greatly from place to place and for different uses.

The total quantity of water available in the United States is constant. For centuries, 30 inches of annual rainfall has been producing an average of 4,300 billion gallons of water per day. Approximately 14 percent of this water, about 600 billion gallons per day from both surface and ground sources, is usable.

The demands placed upon this constant supply have mounted steadily. In 1900 less than 8 percent of the 600 billion gallons per day was needed for all water uses. Today's requirements exceed 300 billion gallons per day. Less than 10 percent of this water is used in urban areas. Municipal water use averages about 147 gallons per capita per day. Of this, 41 percent is attributable to domestic use, 18 percent to commercial use, 24 percent to industrial use, and 17 percent to public use. 1/

Population growth and increased per capita consumption will push water use even higher in the future. In urban areas, more people, a higher standard of living, new household devices, and industrial developments are likely to boost per capita consumption

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1/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Future Water Requirements for Municipal Use, 86th Cong., 2d Sess., 1960, Committee Print No. 7, p. 9.

25 percent in the next 20 years and perhaps by as much as 60 percent by 2000. Before the end of the century, it is estimated that daily consumption for all purposes will exceed usuable supply.

However these projections do not foretell a national water crisis. By itself, the prospect of demand outrunning total quantity is no cause for alarm since an increasing amount of water is used more than once. Although some water uses, especially irrigation agriculture, severely deplete water supply, municipal and industrial water uses are not particularly consumptive. (See Table I.)

Table I

Depletion of Water Through Evaporation and Transpiration: By Use

Use	% Depletion
Irrigation	60.0
Municipal	12.0
Industry	15.0
Mining	20.0
Steam-Electric Power	0.5

Source: Robert Z. Brown, "United States Water Supply vs. Population Growth," Population Bulletin, XVII (August 1961), p. 94

Most of the water used in urban areas serves as a solvent, cleanser, or coolant. These uses affect quality much more than quantity. Except for the seaboard cities which secure their water from virgin sources and discharge it after use into the ocean, municipalities obtain their water from rivers or other fresh water sources which serve other urban areas both upstream or downstream. In the absence of technological developments such as desalinization which would increase greatly the total quantity of usable water,

most of the projected increase in water requirements will be met through reuse. 2/

Water quantity and quality are intimately related in the reuse of water. To be suitable for reuse, water must be of adequate quality. While urban uses have a relatively minor effect on the quantity of water, they seriously reduce water quality. A variety of substances, most of which originate in urban areas, including sewage and other oxygen-demanding wastes, infectious agents, plant nutrients, organic chemical exotics such as detergents and insecticides, other mineral and chemical wastes, sediments, radioactive substances, and heat, impair water quality.

Improved water quality is hampered by the long term backlog in the construction of adequate sewage disposal facilities, patterns of urban growth which leave a growing percentage of dwelling units with inadequate waste disposal systems, industrial growth and new processes, and the increased use of detergents and other new substances which are not amenable to normal waste treatment methods. At its best, sewage treatment removes only 90 percent of the organic impurities from urban wastes. However, too few communities achieve this level of treatment. In 1920 the municipal sewage discharged into the nation's waters was equivalent to the organic wastes of approximately 40 million persons. By 1955 the volume had increased 37.5 percent. Industrial pollution is an even more serious problem. Between 1920 and 1955 organic industrial wastes increased from a pollution load equal to the raw sewage of 50 million persons to that of 110 million persons. 3/

2/ At present it appears unlikely that research by the Federal Government and private firms on desalinization techniques will reduce costs in the foreseeable future to the point where desalting will be economically competitive in most urban areas with the development of natural water sources or the reuse of river or lake water. In some urban areas, particularly in the arid west, natural sources are saline or development and transportation costs for water are far above average. Desalinization promises a feasible, although comparatively expensive, alternative to more conventional water supply methods.

3/ U.S. Congress, House of Representatives, Committee on Public Works, Extending and Strengthening the Water Pollution Control Act, 84th Cong., 2d Sess., 1956, H. Rept. No. 2190, p. 3.

Regional Variations

To this point the discussion has focused on national trends and prospects. Despite growing population, increased per capita use, the need for reuse of water, and the requirement for a sizeable improvement in the quality of the water available for reuse, the United States as a whole has ample water to meet its foreseeable needs.

But these national figures and projections conceal tremendous variations in the supplies of adequate water available, as well as in the costs of developing, storing, distributing, and treating it, for particular places and uses. The 30 inches of annual rainfall is not equally distributed across the nation. Available supplies are not adequate in all regions, especially in the arid western States. Even proximity to relatively abudnant water supplies in the humid east does not guarantee an adequate supply if storage or distribution facilities are deficient or pollution severe. Furthermore, in urban areas throughout the country water problems tend to be more serious in the newer suburbs than in the denser, older sections of the cities.

The requirements for water vary greatly in different parts of the country. As Table II shows, there are striking differences in the uses of water in the western States as compared with those in the east. There is also considerable variation in urban water use. Some cities use as little as 100 gallons per capita daily,

Table II

Percentage of Water Use by Category:
17 Western and 31 Eastern States

	West	East
Irrigation	82	3
Industrial	13	84
Municipal	4	11
Rural	1	2

Source: Council of State Governments, State Administration of Water Resources (Chicago, 1957)

others as much as 250 gallons per person per day. In general, municipal per capita consumption is higher for larger, more industrial, hotter, and drier cities. 4/

In considering the urban water problem in the United States, and particularly its intergovernmental aspects, it is necessary to recognize that the essence of the problem in the humid east is water quality while the key question in the arid west is water quantity. A recent survey found future urban water supply shources to be least adequate in the western States. (See Table III.)

Table III

Sufficiency of Future Urban Water Supply Sources
By Region

Region	Percent of Urban Areas Reporting Sufficient Sources		
	1961	1971	1981
Mountain	90.5	35.9	17.0
Pacific	90.0	46.5	21.4
New England	85.5	52.2	24.6
West South Central	91.5	55.2	25.0
West North Central	92.0	56.4	25.5
South Atlantic	92.0	57.0	28.5
East North Central	88.5	55.5	30.5
Mid-Atlantic	94.5	55.2	31.5
East South Central	90.5	54.7	39.1
National average	90.5	53.6	27.5

Source: Public Works, Vol. XCIII (February 1962), p. 81

Eastern areas seldom are faced with an overall shortage of water. However, urban and industrial concentrations have produced severe water quality problems throughout the humid States. As for quantity, in the last, the problem is more one of governmental

4/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Future Water Requirements for Municipal Use, op. cit., p. 9.

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organization and management than it is the availability of water. Local governments, particularly the smaller suburban units, often lack the financial and legal capacity to plan and construct the storage and distribution facilities required to tap available sources of supply.

Water is an extremely important element in development in the east; in the arid areas it generally is the key to development. Quantity remains the major concern, although rapid urbanization and industrial development have increased water quality problems in a growing number of western urban areas. Water development in the west has been much more dependent on Federal multipurpose water projects than have eastern undertakings. As compared with the east, where 84 percent of all water is used by industry, the lion's share of the west's water (82 percent) goes into irrigation, the most depleting use, while industry accounts for only 13 percent (see Table II). Western areas obviously face some hard decisions in the future about the development and allocation of their relatively scarce water resources. In a paper prepared for the U. S. Senate's Select Committee on National Water Resources, Nathaniel Wolman argues that projected population and economic growth in the west requires one or more of the following adjustments: an increase in water quantity through importation, desalinization, an increase in run-off, or an increase in precipitation; an increase in the efficiency of water use; or, a reduction in heavy water depleting uses, particularly for irrigation and the maintenance of wildlife habitats. 5/

Government and Water

From its very inception as a social institution, government has been concerned with the development and regulation of water. Today public agencies at all levels in the United States are involved in water resource planning, policy-making, and administration. Local governments have prime responsibility for municipal water supply and waste disposal. The States' activities focus on allocation, regulation, and facilitation of local activity. In addition some States recently have been giving more attention to overall water resources planning and the development of water projects which are beyond the capabilities of the local units. The Federal Government has been responsible for most multipurpose river basin developments. Federal agencies also loom large in navigation, flood control, irrigation, sewage treatment assistance, pollution control and, more recently, in water for recreational purposes.

5/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Water Supply and Demand, 86th Cong., 2d Sess., 1960, Committee Print No. 32, p. 12.

Government at all levels, regardless of the particular role of an individual agency, is faced with the constant problem of balancing and adjusting the claims of various interests--of urban, industrial, agricultural, navigation, flood control, conservation, and recreation--in the allocation, regulation, and development of a scarce resource. Conflicts arise because of competition between different users. Should water in an arid western State be diverted from irrigation to meet burgeoning urban needs? Can Chicago divert Lake Michigan water for its sewage treatment requirements and possibly imperil shipping interests throughout the Great Lakes? Should New York City be permitted to tap the headwaters of the Delaware River to the possible detriment of downstream industrial users?

Other conflicts involve like uses. Within metropolitan areas, there is competition for sources of both surface and ground water as well as for water courses to deposit sewage effluents. Such competition is often centered in the suburban areas whose limited resources make them heavily dependent on nearby surface or ground water supplies. Also on the increase are conflicts between metropolitan areas over water. Dallas and Fort Worth, rivals on many issues, have united to resist the efforts of Houston to tap a river considered vital to future development of the Dallas-Fort Worth area. The Southern California megalopolitan complex has been engated in a long and relatively unsuccessful struggle with urban and agricultural interests in Arizona over the use of Colorado River water. More fruitful for the parched Southern Californians has been their struggle for a share of the water surplus in the northern half of the State. The first round of this battle culminated with the passage of the Feather River bond issue which will finance in part facilities to bring water from the north to Los Angeles and its sprawling environs.

Most of these conflicts are not merely the result of inadequate communications or a failure to plan. In most areas where such conflicts arise, there are not sufficient quantities of water at comparable prices and quality to supply all users. Quite clearly, the stakes for the contestants in terms of protecting investments and insuring future development are tremendous. Competition for the use of existing supplies of water will always exist; it is not likely to be eliminated through indefinite expansion of supply or through the perfection of planning and administrative devices. Furthermore as Hirshleifer, DeHaven, and Milliman point out:

> The conflict of interests remains whatever the process for making the decision. When competition is shifted from the market arena to the political arena...each contestant attempts to influence the outcome through control of votes and political influence instead of dollars and economic influence. 6/

A turn to the marketplace for those water decisions now made in the public sphere seems unlikely. Improved planning processes, more inclusive area arrangements, and more effective administrative procedures could undoubtedly assist decision-makers in formulating rational determinations within viable frameworks. Today both political and economic water determinations are gravely hampered by incomplete data and inadequate planning. More data are urgently needed on ground water characteristics, stream flows, and other basic hydrologic factors.

However, effective planning for water resources development presently faces a number of formidable obstacles. A particular area requires water of many different quality grades, and these requirements are constantly in flux. As for quantity, both needs and availability vary seasonally and over longer periods of time. The impossibility of forecasting all possible shifts in development, preferences, technology, and locational patterns led the authors of a recent study to conclude that "the demands for water of a given quality and quantity at a specific location are...incapable of quantification." 7/

Improvements in the planning, policy, and administrative structures are hampered by the fact that the competition for water has fostered fragmented responsibilities. As Roscoe C. Martin and his colleagues point out:

> Around each possible use of water...associations of persons particularly interested in water-resource development for that goal tend to be formed. Their separate influence on individual proposals or programs often is great and sometimes is determining, while collectively they may exercise considerable pressure toward inducing or inhibiting government actions on a broader front. Their tendency is to seek to have

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6/ Jack Hirshleifer, James C. DeHaven, and Jerome W. Milliman, Water Supply (Chicago: University of Chicago Press, 1960), p. 36.

7/ Roscoe C. Martin et al., River Basin Administration and the Delaware (Syracuse: Syracuse University Press, 1960), p. 185.

> governmental responsibility for water-resource development for their particular purpose vested in a separate agency to which they have special access and in which they have confidence. 8/

Although improvements can and undoubtedly will be made in the processes by which policies are planned, determined, and implemented, such changes are aids to, rather than substitutes for, the adjudication of conflicting interests in the political arena, by means of what Robert C. Wood has aptly called "a system of preferences filtered through group representation." 9/

All too often there is a facile assumption in water matters that if only planning were intensified, the structure of decision-making overhauled, and intergovernmental responsibilities more carefully specified, consensus and solutions would result with the regularity of night following day. Experience indicates that such hopes are usually unfounded. Only rarely will a plan or policy or assignment of a function to a particular level of government appeal to all parties. To the contestants in water politics, each level of government is a different arena, with varying advantages and disadvantages for different participants and the resolution of differing issues. Furthermore, a particular course of action or location of responsibility at the local, metropolitan, State, or Federal level, hardly ever will advance equally a number of planning or policy objectives or values.

As this study shows, there is considerable room for improvement in the manner in which water decisions affecting metropolitan areas are reached and implemented. Certainly the allocation of responsibilities for planning, policy-making, and administration in the urban water field should not be considered unalterable. The remainder of this study examines these questions of policy and organization in detail. In so doing, it will keep in mind that a variety of divergent interests, not an amorphous public, is a fundamental reality in the setting of the urban water problem. Nor will the study lose sight of the fact that a particular structural or policy change will not further, equally, all desirable values in the solution of urban water and sewage problems.

8/ Ibid., p. 36.

9/ Robert C. Wood, 1400 Governments (Cambridge: Harvard University Press, 1961), p. 20.

Chapter 3

PATTERNS AND PROBLEMS AT THE LOCAL LEVEL

Development of Urban Water Systems

Prime responsibility in the United States for the provision of public water and sewerage service has traditionally rested with the local units of government. The earliest efforts to provide water for the cities--Boston in 1652, Bethlehem, Pennsylvania in 1754, and Providence in 1772--were undertaken by private companies. However, as Nelson Blake has pointed out, in the early years of the 19th century private enterprise was found lacking:

> Water works involved a large initial outlay of capital and heavy subsequent expenditures in maintenance and extension. But the actual and prospective profits of the companies were rarely great enough to induce the directors to build systems adequate to provide all needs. The companies laid their pipes through the districts that promised the largest returns and left the poorer or more remote districts without a supply. The larger the cities grew, the more serious this lag in essential service became. Moreover, the companies naturally gave priority to the needs of their private customers. Some provision, though rarely adequate, was made for fire hydrants; water for other important civic purposes was usually not available. 10/

In 1801 Philadelphia put the nation's pioneer municipal public water works in operation. While private companies overcame their difficulties and persisted in a few of the cities, the lower rates and more adequate supplies for all urban purposes offered by a publicly operated system led most of the municipalities to follow Philadelphia's lead. By 1860, 12 of the 16 largest cities in the United States were operating public water systems.

10/ Nelson Manfred Blake, Water for the Cities (Syracuse: Syracuse University Press, 1956), p. 77.

During the 19th century, most urban areas had a similar pattern of development with respect to the provision of water. Most always, the growing cities found the surface and ground water supplies within their boundaries inadequate in quantity or quality. Where possible they reached out to the hinterland to meet their mounting water needs. These cities, among them New York, Boston, San Francisco, and Seattle, found that water quality could be best insured through acquisition of a virgin water supply. Cities less fortunately located or less farsighted had to make-do with used water of poorer quality and less certain quantity. However, whether a city was staking out new sources or treating used water, underestimating future consumption in planning water supply facilities was a general pattern. Almost inevitably, by the time one project was completed, rising water use necessitated the development of new sources or the expansion of treatment facilities.

For the better part of a century, municipal efforts focused almost entirely on water supply to the exclusion of disposal problems. Without the guarantee of an adequate supply, the development of a city could be impaired fatally. From the first efforts in Philadelphia, New York, and Boston, the cities demonstrated a willingness to make major investments to secure water for present and future needs. Used water was another story. Throughout the 19th century sewage and other wastes were borne untreated downstream or out to sea. For the cities, it was "out of sight, out of mind." Polluted waters might affect downstream interests adversely, particularly if they lacked an adequate ground or virgin surface supply, but few cities accepted any responsibility for their wastes. Not until well after the Civil War did increased urban and industrial development and public health considerations force, and technological advances facilitate, the development of municipal sewage treatment works. Sewage treatment, except for those constructed by industry, has from the outset been accepted as a public, governmental activity.

American cities however never recovered from their late start in treating wastes. Although water quality has become the more important aspect of the water problem in most of the nation's urban areas, cities have not met their sewage treatment requirements anywhere near as adequately as those for water supply and distribution. Unless induced or compelled to do otherwise, most cities still tend to invest in waste disposal facilities only after insuring their water supply for the foreseeable future.

Pattern of Responsibilities in Metropolitan Areas

The water supply and distribution systems and sewage collection and treatment facilities of the central cities remain the dominant element in the provision of water utilities in urban areas. But metropolitan development, the pollution problems caused by the overlap of metropolitan complexes, and the increased water resource activities role of the Federal and State governments during the past quarter century have tended to reduce the relative importance of the central city.

Suburban development has complicated enormously the task of supplying the urban dweller with water and removing and treating his wastes. The initial reliance in most suburban areas is on individual systems--involving the use of wells and septic tanks--or small community water and waste treatment systems. When community systems are employed, service is often provided by a private company or utility district, sometimes serving only part of the suburban unit.

Where individual or small community systems prove unsuitable or uneconomical, other arrangements have been developed. These include contracting with the central city of water supply or sewage disposal, or both; the creation of special districts to serve two or more communities; and the development of metropolitan agencies to serve both central city and suburbs.

These various methods devised by local governments to meet their water supply and sewage disposal responsibilities exist in an infinite number of combinations. Generally a number of approaches are used simultaneously in different parts of a single metropolitan area. Relatively few areas have only one agency providing water and sewer service. Central cities rarely extend service through contract to every community in the area. Metropolitan devices often fail to include some of the suburbs and unincorporated areas, in part because of the expansion of urban development beyond the service boundaries of metropolitan agencies. Outside the central city, municipal systems, contract arrangements, utility districts with a service area ranging in size from a subdevelopment to perhaps an entire suburban county, private companies, and individual systems coexist. Often there are enclaves within central cities and the service areas of metropolitan agencies. Tuscon, for example, has three cooperatives and nine private water

companies serving approximately 17,000 city customers. Within the world's largest municipal water supply and distribution system, that of New York City, the Jamaica Water Supply Company and the New York Water Service Corporation service city residents. Although most of Los Angeles receives its water through public distribution of supplies provided by the Metropolitan Water District of Southern California, eight private companies operate within the city. 11/

Furthermore, the arrangements for water supply and sewage disposal in a particular metropolitan area are often quite different. In part, this is explained by physical and technological considerations--availability of surface and ground water, suitability of soil for septic tank use, and the configuration of watershed and drainage basins. The differences are also explained by certain general trends. Contracting with the central city is more prevalent for water supply than sewage disposal and treatment. Metropolitan agencies have been created for the sewage function more often than for water supply. Private companies are almost never active in sewage treatment; and individual systems are employed more frequently for waste disposal than for water supply.

Local Water Problems: An Overview

The major problems facing local governmental units stem from their failure to keep pace with the demands of a growing urban population with an increasing per capita rate of water use. This failure has many aspects. Investments have been inadequate, particularly for sewage treatment facilities. Responsibilities for the supply of water and disposal of sewage have been fragmented, particularly in the suburban portions of the metropolitan areas. This fragmentation has resulted in public health hazards, inefficient development of small facilities, and a failure to achieve economies of scale in utility development. In many suburban areas, development based on individual water and sewerage systems has been a most serious problem. Central city contracts with suburban dwellers and agencies for water and sewage disposal services have failed to extend facilities to newly developing areas. In many areas, rate differntials and other problems encountered in the contract system have fostered central city-suburban animosities.

11/ Kenneth H. Walker, "How Water Utilities are Meeting the Impact of Metropolitan Growth," Water Works Engineering, CXIII (May 1960), p. 413.

These problems are primarily governmental rather than technical. To be sure, technical improvements in securing, treating, and distributing water and in the collection, treatment and disposal of wastes would be useful and are likely to be forthcoming. Reductions in the cost of sewage treatment would be of particular importance. Nevertheless in all but a few metropolitan areas, the construction of dams, reservoirs, pumping facilities, treatment plants, and piping systems pose no insuperable technical problems. As a matter of fact, few urban areas make full use of available scientific and engineering knowledge. What has been lacking are sufficient funds to employ known techniques so as to provide adequate water and sewer service throughout the metropolitan area. Also absent in most areas have been farsighted and comprehensive plans to insure that public funds will be used for facilities both economical and conducive to a sound pattern of development. Lacking too in many metropolitan areas have been viable operating units. As Clyde L. Palmer, Detroit's City Engineer, recently noted:

> The water supply and the sewage treatment problems...could be solved almost overnight if, (1) someone else paid the bill, (2) social patterns were not disturbed, and (3) political boundaries were not violated.

The remainder of this chapter deals with these issues, focusing on four key governmental problem areas: inadequate investment, fragmentation and its consequences, suburban problems, and central city-suburban relationships.

Inadequate Investment

Five years ago approximately 1,000 communities in the United States reported water shortages. Most had access to adequate water supplies, but lacked facilities to store and distribute water sufficient to meet their current or anticipated needs. A recent survey by the American Water Works Association found that in cities with a population of over 25,000, 20 percent reported deficiencies in water main capacity, 33 percent insufficient pumping capacity, 40 percent inadequate capacity, 43 percent too little elevated storage, and 29 percent lacked sufficient ground storage.

Inadequate investment is even more critical with respect to sewage treatment facilities. Recent estimates by various study groups and agencies give a graphic picture of the sewage treatment investment lag. In 1956, the Committee on Public Works of the U.S. House of Representatives estimated that sewage treatment works and interceptor sewers to overcome the 1955 backlog would cost in excess of $1.9 billion. The Committee forecast that during 1955-1965 replacement of obsolete sewage treatment facilities would involve another $1.7 billion. During the same period, the Committee reported, treatment works to meet population increases could be expected to require an investment of approximately $1.7 billion. 12/ Four years later in a report prepared for the Senate's Select Comittee on National Water Resources the U.S. Public Health Service found the backlog needs unchanged at $1.9 billion. This study also estimated that $900 million would be required to replace obsolescent facilities and $1.8 billion to handle the wastes of population increments during the period 1958-1965. 13/ Early in 1962 the Department of Health, Education, and Welfare called for $6 billion over the next ten years to eliminate the backlog, replace obsolete units, and serve expected population increases. 14/

In 1960 the backlog involved almost 20 million people living in communities which have never provided treatment for their wastes. Approximately 2,900 new sewage treatment works are needed to rectify this situation. Another 1,100 new plants are required to serve the 3.4 million people in areas with overloaded or obsolete facilities. According to the same estimates, 1,630 additional communities with a population of 25 million, have treatment facilities requiring enlargement or modernizing. 15/ The Conference of State Sanitary Engineers recently confirmed these findings, reporting that 5,290 communities had inadequate sewage treatment facilities. This need is largely concentrated in small communities. Over 90 percent of the

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12/ U.S. Congress, House of Representatives, Committee on Public Works, Extending and Strengthening the Water Pollution Control Act p. 3. 84th Cong., 2nd Sess., 1956, H. Report No. 2190, p. 3.

13/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Water Quality Management, committee print no. 24, 86th Cong., 3d Sess., 1960, Comm. Print, p. 11.

14/ Wilbur J. Cohen and Jerome N. Sonosky, "Federal Water Pollution Control Act Amendments of 1961," Public Health Reports, LXXVII (February 1962), p. 111.

15/ U.S. Congress, Senate, Select Committee on National Water Resource, Water Resource Activities: Water Quality Management, op. cit., p. 19.

deficiencies reported by the Conference of State Sanitary Engineers are in communities of less than 10,000. 16/

The unwillingness to increase local expenditures to provide for water and sewer utilities is the crux of the problem of inadequate investment. However, there is much less resistance to investing local funds in water supply. The investment lag in water storage and distribution facilities is more a product of the lack of construction during World War II and the Korean War, rising costs, material shortages and rapid population growth, than voter resistance. The story is quite different with respect to sewage treatment works; but as William L. Rivers recently noted in the historical context of urban water and sewer development, the tale is familiar:

> Much of the foot dragging by municipalities can be explained by an axiom of local politics: building a water treatment plant to clean up the water used by voting citizens is almost always easy to accomplish; however, a sewage plant that will treat a community's wastes benefits only the neighboring communities downstream. 17/

The growth of water recreation has heightened public concern somewhat, but its impact is far from universal. For example, last year Peter F. Mattei, executive director of the Metropolitan St. Louis Sewer District, told the Committee on Public Works of the U.S. House of Representatives that the crux of the problem in St. Louis was in securing the two-thirds majority needed for a general obligation bond issue or the four-sevenths majority required for a revenue bond issue. A large percentage of St. Louis' population is not bothered by the pollution of the Mississippi. No one swims in it, and boating occurs north of the city's discharge points. The only people who suffer are downstream. Under these not uncommon conditions it is a difficult proposition to sell a $100 million bond issue. 18/ Quite

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16/ U.S. Department of Health, Education and Welfare, Public Health Service, Problems in Financing Sewage Treatment Facilities (Washington, 1962), p. 1.

17/ William L. Rivers, "The Politics of Pollution," Reporter, XIV (March 30, 1961), p. 34.

18/ U.S. Congress, House of Representatives, Committee on Public Works, Federal Water Pollution Control Hearings, 87th Cong., 1st Sess., 1961, pp. 43, 48.

simply, most people do not worry about the sewage problem until wastes are flooding their backyards or basements, or menacing their water supply. Schools, highways, and other public works which directly benefit the locality are more easily justified than waste treatment works which are presumed to be primarily for the benefit of others.

Given this apathy and lack of responsibility about proper disposal of wastes, the force of competing and more tangible local needs, and the reluctance to raise local taxes, it can be asked whether the remedy for inadequate investment is not primarily better voter education. In answer, it can be said that educational efforts are always worthwhile, but alone they are not likely to be adequate. Nor can much solace be drawn from the probability that the investment lag in a particular area will be overcome if the situation gets bad enough. Crisis-inspired action is likely to produce short-range minimal investment approaches which postpone rather than provide satisfactory solutions to the problem.

The fundamental intergovernmental aspects of the situation cannot be avoided. A recent study stated the case with respect to intrametropolitan relations with precision.

> Safe disposal of human and industrial wastes is vital to the health of every community. Inadequate treatment of sewage can result in the pollutions of streams, lakes, and ground water, thereby endangering the health of the people, lowering property values, and depriving the area of the full utilization of its water resources. Since pollution and the disease that it may spawn have no respect for political boundaries, the deleterious effects of improper or inadequate disposal of waste materials are not limited to the offending community alone. Actually, the safe disposal of sewage by neighboring communities can be just as important to a city as its own disposal system. In some cases, it is more important. 19/

19/ Twin Cities Metropolitan Planning Commission, Metropolitan Sewage Study (St. Paul, 1960), p. 4.

The genius of the American Federal system is that it can provide alternatives to inaction or panic. Three seem appropriate in the case of inadequate investment: inducement, compulsion, and improved service area organization. The reluctance of local governments to provide water and sewer facilities is greatly reduced when someone else foots part of the bill. Only during the 1930's when the Federal public works programs were in effect did water facilities and sewerage construction keep pace with demand. More recently, the handful of State assistance programs for sewage treatment works, the Federal grant program established in the Water Pollution Control Act of 1956, and the public facility loans program of the Housing and Home Finance Agency have provided a definite inducement to local investment. More effective and rigorous State, interstate agency, and Federal enforcement against pollution which endangers public health or welfare with court action against local governments where necessary, is another element in spurring greater local investments in sewage treatment works. 20/ Finally, more inclusive metropolitan arrangements, because they offer economies of scale, provide more permanent solutions, spread construction costs over a broader base, and protect the community from having its efforts undermined by the inaction of a neighbor, may induce more adequate investments in water and sewer utilities in some metropolitan areas. 21/

Fragmentation and Its Consequences

As noted earlier, examples of fragmentation abound. In the Sacramento metropolitan area, water supply and distribution are the most splintered of all public functions, with 44 public and 55 private agencies serving the public. Minneapolis-St. Paul and their suburbs have 45 individual water utilities operating without an organizational or operational tie, except for the minimal controls exercised by State agencies. Fifty-six agencies supply or distribute water in Pittsburgh and Allegheny County. This fragmentation for water supply and distribution is concentrated in the suburbs, and parallels a similar pattern for sewage disposal service.

20/ State facilitation, assistance, and enforcement programs are considered in Chapter 5, as is the work of the interstate pollution abatement agencies. In Chapter 6, Federal activities in sewage treatment assistance and pollution control are evaluated.

21/ Metropolitan approaches to water and sewer problems are treated in Chapter 4.

Some utility districts are quite large, serving large areas or entire metropolitan areas. Most, however, are quite small. Prior to the creation of the Municipality of Metropolitan Seattle, 82 percent of the sewer districts in suburban Seattle were less than two square miles in area, and almost half less than one-half a square mile in area. The general tendency has been to create additional water and sewer districts rather than expand the area of existing districts. More special districts, nine, have been created in the Seattle metropolitan area for the purposes of water supply than for any other function. In suburban Nassau county in the New York metropolitan area, there are 48 water districts and 41 districts for waste disposal and removal.

Fragmentation in the handling of the sewage functions has had an adverse effect on public health in a number of metropolitan areas. Small municipalities and sewer districts often fail to process wastes at all, or treat them only inadequately. Many lack the resources to finance long outfall lines to transport their sewage and effluents to distant points for safe disposal. As a result, water supplies and recreational areas are despoiled by raw or inadequately treated wastes. The lack of coordination also affects resource utilization across local boundaries. Depletion of the ground water reserves of a number of communities because of withdrawals in excess of recharge by some of the agencies tapping the water table is a common problem in suburban areas dependent on individual or community well systems.

Another product of fragmentation is the variation found in service and price levels within a single metropolitan area. Water supply in Sacramento is a good example. The city provides excellent water service to its residents at relatively low cost. In the suburban areas, costly private wells, less effective treatment facilities and inadequate distribution give the suburbanite lower quality water at higher prices. In Miami, where water has been supplied by six municipalities and distributed by 15, the higher administrative and operating costs resulting from this dispersion of responsibility have produced up to 75 percent variation in retail rates for water from the same source. Fragmentation also increases developmental and operational costs. Small systems have a rapid rate of obsolescence, particularly in areas where development is not complete when the initial facility is constructed.

In 1956, prior to the creation of the Municipality of Metropolitan Seattle, future planning for the Lake Washington drainage basin was made impossible because the boundaries of the many small sewer districts paid no attention to topography. The individual units were incapable of economical and efficient operation. In the area, 60 sewer district commissioners and 139 city councilmen were concerned with sewage problems. Each of the governmental units had its own engineers, consultants, and legal advisers. Ruth Ittner's conclusion on the former Seattle situation is valid for a great many metropolitan areas: "Coordination of plans with adjacent units is extremely difficult; planning for the entire area is virtually impossible." 22/

Inadequate planning leads to duplication of facilities in development. Once again in the Seattle area, which has experienced almost all of the possible difficulties of fragmented water and sewage development, there was a good example in the postwar period of the kind of duplication and unnecessary capital investment which result from uncoordinated planning. A suburban water district spent $1,000,000 for a filtration plant to treat the polluted waters of Lake Washington. Shortly thereafter Seattle spent $1,950,000 to construct a pipeline to service some suburbs, adjacent to the water district, with virgin water from the Cedar River in the Cascades. The pipeline was large enough to meet the needs of the water district which invested in the treatment facility for inferior water. In Chicago, two suburban water districts plan to tap Lake Michigan and separately transport and treat its water to serve areas which will soon be contiguous.

Fragmentation also prevents the sharing of facilities in many areas. In the Pittsburgh area only 13 of 33 water supplier operating distribution systems have connections with at least one other supplier to meet emergencies and peak hour demands. Similar problems exist in suburban northern New Jersey, where independent municipal, district, and private water systems frequently are not connected, because of the costs involved in making connections or because of cost differentials in the water itself which make interchange unattractive.

22/ Ruth Ittner, Government in the Metropolitan Seattle Area (Seattle: Bureau of Governmental Research and Services, University of Washington, 1956), p. 36.

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The Suburbs: The Failure of Individual Systems

Without question, the suburbs are the critical aspect of the metropolitan water problem. Study after study in metropolitan areas across the country has underscored the contrasts between the problem in the central cities and in the outlying areas. Many comprehensive metropolitan water and sewage studies have concentrated on suburban problems. For example, in Minneapolis and St. Paul a $500,000 study of the area's sewage problems gave much more attention to the suburbs than to the Twin Cities themselves.

The lag in investment is concentrated in the suburbs. Except for those metropolitan areas where there are a number of large cities with independent water or sewage systems, fragmentation is almost exclusively a suburban problem since core cities usually have centralized utility systems. As R. L. Lawrence, Jr., superintendent of the Nashville Waterworks Department has put it, the metropolitan water problem is a "dignified way of referring to the problem of acute 'suburbanitis' with which almost every city and town in the nation has become afflicted in the postwar period." 23/

Suburban water and sewage problems in most metropolitan areas are of postwar origin. Prior to World War II, suburban growth was comparatively slow and quite orderly. New construction usually was served with extensions of city water and sewer service. Reliance on these utilities kept new developments close to areas already serviced by the city. The postwar booms--in jobs, building, credit, babies, automobiles, and highways--changed the picture entirely. Development soon outran the provision of central city utility services. The demand for land plus the development of seemingly reliable home water and disposal systems furthered the development of low cost land which lacked water or sewer service. Once beyond the restraining influence of centralized water and sewer lines, suburban development spread out, clustered, and leapfrogged. As the process accelerated it became increasingly difficult to provide the newer areas with central utility services. Where ground water was readily available and septic tanks could be inexpensively installed, metropolitan growth became urban sprawl.

23/ R. L. Lawrence, Jr., "How to Serve Out-of-City Areas Seven Times Larger Than City," Water Works Engineering, CXIII (May 1960), p. 442.

The very patterns of development induced by reliance on individual systems make an economic changeover to community systems difficult. The relatively large lots required by suburban governments to provide adequate drainage fields for septic tanks makes community utility development, particularly for sewers, extremely expensive. Nashville's planners underscored the situation in their metropolitan area:

> The requirement of larger residential lots because of the area need for private sewage disposal facilities reduces population density and adds tremendously to the cost of providing utilities and other facilities....At present construction rates, several million dollars of additional costs must be borne annually by the community as an indirect result of dependence upon septic tank systems. 24/

Individual systems have caused problems in almost every area where they have been employed. About 25 percent of all municipal water is from ground sources; most of this is consumed in the suburbs. Ground water depletion caused by an excess of withdrawal over recharge has caused wells to dry up in a number of suburban areas. Chicago's suburbs, for example, have been extracting 20 percent more ground water than is being replaced through natural processes. Septic tanks have been installed where lot sizes or soil conditions insure that they will fail in a relatively short period of time. In suburban Lake County, in the Chicago metropolitan area, there is a heavy reliance on septic tanks although 75 percent of the soil in the county is unsuitable for individual sewage disposal systems. When septic tanks fail they can pollute the shallow ground water sources tapped by individual wells. Since 80 percent of all ground water is used without treatment, this can and does--in New York's Nassau County, the Virginia suburbs of Washington, D.C., and the outlying portions of the Twin Cities metropolitan area, to name a few--cause well pollution and serious public health problems. On-site sewage disposal under excessive population densities or inadequate soil conditions also poses threats to water tables tapped by the deeper wells of public and private community systems in suburban areas.

24/ Nashville and Davidson County Planning Commission, Plan of Metropolitan Government for Nashville and Davidson County (October, 1956), p. 5.

For the homeowner, individual systems usually are a source of constant inconvenience. Initial installation costs, in a development of any size, are generally higher than those associated with a rudimentary community system or a connection to a central system. Upkeep, particularly for septic tanks, is higher than normal sewer use charges, ranging from $40 to $100 a year in most areas. As the system begins to fail, maintenance charges rise sharply. Fire insurance costs reflect the lessened protection available with individual water supply systems. And in most areas, the resale value of a home with individual systems is lower than one with community water and sewer service. Additional outlays inevitably are necessary when wells run dry or become polluted, or when the septic tank no longer functions. Since the homeowner generally is unaware of or refuses to face the fact that his original water and waste facilities are temporary, he resists proposals that community systems be built until the hazards produce a crisis. Then the inclination is to take the cheapest alternative, usually a small, inefficient community system. Thus the homeowner pays twice for his water supply, and sometimes three times for sewage disposal, as the small community systems are absorbed into larger, more economical, and more logical collection and treatment systems. There is an inevitable element of civic disillusionment built into this costly process.

Developers are an important element in the suburban problem. It is natural for the builder, particularly when he is constructing a small number of homes, to seek to avoid the bother and political problems of tying into or developing community systems when individual wells and sewage disposal systems can be installed at comparable costs. Unfortunately subdivision developers often operate on the mistaken assumption that any soil is capable of absorbing septic effluents. Since home buyers tend to be more insistent about an assured supply of good water than adequate provision for waste disposal, builders often tap city water lines or develop their own system, recapturing the investment through water sales or selling the community facility to a private or public water utility. In areas where local requirements mandate sewers and treatment, builders have often provided minimum public facilities, which have later burdened the community. For example, in Portland, Oregon, only one of five sewage disposal systems installed by private developers has not caused trouble.

Unquestionably, the unhappy cycle of individual water and waste facilities, breakdown, resistance to adequate measures, and the uneconomical and inadequate investment in minimal facilities,

is the strongest argument for comprehensive water supply and sewage disposal planning and development in the growing parts of metropolitan areas. There can be little argument with the findings of a recent study of sewage disposal conditions in rapidly developing Suffolk County in the New York metropolitan area:

> It must be emphasized...that even under the most ideal conditions septic tanks and cesspools are temporary measures at best. They will ultimately fail and will then create public health hazards in addition to placing a financial burden on the homeowners in order to maintain or replace the system. 25/

In its Manual of Septic Tank Practice the U.S. Public Health Service emphasizes that:

> Connection to an adequate public sewerage system is the most satisfactory method of disposing of sewage. Every effort should be made, therefore, to secure public sewer extensions. Where connection to a public sewer is not feasible, and when a considerable number of residents are to be served, consideration should be given next to the construction of a community sewerage system and treatment plants.26/

The Federal Housing Administration's underwriting manual contains strict requirements discouraging the use of individual water supply and sewerage disposal systems. Only where public or community water and sewerage systems are not feasible or available, and ground water and subsoil conditions are found to be satisfactory may an individual system be acceptable for coverage under the FHA insurance program. The underwriting manual states:

25/ Suffolk County (New York), Report on Need and Feasibility for Public Sewage Disposal Facilities in Western Suffolk (January, 1962), pp. 18-19.

26/ U.S. Department of Health, Education and Welfare, Public Health Service, Manual of Septic Tank Practice (Washington, 1960), p. 14.

> Existing water supply and sanitary sewerage systems which are owned, operated and maintained by municipal, county or other local governmental bodies of a well-established utility company (regulated and controlled as to rates and services by a duly constituted regulatory body or commission) have generally proven to be the most reliable means of supplying adequate and continuous service at reasonable cost. Connection to satisfactory public water and sewerage system shall, therefore, be required in all cases in which it is feasible. Even though an adequate public water supply line or public sewer line is not adjacent to the tract, connection will be required in all cases where it is feasible to have the service extended to serve the tract.

In those situations where public and community services cannot be obtained, it must be shown that the costs of connecting the property to a public and community system is not substantially more than the amount equal to the additional value that would be given the site because of its connection. Likewise, extension of a public and community system is also required where the costs would not be substantially greater for each lot than the costs of properly constructed individual systems. With respect to individual water and sewerage systems, the underwriting manual instructions to FHA field staff state that:

> ...The development of areas that are limited to the use of individual water-supply and sewage-disposal systems should be discouraged when other competitive areas in the community have acceptable public or community systems available to them....
>
> With the possible exception of country home developments on very large lots, the use of individual systems for both water supply and sewage disposal should not be necessary since areas which can be provided with neither of these utilities by public or community systems are rarely ripe for development.

In those situations where individual water supply or sewage disposal systems are to be installed in a home covered by FHA mortgage insurance, the local health authority must certify that

the system installed has been approved by the State, county and local departments of health. In addition, at least one inspection is made by FHA field staff to assure that the individual water or sewage disposal systems meet FHA minimum property standards. The Veterans' Administration Home Loan Guarantee Program has similar requirements to that contained in the FHA underwriting manual.

Solutions to the problems of development based on individual water utility systems are available. Stricter enforcement and stringent regulations are needed, particularly the adoption and enforcement of performance standards in the following areas: local and county zoning and health codes, State health and resource use regulations, and Federal mortgage activities at the field level. Another possible approach is the development of metropolitan water and sewer agencies with authority to regulate individual and small community utility developments.

Yet in most areas public agencies have tackled the problem only after the inherent shortcomings of individual systems produce crises. Suburban communities still under development have been lax, in part because they fear to discourage builders. In addition, the smaller units in metropolitan areas often lack the resources to command trained personnel to enforce regulations. Many of these communities cannot afford to hire professionally trained consultants to provide technical assistance to local officials in the enforcement of regulations pertaining to private wells and sewers. Furthermore, there is a strong tendency in the suburbs to ignore situations which are going to cost money until they reach the peril point. Then the inclination usually is not towards radical change in the direction of broadening horizons, but to solutions which focus on short-range considerations. For example, in the suburbs of Minneapolis and St. Paul, when it became apparent that well pollution from septic tank effluents was widespread, many communities agreed to permit the State health department to survey wells for pollution only if the information was not released to the press, thus protecting the community from adverse publicity. In 45 suburbs in the Twin Cities area, nearly half--22--took no action after being informed that their water supplies were contaminated. Nineteen sought to remedy the situation, in almost every case by contracting with one of the central cities or by developing a community ground water supply. Only two undertook to replace septic tanks with sewers, the required long-range action. 27/

27/ Minnesota, Department of Health, "Water Supply and Sewage Disposal in the Minneapolis-St. Paul Metropolitan Area" (December, 1961) pp. 14-16.

Many States have attempted to facilitate the development of community water and sewage systems in suburban areas. Devices adopted in recent years include empowering counties to plan and to provide water and sewer service, active participation of the State health or water pollution agency in the planning and developing of facilities in fringe areas, and promoting the creation of water and sewage districts in these areas. However preventive measures need strengthening since State regulation of septic tank and private well development generally remains inadequate. Many State health agencies lack funds and trained personnel to enforce existing regulations.

Guidance can also be provided from the Federal level, primarily through administration of Federal mortgage guarantees. Although both the Federal Housing Agency and the Veterans Administration have encouraged public supply and disposal systems, they have also tended to respect State and local policies with respect to individual systems, and both agencies guarantee mortgages on numerous homes which will require replacement of original individual facilities with community systems. In the Minneapolis-St. Paul area, after the State health department found evidence of well pollution in almost half the wells it tested, FHA ruled that mortgage guarantees would not be made for homes with individual systems unless the per residence cost of a community system was more than 150 percent of the estimated cost of a private well. In effect, the ruling meant that all developments of more than 30-35 houses in the area will have to be provided with community systems to be eligible for Federal housing credit advantages.

Although most suburbanites would prefer to do nothing until forced and then the minimum possible, the present system is wasteful, harmful, and generally unnecessary. Except in special cases, suburbs cannot find a satisfactory long-range solution to their water and sewage problems in either individual systems or unilateral action. One solution is to turn to the central city for utility services. As seen in the next section, this is a course of action with uncertain results. The alternatives are the more inclusive arrangements discussed in Chapter 4.

Central City-Suburban Relationships

The chief feature of water and sewage service in the core cities is the existence of centralized systems. Except for a few private municipal water systems, both utilities are in public hands

in the central cities. Almost all of the larger cities draw their water from surface sources. Most central cities provide sewer service to the majority of their residents, although sewage treatment ranges from none to the maximum 90 percent reduction in organic wastes feasible under present techniques.

The water problem is generally not perceived to be a pressing issue in the average central city, although it may well be an extremely serious problem in the metropolitan area. The central city resident experiences the problem spasmodically, usually during a drought or a referendum bond issue. Inadequate sewage treatment, the principal weakness in the central city, is much less likely to directly inconvenience the city dweller than his neighbors downstream. If insufficient treatment results in befouled water supply and recreational areas, the villain usually is an upstream community over which the urbanite has little control.

The central cities have a number of advantages, too, in their relationships with the suburban areas on water questions. In bargaining over contracts or the creation of metropolitan water or sewage disposal agencies, they have the strength that comes with a better source of water, more efficient treatment and distribution, a sewer system and treatment facilities, experience with financing and administering a large water and sewage disposal operation, and, in many cases, excess capacity to supply water or collect and treat sewage. In considering the feasibility of having the city of Chicago serve as the water supply agency for the metropolitan area, a group of consultants presented a graphic picture of Chicago's advantages:

> It has an unlimited supply of water from Lake Michigan. It is already supplying 42 percent of the population in the greater Chicago Suburban Area, and about 73 percent of the suburban population most likely to desire Chicago water in the near future. It has the credit to finance necessary construction if backed by remunerative revenues and suitable legislation. It is better able to finance such capital improvements as are necessary to furnish such supplies to the Metropolitan area than can another agency. In addition, Chicago is the only unit in the region which has a large working organization competent to cope with the problems of operation, maintenance and construction of water supply facilities; and also the experienced

engineering staff and know-how capable of coping with the various problems involved in extending adequate water service to the Metropolitan area. 28/

Of course, availability of water and the ease with which wastes can be disposed of affects the nature of the central city's advantage. In the Seattle area, where there is no practical alternative to the city of Seattle's inexpensive gravity flow sources in the Cascades, the central city is in a much more powerful position than in Minneapolis-St. Paul, where the ready availability of ground water greatly enhances the power of the suburbs in water matters.

The superior position of the central cities has led some of them to attempt to use utility services, particularly water supply, as a means to force annexation. For a number of years prior to the creation of the Metropolitan Water District of Southern California, Los Angeles used its Owens River water supply to press annexation on communities unable to muster the considerable resources necessary to develop Sierra water sources. This policy, as John Bollens has pointed out, caused "widespread resentment by numerous adjacent municipalities which opposed the efforts of Los Angeles to use the inducement of water in attempts to bring about territorial absorption." 29/

In the Milwaukee area, there has been strife over Milwaukee's policy that any community wanting its water service must become part of the city. Milwaukee first extended water to a suburban municipality in 1902, when North Milwaukee agreed to pay the cost of the installation and a 25 percent higher meter rate than the residents of Milwaukee. Similar contracts were signed with two other suburban areas shortly afterward. By 1906 Milwaukee's Common Council was having second thoughts, concluding that further extensions would be unwise. City water without annexation meant the advantages of city residence without having to pay the higher Milwaukee tax rates. 30/ As a result, the city adopted its policy

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28/ Alvord, Burdick & Howson, Report Upon Adequate Water Supply for the Chicago Metropolitan Area, 1955 to 1980 (Chicago, 1955), pp. 1-3.

29/ John C. Bollens, Special District Governments in the United States (Berkeley: University of California Press, 1957), p. 82.

30/ Milwaukee Metropolitan Survey Committe, A Report to the Governor of the State of Wisconsin (December, 1956), pp. 10-11.

of no water without annexation. Over the years, the suburbs fought this policy before the Wisconsin Public Service Commission and the courts, usually with success. Milwaukee contended that it had a right to control the extension of a utility service, regardless of the immediate profit to the city, in order to protect its tax base from the flight of residents and industries to tax suburbs with lower tax rates. In spite of repeated rebukes, including one by the 1956 Governor's Study Commission which noted that "in America, we have deep-seated objections to economic coercion of this type, particularly by a public utility," Milwaukee has not abandoned its policy and the embitterment of intergovernmental relations in the metropolitan area continues.

The experience in Los Angeles and Milwaukee is much less common than the contract system. Under the contract system, the central city controls the development and operation of the water or sewage system. The relationship with the suburb is a commercial one. Individual and corporate customers outside the city normally have no representation on the city agency which operates the system. Nor do they have a voice in the development of plans and capital budgets.

Although the cost of delivering water or collecting sewage varies in different parts of the city, central systems generally equalize rates for all customers within the city boundaries. However, individuals and communities outside the city contracting for service almost always pay a higher rate which reflects the additional costs to the central city. When suburban agencies distribute the water, the capital and operating costs of the local distribution system increase the rate differential between central city and suburb. Nashville's rate structure is not atypical. Rates for customers outside the city are twice those for residents. The city makes a six percent net return on that portion of its investments attributable to the furnishing of water for suburban customers as compared with three percent for city investment. The higher suburban rate and the resultant partial subsidization of city users is justified because the city owns and maintains the basic facilities.

Contracting with the central city for water or sewage disposal may provide for either direct service connections or bulk sales to agencies which then retail the service. The simpler method is for

the central city to extend service directly to suburbanites, either on an individual, sub-development, or community basis. Retail or direct service extensions have been common for both water supply and sewage disposal. In the past direct extensions have been successfully used by central cities as an inducement to annexation, particularly in the unincorporated fringe areas.

In recent years the prevalent practice has been for the central city to wholesale water or sewage service to the suburban communities, utility districts, or private companies, who in turn distribute water or collect sewage from individual customers. Under the arrangement, relatively little threat is posed to the autonomy of the local communities. Indirect service extensions have been used more often for water supply than for sewage disposal. Generally service is extended to contiguous neighboring communities, but not always. Philadelphia contracts for sewage service with non-bordering municipalities lying within the city's drainage basin.

At present, under varieties of the wholesaling system, Chicago, Cleveland, and Portland, Oregon, supply water to almost 60 suburban communities each, New York City to 36 neighboring areas, and San Francisco to 40 cities and water districts. Fairly typical are the water contracts in Detroit and the sewage contracts employed in Minneapolis. The standard schedule of rates and charges established by the Detroit Water Board sets higher rates for the suburbs than for the city. In addition, suburban communities pay an extra charge if Detroit provides peak-hour storage facilities. When Detroit builds transmission mains outside the city limits to furnish water to a suburb, the community will pay a distance and elevation charge to cover the cost of construction. 31/ Minneapolis' sewer contracts call for a charge of $1.00 per connection for the maintenance of the city's sewer used by the suburb; a sewage treatment charge based on volume, if the sewage is metered, or on the number of connections; and a fixed charge to cover the suburb's share of the cost of providing additional capacity for the particular community. 32/

31/ Gerald Remus, "Metropolitan Water Problems: Through Intergovernmental Cooperation, Detroit and Surrounding Communities Meet the Crucial Needs of a Metropolitan Area," Michigan Municipal Review, XXXIV (April, 1961), p. 95.

32/ Twin Cities Metropolitan Planning Commission, Metropolitan Sewage Study, op. cit., p. 18

Direct extensions of service and indirect extensions through wholesaling arrangements often are provided by the same central city. Of the 38,000 customers living outside the city, served by the Nashville Waterworks Department, 20,000 are supplied directly and 18,000 indirectly through two water districts. Fourteen percent of the Seattle Water Department's 50,000 out-of-city users are served directly; the remainder secure water from the distribution systems of the 30 water districts and municipalities which purchase water wholesale from the city.

The contract system seldom covers an entire metropolitan area. For example, Wilmington, Delaware, supplies water to approximately 40 percent of the households in the heavily built-up areas outside the city limits. In Minneapolis-St. Paul, 842,000 are supplied directly or under contract by the two central city water systems. Another 245,000 are serviced with ground water by 69 public and private systems. An additional 433,000 rely on individual home wells. However, in the Detroit area, the central city water system serves Detroit and the 47 other communities in the six county area through a variety of wholesaling arrangements.

Supporters of contracting defend the system on a number of grounds. They contend that the system extends the technical competence and financial capabilities of the central city, while sparing the suburbs the necessity of using their credit and bonding capacity to develop less efficient facilities. It is also argued that the system permits local control through the contract procedure. In addition, flexibility is achieved and local freedom of action is preserved since no community is compelled to contract with the central city.

Advocates of the system point out that it facilitates action since the central cities have facilities in being and metropolitan-wide consensus is not necessary to proceed on a contract basis. Contracting, according to this line of reasoning, also prevent subsidization since contracts reflect true costs for providing service to a particular community. By the same token, the requirements of economic efficiency are satisfied since service is priced on the basis of the cost of production. Finally, its supporters argue that the contract system provide a metropolitan service without adding another layer of government, thus avoiding the conflicts and dangers of "super governments."

Many of these alleged advantages are scored as weaknesses by critics of the contract system. In essence, contracting is a relationship between customer and monopoly supplier. Although the "dictator" often is benevolent, the arrangement is not representative government. The suburbs have no representation on the central city agency which provides the service. When clashes arise over rates and service, or supply during periods of shortage, and such conflicts are endemic to the contract system, the central city, because of its disproportionate bargaining position, usually prevails. Complaints, such as those in Cleveland's suburbs, that nearly half the users of Cleveland water have no political control over the water supply, are common. The unequal relationship produces antagonisms that often result in the central city being blamed for all service shortcomings, although the trouble usually results from inadequate local distribution and collection systems. Since the central city voters must approve bond issues for improvement or additions of benefit to both residents and contracting communities, the suburbs' water and sewer service levels are determined by political processes over which they have no control. In the Los Angeles area, improvements and additions to the city's sewage collection and treatment system vital to a number of suburbs have been delayed or shelved because of the failure of voters in Los Angeles to approve the necessary bond issues.

A few States seek to prevent monopolistic exploitation of suburbs by central cities through regulation by a State utility commission. Wisconsin's Public Service Commission regulates the rates charged by a wholesale utility. In most States, however, the suburbs only recourse if negotiation fails is the courts or the State legislature, with neither alternative likely to improve intergovernmental relations in the metropolitan area.

Profits under the contract system do not always accrue to the central city. State law prohibits Chicago from selling water to municipalities within the Chicago Sanitary District at prices higher than those charged in the city. Over 50 suburbs obtain water wholesale from Chicago. They sell the water to their residents and in some cases other communities for rates which average three times those in Chicago. Some municipalities increase the price as much as 600 percent, finance a good part of their local expenses with water revenues, and maintain a much more attractive tax rate than Chicago.

Despite the potential that some areas have demonstrated with respect to the contract system and the fact that a good number of central city-suburban contract relationships are satisfactory and mutually beneficial, the majority of study reports and other recommendations designed to produce changes in the provision of water and sewage service in metropolitan areas, have favored metropolitan approaches to the development or improvement of the contract system. The following chapter examines the metropolitan approach as an alternative to the systems discussed in this chapter.

Chapter 4

METROPOLITAN APPROACHES TO THE WATER PROBLEM

The Case for Comprehensive Water and Sewage Development

Most postwar studies of urban water supply and waste disposal have underscored the failure to achieve efficient and economical planning, development and operation on a metropolitan basis. The economic benefits to be derived from areawide utility planning and development, and the fact that political boundaries bisect watersheds and drainage basins, are powerful arguments for structural change in those metropolitan areas where water responsibilities are fragmented, investment is inadequate, suburban development is hampered by the shortcomings of individual systems, and intergovernmental relations strained by the drawbacks of the contract system.

For the general public, economies of scale are probably the most appealing arguments for metropolitan approaches to the provision of water and waste disposal service. Per capita investment for a sewage treatment plant to serve half a million people is 75 percent that of a facility serving 50,000. There are also considerable savings in per capita operating costs with larger facilities. For example, it costs an average of $8.00 per million gallons to provide primary sewage treatment with a 100,000,000 gallon capacity treatment plant. For a 10,000,000 gallon capacity plant the comparable cost is $23.000. And costs are $58.00 for a 1,000,000 gallon capacity facility.

Of course, economies of scale can be achieved on a less than metropolitan basis. A recent study estimated that separate treatment plants for each community in the suburbanized portion of Suffolk county in the New York metropolitan area would cost $19,600,000, with annual operating and maintenance charges of $892,000. Economies of scale would result if the plants were constructed on a town-wide basis, since total construction outlays would be $13,000,000 and annual operation and maintenance costs $562,000. More comprehensive facilities, on an intertown but still subregional basis, would afford even greater economies. In this case capital investment would require $10,400,000 and annual operation and maintenance $466,000. 33/ In the

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33/ New York, Executive Department, Office for Local Government, Study of Needs for Sewage Works (February 16, 1962), p. 24.

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larger metropolitan areas and in those with more than one watershed or drainage basin, it is quite possible that submetropolitan development will offer comparable or greater economies of scale, as well as being politically more feasible, than areawide approaches.

A consideration of the economies of scale must not lose sight of the fact that the overall economic advantages of comprehensive development of utilities does not provide economic advantages for each component of the metropolitan area. Some municipalities because of past investment, location, or pattern of development, can handle their own water supply or waste disposal problem at a lower cost on an individual community or small interlocal basis. Others, particularly those with adequate facilities in being, will resist comprehensive schemes because the costs outweigh benefits, particularly on a short-run basis. If a community which has met its past capital needs is located in a metropolitan area where the gross backlog of investment in water and sewage facilities is considerable, the advantages of comprehensive development are likely to seem meager indeed. Furthermore, the tendency to build comprehensive systems with capacity sufficient to accommodate future growth, while an extremely wise long-range investment decision in terms of overall regional development, is likely to decrease the economic attractiveness of such development to those communities with adequate facilities in being. For these reasons, comprehensive approaches to water and waste disposal problems cannot be justified on an economic basis alone. Considerations of public health, other water uses, planning, and guiding sound development must be brought into the picture.

Another economic factor favoring comprehensive development is the protection against unwise investment offered by regional approaches. Small facilities, particularly for sewage disposal and treatment, are excessively expensive to operate, obsolesce rapidly, and rarely provide the long-range solution that a comprehensive program can insure. Suburbs jealous of their autonomy often have preferred uneconomic individual community facilities to membership in a larger system. However, postwar experience in the Seattle and Denver metropolitan areas illustrates that in many instances community plants will eventually be abandoned. For the suburbanite who began with an individual treatment system, this poses the possibility of a triple investment: first, a septic tank; second, a community treatment facility; and, third, a regional sewage disposal and treatment system. James R. Ellis a key figure in the creation of the Municipality of Metropolitan Seattle, has underscored the foolhardiness of unwise small community sewage facilities:

> If we are ever to have utility services at reasonable cost we must be prepared to make the long-term investment required and to stop pouring dollars down the rathole of inadequate facilities, many of which will be obsolete before they are paid for. The economic waste in stubbornly duplicating permanent sewage disposal and water supply facilities cannot be justified under any rational theory of local autonomy. 34/

Another economic benefit claimed by the advocates of comprehensive approaches is the equalization of water and sewer rates. The uniform rates for an entire area possible under a metropolitan system insure that no community has a utility advantage over its neighbors. Nor is any community penalized for its location although quite distant from the regional water source or sewage treatment facility. Under most metropolitan utility systems, major facilities such as dams, reservoirs, central pumping stations, transmission mains, treatment facilities, and trunk sewers are financed by the metropolitan area as a whole. Local distribution and collection systems are provided by the community or the individual served.

The rationale for not financing major facilities through a user charge system which would reflect the actual costs for providing the utility to each community or household has two aspects. First, there are the general benefits to the entire community that derive from adequate water supply and waste disposal. Protection of health, enhanced property values, improved fire protection, industrial prosperity, sound development, and better recreation are community benefits which should not be borne by the user alone. Second, equalization, or pooling of resources on a metropolitan basis, usually permits the development of a long-range program in which initial investments exceed the individual investment potential of the established areas. The latter consideration is especially important if economical long-range development is to be undertaken and the cycle of inadequate investment and fragmented responsibility avoided in the future.

Uniform rates do not appeal to all segments of the metropolitan area, particularly the central city. Opponents contend that equalization means the subsidization of distant suburbs by those adjacent to major water facilities. Central city interests often contend that

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34/ James R. Ellis, "Government for Growth, the Seattle Story," Address before the Section of Municipal Law of the American Bar Association, August 27, 1958.

regional financing will tax their industry in order to subsidize industrial development in the suburbs. In addition, industry may flock to the suburbs once the utility advantages of a central city location disappear. Another argument used against metropolitan proposals is the possibility that already-developed communities will finance excess capacity to serve areas which may not develop to their promoter's expectation. Providing capacity for future growth, according to this point of view, also burdens present users to subsidize the development of new communities.

In the recent unsuccessful effort to create a metropolitan sewer district in the Minneapolis-St. Paul area, the question of cost apportionment was one of the most difficult problems to resolve. The legislation, which was ultimately defeated in the State legislature, provided that all district expenses for the construction and acquisition of interceptor sewers and disposal plants be apportioned among the municipalities on the basis of the percent of the capacity allocated to each municipality in the design of the facility. If the amount charged to each municipality for interceptor sewers were to exceed 106 percent of the average cost throughout the district, the excess amount would be apportioned against all the municipalities within the district on the basis of capacity provided for each. The 106 percent provision was a compromise designed to avoid excessive costs to those communities located farthest from the sewage treatment plant since the facilities were needed to protect the health and welfare of the entire metropolitan area. However, Minneapolis opposed this provision as subsidization of the distant suburbs.

As in most aspects of comprehensive water and sewage development, the questions of economies of scale, unwise investment, and equalization involve advantages and disadvantages for the various components of metropolitan area. However, developments to date and projections of future costs in metropolitan Seattle indicate that both the city and the suburbs will derive long-run economic, health, and recreational benefits from the regional wastes disposal system developed by the Municipality of Metropolitan Seattle. Seattle will pay more than its share for the development of the regional system because the facilities in the city are designed for present capacities, while those in the suburbs are built at a considerably greater capacity since the projected growth for the next 40 years will be largely in areas outside the city. This means that Seattle is investing in facilities which will be of no direct benefit to it in terms of its sewage requirements. Some suburbs are paying more under the

METRO system than would be the case under community or small district development. However, there will be long-run reductions in sewer use charges for both city and suburban residents because of the greater efficiency of the comprehensive system. In addition, the reduction of pollution will greatly enhance the recreational values of the area's waters.

Future imponderables and present needs both call for improved planning in urban areas. Except for neighborhood distribution and collection systems, water supply and waste disposal are best planned on the basis of projected needs for a minimum 25-year period. Long-range planning is essential because of the financing practices used to raise capital for water and sewage disposal facilities and because of the high unit cost of repeated incremental expenses for additions and enlargements.

Boundaries complicate the task of comprehensive water planning in metropolitan areas. Watersheds and drainage basins rarely are coterminous with the political, social, and economic outlines of the metropolitan community. Hydrologic and engineering aspects of utility planning require consideration of sheds and drainage basins, often in cooperation with State, interstate, and Federal agencies. However, utility planning which concentrates on the natural service and supply areas is inadequate. Future water and sewer services must be developed on the basis of projected growth trends and patterns of development for the metropolitan area as a whole. Water and sewer service should be related to other metropolitan functions such as transportation which also strongly influence development. If adequate funds and trained personnel are available, there is no technical reason why utilities cannot be planned on both a metropolitan and a watershed or drainage basin basis.

More difficult questions are posed when the policy and operating functions are considered. Water and sewer engineers, planners, and groups interested in general metropolitan political development agree that utility policy, and usually operations, should be areawide in scope. However, different vantage points provide different criteria as to the preferred scope of a metropolitan operation. The engineers normally think in terms of the watersheds and drainage basins in the metropolitan areas. Topographical considerations are particularly important in the design of sewer lines because of the adherence to the gravity flow principle. Planners contend that water and sewer utilities should be provided on the basis of present and future service needs, in terms of population, distribution and projected population growth, rather than from the standpoint of engineering feasibility.

Finally, there is the framework of politics. Existing political boundaries must be taken into the equation in determining the scope of metropolitan operation. In addition, the pattern of political interests in an urban area affects the feasibility of a metropolitan approach of a particular scope. The idealistic supporters of metropolitan government are likely to insist upon regional inclusiveness. More realistic promoters of areawide political solutions tend to set the boundaries of a metropolitan agency on the basis of securing the voter majorities requisite for its creation. Those interested primarily in solving a particular service problem want boundaries sufficient to secure efficient service and economies of scale, but not so broad as to introduce unnecessary political complications.

Conflicts between these various points of view are inevitable in most metropolitan areas. Should a community which lies outside the region's major drainage basin and which is likely to be the focus of a considerable amount of the metropolitan area's future residential development, be included in a metropolitan sewage district? Should a community which occupies a strategic position in a drainage basin be included in a metropolitan system despite the fact that there is considerable political opposition within the community based upon distrust of the central city or the existence of an adequate facility to meet local needs? Finally, should fringe areas in which future growth and water and sewer problems are likely to be concentrated be included in spite of their hostility toward regional approaches? Inevitably, the result of the interplay of these considerations and pressures will be a compromise among the various interests involved: the planners, engineers, civic groups, politicians, developers and others. Usually the final product is an agency whose scope is considerably smaller than that preferred by the professionals.

Inadequate scope is a major weakness of most of the present regional water and sewer operations. It is a product of the political necessity of having to accept a less than ideal geographical base and the failure of many metropolitan water agencies to grow. In fact, many so-called metropolitan districts for water and, particularly for sewer service, are little more than expanded central city systems. In these areas, the outlying districts suffer from the same fragmentation and shortcomings of individual systems that are found in areas where metropolitan agencies have not been created. For example, the metropolitan St. Louis Sewer District, created in 1956, extends its jurisdiction only over the heavilty urbanized portions of St. Louis city and county. It does

not include those parts of the metropolitan area in which the major portion of anticipated growth will occur. At present, utility development in these areas is not guided by any overall plan of development and land use. The Metropolitan St. Louis Study concluded that it was essential that control over sewer development be lodged in a metropolitan government with jurisdiction over the city and county of St. Louis. The alternative was a duplication of the conditions which caused the creation of the metropolitan district. 35/ Similar situations exist in the Pittsburgh metropolitan area, where the jurisdiction of the Allegheny County Sanitary Authority does not extend to the more rapidly developing portions of the metropolitan area; and in the Milwaukee area, where the Metropolitan Sewage District does not include many of the rapidly urbanizing communities in Milwaukee county.

Metropolitan Planning, Policy and Administration

Two things are clear about tackling urban water problems on a metropolitan basis. First, metropolitan programs, while generally desirable, will vary greatly in content from area to area. And second, there is no single method of achieving the requisite intergovernmental cooperation to initiate metropolitan water supply and sewage disposal programs. Therefore, the form as well as the content of metropolitan approaches to the provision of water and sewer service will vary from region to region.

Metropolitan water programs can involve one or more of the following activities: planning, policy coordination or policy-making, and the actual operation of the facilities. Most studies of the water and sewage situation in a particular metropolitan area recommend that all three activities be placed under the jurisdiction of a regional agency, which may be unifunctional or multifunctional. However, there is no inherent logic in performing all three functions either on a regional basis or by the same agency. As Melvin E. Scheidt has pointed out:

> A plan for a regional system does not necessarily mean that a region has to have a single integrated regional facility. It merely means that all of the

35/ St. Louis Metropolitan Survey, The Path of Progress for Metropolitan St. Louis (August 1957), p. 63.

> alternatives for supplying water or disposing of it have been studied, and that combination adopted which is best suited to the topography and geography of the region, and will most efficiently and economically provide the required service with the least interruption or damage to people, property and resources. The selected combination might very well include several sources of water, several points of waste disposal and several separate systems and operating agencies. The point is, however, that whatever the combination selected, it represents what appears to be the most efficient and economical arrangement for achieving the regional goals, whatever these have been determined to be. 36/

Comprehensive regional planning can and should provide blueprints for long-run savings, the safeguarding of health standards, the protection of individual communities from the ill-advised actions of their neighbors, the conservation of recreational areas, and a water and sewer planning which is integrated with overall community development planning. But planning by itself cannot ensure these benefits. Organizational devices which can provide for the coordination of local policy and the development of a regional water strategy are also necessary. In a recent report the Twin Cities Metropolitan Planning Commission recommended the creation of a metropolitan water agency without operating responsibilities with the following functions:

1. To serve as a spokesman for the Metropolitan Area in dealing with higher governmental units on water matters;

2. To coordinate the activities of other metropolitan, municipal, or private agencies affecting metropolitan water considerations;

3. To determine and implement policy concerning priority and allocation of water in the Metropolitan Area;

36/ Melvin E. Scheidt,"Water Management Problems in Urban Areas," Paper presented at the Residence Course on Urban Planning for Environmental Health at Sanitary Engineering Center, Public Health Service, Department of Health, Education and Welfare, Cincinnati, Ohio (April 3, 1962), pp. 7-8.

4. To review and coordinate locally requested projects having metropolitan significance that require state or federal assistance;

5. To arbitrate on the use of water;

6. To provide the general physical framework for a water system in the Metropolitan Area. 37/

There is a great danger in prescribing an approach which all metropolitan areas should follow. The particular nature of the problem, specific organizational forms in the water field, traditional methods of undertaking regional problems, governmental structure, and political conditions and customs vary widely from one metropolitan area to another. Usually these factors will dictate the content and form of a regional approach to water problems in a particular metropolitan area. Whatever the environmental conditions, however, comprehensive planning and policy coordination on a regional basis promise a considerable enhancement of the capabilities of any metropolitan area to deal with its water problems, regardless of the method of operation of the utilities themselves.

Metropolitan operating agencies for water supply or waste disposal should not be created merely for the sake of regional inclusiveness. The size of the metropolitan area, its topography, geography, political structure, or political conditions are quite likely to provide effective barriers to the provision of urban water services on an areal basis. In most metropolitan areas, sewage disposal is more likely to be handled in the foreseeable future on a regional basis than water supply is. There are a number of reasons for this situation. First, the investment lag is a much more serious problem for waste disposal than for water supply. As a result, the need for action is greater and the economies of scale possible in regional development are most attractive. Second, the contract system is much more common for water supply than sewage disposal. Prospects for the creation of regional water supply agencies are dim outside those areas where there is an absolute water shortage or a requirement for large amounts of capital to develop capacity or improve distribution to meet projected requirements.

37/ Twin Cities Metropolitan Planning Commission, Metropolitan Water Study, Part II (July, 1960), p. 53.

Political Realities and Metropolitan Approaches

Comprehensive planning, policy coordination, and the development and operation of water and sewer utilities on a metropolitan basis can provide most urban areas with more efficient and more economical water service. In addition, regional approaches promise greater safeguards for health, more effective conservation of recreation areas, and the planning and provision of utilities so that they have a more beneficial impact on community development. However, in most metropolitan areas, political realities rather than engineering, planning, and public administration doctrine are the crucial factors affecting the possibility of altering the structural base for planning, allocating and applying resources. The chances of achieving structural changes in a particular metropolitan area depend primarily on attitudes, timing, and the pattern of interests and groups as they conflict, compete, and cooperate.

Building support for a metropolitan approach to water supply or sewage disposal is greatly complicated because the impact of a particular problem or deficiency varies greatly in different parts of the metropolitan area. This variety of attitudes was evident in the Minneapolis-St. Paul area in the reaction of various groups and communities to the proposal for the creation of a regional sewer district. Supporters included the planners, technicians and civic groups, whose attitudes were shaped by the general advantages of regional approaches. Opposition was a product of a wide variety of perceptions. The two central cities had solved their basic sewage problems in the 1930's with the creation of the Minneapolis-St. Paul Sanitary District. Each city had profitably contracted over the years for the sale of its excess capacity. Both were desirous of maintaining the contract system and neither had any great interest in increasing the overall capacity of the system since population in both central cities is static or declining. However, to meet the standards of the State Board of Health and the Water Pollution Control Commission, major capital investments in the existing facilities were required to provide secondary treatment. The central cities were much more concerned with upgrading treatment and maintaining a profitable contracting arrangement than in creating a regional system which would involve central city investments in facilities from which they would derive no direct return. South St. Paul's large sewage treatment facilities are maintained primarily by their principal user, the packing industry. The city opposed the district because it was already giving a higher degree of treatment than that proposed for the metropolitan system; and because a 350 percent increase in the total cost to the community and the packing industry would result from the creation of a metropolitan district.

A few other fortunate suburban communities with relatively new and adequate treatment facilities opposed the metropolitan plan on the grounds that they could handle their own problem and would be burdened with unnecessary expenses if included in the new district. Some of these communities charged that the metropolitan proposal would drain off their capital to improve the capabilities of the central sewage treatment facility. Suburbs served under the contract system preferred changes in the contract procedure which would strengthen their bargaining position to a metropolitan system requiring their participation in capital investment while offering no direct benefits.

Suburbs in the southeastern part of the metropolitan area, where the well pollution problem was not serious, demonstrated little interest in the district proposal. Finally, some of the suburbs suffering from well pollution favored the creation of a suburban sewer district since this course of action offered a solution to their problem at a lower unit cost and with greater dispatch than the creation of a metropolitan district.

Central cities are obviously crucial to the success or failure of metropolitan water ventures. Cleveland's position is typical. In its sewerage report, the Cleveland Metropolitan Services Commission recommended that the central city participate in a regional sewage disposal agency for a number of reasons. Cleveland has the most extensive facilities in the area. It is located at the edge of Lake Erie in the center of the most important drainage basin in the area. Furthermore, the city's facilities are used by other municipalities and it would be uneconomical to change this pattern. 38/

The political position of the central city, like the attitude of a particular suburb, is likely to be based on immediate self-interest rather than projected long-range regional benefits. There are few countervailing benefits available in most metropolitan proposals for a central city which through a profitable contract system, enjoys a dominant relationship in the operation of that system, and influences the pattern of area development to its own benefit.

38/ Cleveland Metropolitan Services Commission, Sanitary Sewage and Storm Drainage in Greater Cleveland, 1959, p. 9.

In the absence of a profitable contract system and in those areas where capital investment in central city systems has lagged far behind requirements, attitudes toward metropolitan proposals are likely to be quite different. Like many central cities Seattle has chosen to confine its responsibilities to the city limits and its opportunities to the area. When a profit can be made on a regional function, as is the case with water supply in the Seattle area, the central city favors the contract system. When capital requirements are great, as with waste disposal, or deficit operations are probable, as in the case with mass transportation, Seattle has sought to spread responsibility to the entire metropolitan area through creation of a regional instrumentality. During the formative stages of the Municipality of Metropolitan Seattle, there was considerable criticism of the failure to designate water supply a metropolitan function. Suburbanites called on Seattle to turn over both profitable and unprofitable functions to the metropolitan instrumentality. Although water supply was one of the original functions recommended for the metropolitan government, it was omitted from the proposal submitted to the voters because supporters of Metro felt that votes gained outside of Seattle through the inclusion of water supply would not compensate for those likely to be lost within the city.

Suburban attitudes toward metropolitan approaches also vary greatly with the situation in a particular community. Some are content with their own facilities, which often provide a better level of service at a lower unit cost than will be possible under a regional system. Others prefer the continuation of the contract system with procedural reforms. Communities with serious problems sometimes favor regional approaches, but more often are attracted by lower cost alternatives.

Despite the variety of attitudes produced by these differences in situations, there is at least one constant. Distrust of the central city and its motives with respect to regional approaches is found in suburbia across the land. For example, one suburban newspaper urged defeat of the proposal for the creation of the Municipality of Metropolitan Seattle because "if for no other reason than the selfishness and the general untrustworthiness of Seattle, the Metro plan should be defeated. Seattle just isn't the kind of town you take for a business partner." 39/ At the same time, another

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39/ Kirkland Sentinel, November 15, 1957.

suburban newspaper noted that "we think if Seattle is to be 'saved', it should be done by Seattlites and at their own expense -- we want no part of it." 40/

Suburban areas usually raise vociferous complaints about the representation formulae on metropolitan agencies, claiming that the result will be a Trojan horse designed to expand the control of the central city. While the experience in metropolitan arrangements both supports and refutes these claims, Los Angeles has attempted to utilize its predominant position on the Metropolitan Water District of Southern California to veto expansion which would reduce its percentage of membership and to prevent facility development of primary benefits to suburban members. In the Seattle area, despite the hue and cry from the suburbs about Metro being an instrument for domination of the entire area by the central city, Seattle with only 50 percent of the representation on the Metro board, will pay 90 percent of the user's fees for the development of a regional sewage system. The city must also bear the cost of 10 to 15 percent of the total capital investments needed to provide sewage capacity in the presently undeveloped areas of anticipated future growth, all of which lie outside the city limits. Growth in these areas, which will be spurred by Seattle's "subsidization" of utility services, ultimately will produce population changes that will reduce Seattle's percentage of the membership of the Metro board.

Compensation has been another important issue in metropolitan water politics. Proposals to transform Milwaukee's water supply system into a regional network were met with cries that the suburbs were trying to "steal" the water works. In the Twin Cities area, Minneapolis-St. Paul objected to payment for existing facilities on the basis of reproduction cost less obsolescence, and depreciation, and Federal aid. As a result, the compensation issue remains a major hurdle to the creation of a metropolitan sewage district in the Twin Cities area. The experience in Seattle, however, indicates that the compensation issue need not be a barrier to the development of comprehensive approaches. To forestall conflict, the Metropolitan Council decided to reimburse communities on the basis of total local investment, less only Federal aid. No major conflicts resulted. Although some money probably could have been saved by a less liberal reimbursement formula, these savings in all likelihood would have been purchased at the cost of increased acrimony.

40/ The White Center News, November 1, 1957.

The necessity for securing as much harmony as possible in launching a metropolitan agency underscores the wisdom of Seattle's politically wise, if somewhat economically extravagant, approach.

The existence of viable alternatives and the time factor are two final barriers to metropolitan-wide approaches to water and sewage problems. Local strategies usually are based on a maximization of benefits and control and a minimization of cost. Such strategies, which often can be fulfilled by less than regional approaches, are not conducive to the creation of metropolitan agencies which inevitably remove some control from local hands and rarely offer a lower cost alternative to the minimal short-range investment a particular community may require to postpone crisis. Low cost solutions are favored over regional approaches even in instances where they are impossible or highly improbable. For example, the suburbs in the Minneapolis-St. Paul area with the most serious well pollution problems are determined to develop a small sewage treatment facility to handle the needs of six communities because of the savings involved as compared with a metropolitan district or extension of the contract system. However, these suburbs propose to discharge sewage effluent into the Mississippi River at a location which would imperil the water supply of Minneapolis. In 1961 the Minnesota Legislature authorized the six northern suburbs to create a sanitary district, but required that the treatment plant could not be constructed without the consent of the central cities and the State Health Department, all of which oppose the proposed location.

Alternatives to regional approaches often are quite viable. Individual community facilities and small subregional water and sewer districts usually are technically feasible and less costly on a short term basis than more comprehensive approaches. Even more attractive alternatives are available, particularly in the larger metropolitan areas as well as those encompassing more than one watershed or drainage basin and those with multiple water sources. These include county-wide water and sewage agencies and large subregional utility districts, either of which can cover all or a large percentage of the suburban portion of a metropolitan area. Quite often these organizational arrangements provide sufficient scope for economies of scale and long-range planning, while avoiding many of the central city-suburban antagonisms which hinder the development of areawide agencies. Of course these alternatives are likely to be less satisfactory from a technical or planning viewpoint in medium and small metropolitan

areas, particularly when there is a single watershed or drainage basin. A final alternative to regional utility service is the development or improvement of the contract system.

The political attractiveness of these alternatives to metropolitan approaches should not obscure two important considerations. First, regardless of the topographic or political factors which may well induce a division of operating responsibilities on a subregional basis, areawide water and waste disposal planning and policy coordination remain important objectives in view of the requirements of public health, recreation and conservation, water pollution control, the integration of water and sewer utilities with other functions which affect development throughout the region, and sound community development itself. Second, metropolitan areas have a long-run interest in securing an adequate planning and political structure to meet the problems of the future. In most areas, the impact of population change on the social composition of the metropolitan area will enhance the advantages of regional approaches, particularly for the central city. The existence in most metropolitan areas of functioning central city water and sewer systems and the probability that these systems can serve as the basis for lower cost service than other alternatives can be a powerful inducement to the suburbs to join with the central city in a regional approach. If the cost of the contract system or disputes over compensation, representation, or other issues, result in subregional development, or individual community approaches which provide adequate service for most suburbs, in lieu of the contract system, the central city will have lost a key opportunity for structural change.

The time factor also cannot be ignored. While metropolitan action does not require formal unanimity among the variety of public and private agencies and interests involved, it is unlikely to be successful unless there is a reasonable consensus on the proposed solutions. The variety of situations and perceptions of the problem in the average metropolitan area normally will make the search for consensus on a regional approach a lengthy one. After estimating that it would require approximately two years to secure the necessary enabling legislation, draft a charter and secure popular approval for the creation of a metropolitan government, the Nashville and Davidson County Planning Commission recommended the extension of much needed urban services, including water and sewer utilities, by means of annexation, city-county contractual arrangements, or functional consolidations in the interim period until a metropolitan

government was established. 41/ Speaking of the delays involved in solving the Milwaukee area's water supply problems on a regional basis the Milwaukee Metropolitan Survey Committee, observed:

> We do not rule out the possibility of a series of separate systems for individual communities... Some communities, tired of the wrangling and interminable debate, may decide to go ahead just to get the problem solved; that would be tantamount to an admission that in the Milwaukee area intercommunity efforts to solve the suburban and City of Milwaukee problems are hopeless aspirations. 42/

In many areas with numerous units of government and interests involved regional action cannot be secured with dispatch. Because of the time factor, the alternative to regional action becomes more attractive.

Counties within metropolitan areas and other counties with large populations are, in varying degrees, increasingly providing services to its urban residents. Provision of urban water supply and sewer services by such urban counties have a number of advantages. As noted in the Commission's report Alternative Approaches to Governmental Reorganization in Metropolitan Areas:

> Where the boundaries of a county approximate the boundaries of a metropolitan area, which is the case in about two-thirds of the metropolitan areas in the country (primarily the smaller ones), the transformation of the county into a unit of urban government can mean the provision of areawide services without any basic changes in geographical jurisdictions of existing units. It thus provides better control over areawide problems and a better relationship between taxes and benefits, at the same time that local responsibility for nonareawide services is preserved. The urban county makes available economies of larger scale

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41/ Nashville and Davidson County Planning Commissions, Plan of Metropolitan Government for Nashville and Davidson County (October, 1956), p. 59. A metropolitan charter was finally adopted as this report was being written.

42/ Milwaukee Metropolitan Survey Committee, A Report to the State of Wisconsin (December 1956), p. 32.

administration. Consolidation of functions can result in the elimination of duplication where the county and the municipalities are providing similar services, such as police and sheriff, or conducting various public welfare activities.

The use of an existing government rather than the creation of a new one gives the urban county approach high political feasibility. Where the urban county evolves on a function-by-function, piecemeal basis, political feasibility is even greater.

Of some 221 counties over 100,000 population responding to a survey conducted for the 1962 Municipal Year Book, some 35 counties provided sewerage systems, 26 counties operated sewage treatment plants, and 18 counties operated water supply and distribution systems. These figures understate the involvement of county governments in such activities. In many States the county works through special districts. In other situations county or joint county municipal special districts are used. Finally, counties participate in provision of such services through intergovernmental contracting arrangements. Thus, for example, Los Angeles County provides urban services including water and sewer services by contract to scores of municipalities. 43/

Crises in health, service, or financing, actual or impending, generally are required to secure sufficient consensus to launch a metropolitan water-sewage program. Hostility to Los Angeles' annexation policies, the dire need of Southern California for additional water, and a desire to enhance the area's bargaining position at the State and Federal levels led to the creation of the Metropolitan Water District of Southern California. Fragmentation of effort and inadequate financial resources led to the creation of the Metropolitan St. Louis Sewer District in 1954. Severe water pollution and an increase in the rate of infectious hepatitis spurred the creation of a tri-county sanitary agency in the Portland, Oregon area. Findings by the Minnesota State Health Department in 1959 that malfunctioning of septic tanks and resultant ground water contamination had produced well pollution in almost half the wells sampled in the suburbs of Minneapolis-St. Paul triggered a comprehensive study of the sewage problem by the Twin Cities Metropolitan Planning

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43/ Victor Jones, "Urban and Metropolitan Counties," Municipal Year Book, 1962 (Chicago: International City Managers' Association, 1962), pp. 63-64.

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Commission and an unsuccessful effort in 1961 to create a metropolitan sanitary district. The grave danger threatening Lake Washington, a prime recreational area, by sewage effluents, resulted in the creation of a metropolitan agency in Seattle with responsibilities limited to the development of a regional waste disposal system.

Single Purpose vs. Multipurpose Agencies

The dominant approach to date to the provision of water and sewage service on a regional basis is the single purpose agency. Despite persistent criticism of unifunctionalism in metropolitan areas, the single purpose concept usually carries the day once the decision to create a regional agency has been made. A number of factors account for the separate handling of regional functions in metropolitan areas. The natural service areas for water, sewage disposal, planning, transportation and other functions usually do not coincide. Closely related are the preferences and pressures of the technicians, who are influenced by both technical and personal considerations. Sewer or water engineers are more likely to predominate in single function organizations than in multipurpose agencies. Differences in the timetable need also foster the single purpose approach. Since regional agencies usually are created in response to the most pressing problems that cannot be handled satisfactorily on a less inclusive basis, a single purpose agency to handle the particular function is a natural solution. In Minneapolis-St. Paul, for example, the metropolitan sewage disposal issue attracted considerably more attention during the past few years than a proposed regional water agency. Sewage was causing serious problems because of well pollution; while concern over water supply focused on future requirements. Similarly, in the Seattle metropolitan area, an acute sewage problem and an effective regional water supply provided under the contract system resulted in the inclusion of the sewage function and the exclusion of the water supply function from the responsibilities of Seattle's Metro.

Political feasibility is another advantage of the single function metropolitan agency. The single function approach does not pyramid conflicts. It tends to separate the population into those who are for or against a regional sewage agency or a metropolitan water supply district. The multipurpose approach produces an overlap of opponents, those who are opposed to regional sewage,

those who are opposed to regional water supply, those opposed to metropolitan transportation and so on. The single purpose approach also is more acceptable to the large element in metropolitan areas, particularly in the suburban districts, who fear metropolitan government. A sewer or a water district poses much less of a threat, regardless of whether the threat is real or imaginary, than a multipurpose district or federated metropolitan government to the real or imagined prerogatives and virtues of local communities in the metropolitan areas.

Suburban attitudes in the Chicago metropolitan area illustrate this point. In 1954 a Governor's committee recommended a multifunctional authority, responsible for water supply, drainage, sanitation, and port development, for the western and southern suburban areas. Yet, as the Metropolitan Sanitary District of Greater Chicago noted in 1956, many of the communities that opposed the multifunctional authority were actively seeking admission to the sanitary district:

> Nearly everyone of these communities has gone on record -- volubly and violently -- as opposing any suggestion of becoming a part of any municipal authority which would administer its local affairs...
>
> Even as the hue and cry has lifted against the metropolitan authority concept, more than a score of communities in the last three sessions of the legislature have applied for admittance to the Metropolitan Sanitary District.
>
> This apparent paradox can be explained by three major factors...1. The district renders a vital service of a silent, non-political nature;...2. The district is administered by a representative board elected by the people it services;...3. The cost of this service, spread over its millions of customers, is nominal. 44/

A fundamental difference of opinion separates those who seek more effective and more economical methods of planning, programming, and operating public utilities for water, sewage, or transportation in metropolitan areas and those whose primary aim is the creation of a new entity, metropolitan government.

44/ Quoted in Metropolitan Housing and Planning Council, Committee on Metropolitan Area Planning (Chicago), Metropolitan Area Planning for Northeastern Illinois and Northwestern Indiana (October 15, 1956), p. 111- 139.

The former approach appeals to the technicians who can best meet their service area and engineering requirements through a single purpose agency. The single purpose agency promises to get a particular job done without extraneous conflict. As a result, it has considerable attraction for those individuals and communities faced with a problem beyond their means who nevertheless wish to maintain maximum local control over development.

Supporters of multipurpose metropolitan agencies are primarily and properly concerned with the inability of the present governmental structure in metropolitan areas to plan, program, budget, and allocate for a range of governmental functions on an areal basis. They see a particular service problem, such as inadequate sewage disposal or an inability to guarantee future water supply, as the cutting edge for general purpose metropolitan instrumentalities. Single purpose solutions are feared by this group since unifunctional approaches remove the pressures for comprehensive multifunctional approaches. Those who are skeptical of any form of regionalism are likely to embrace the single function approach when the alternative is the provision of the particular service on a regional basis by a metropolitan government.

To date, proposals for the creation of single purpose metropolitan utility authorities have been implemented with much greater frequency than proposals calling for the handling of water and sewage within the framework of a multifunctional approach. Although single purpose development has caused consternation among many observers of the urban scene, agencies like the Allegheny County Sanitary Authority, the Metropolitan Sanitary District of Greater Chicago, the Metropolitan Water District of Southern California, the Metropolitan District Commission of Hartford, and the Metropolitan St. Louis Sewage District have been far more successful in providing adequate service, correcting water and sewer deficiencies, and planning for future needs than were the individual communities which previously had responsibilities in these areas.

There is little question that if the primary goal is to solve a water or sewer problem, a single function approach is less time-consuming and less conflict-laden. Multipurpose metropolitan government in Dade County (Metropolitan Miami) has made less progress in attempting to cope with serious water supply and waste disposal problems than single function utilities in other areas. The benefits to be derived from a single

function agency cannot be compared to those from a multipurpose approach; one offers a solution to the most pressing functional problem, the other offers a strategy for coping with metropolitan life.

The State of Washington's Metropolitan Municipal Corporations Act of 1957, the enabling legislation for the Municipality of Metropolitan Seattle, provides a half-way house between the single purpose district and multifunctional metropolitan government. The enabling legislation makes the machinery of metropolitan government available for one or more of the following functions: sewage disposal, water supply, public transportation, parks and parkways, garbage disposal and comprehensive planning. In 1957 an effort in the Seattle area to secure popular approval of a metropolitan government empowered to perform the sewage, transportation and planning functions failed. A second election the same year on a less inclusive proposal, both geographically and functionally, was successful. The areas in which there was a heavy negative vote on the initial proposal were omitted and Metro's powers were limited to the sewage function.

To date, the Municipality of Metropolitan Seattle has done a competent job in developing a regional sewage system. But it is not a metropolitan government; it cannot plan and allocate resources for the full range of functions nor can it assess priorities among these functions. It is staffed by personnel whose primary training is in the planning and development of sewage facilities. Seattle's Metro considers expansion primarily in sewer terms, related to communities outside its borders but within its drainage basins whose future needs have been considered in planning the regional system. There is a strong possibility that the founders of Seattle's Metro, most of whom strongly favor general multipurpose metropolitan government, by launching a metropolitan instrumentality with a single function, have created an instrumentality which will develop a narrow utility orientation rather than a broad concern for the overall polity and its full range of developmental needs. While the waste disposal system being planned and developed by Metro already has had an impact on development patterns in the region, the metropolitan government lacks a general planning function and general purpose planners. Serious questions can be raised about the competency of sanitary engineers to guide overall development in a metropolitan area.

A final verdict on the success of an open-ended metropolitan approach begun as a single function agency cannot be

rendered in Seattle until present efforts to expand Metro's responsibilities to include transportation have come to fruition and been tested in the community. In spite of its obvious shortcomings as long as its activity focuses on a single function, the Seattle approach offers more promise for long-range development of utilities in conjunction with other community activities than a unifunctional district or authority could. As Metro Seattle's founder, James R. Ellis, has noted:

> The Seattle story is not one of an all-out attack upon the tangle of metropolitan growth. The community is not now ready to accept the Metro approach to a number of problems which will soon demand areawide attention. It is rather the story of preparing for growth by creating a flexible metropolitan agency capable of dealing with one tough areawide problem and elastic enough to tackle other problems as they arrive. 45/

In the configurative, technical, and political context of most metropolitan areas, perhaps this is the best that can be achieved with respect to organizing water and sewage service on a regional basis.

45/ James R. Ellis, "Government for Growth, the Seattle Story," op. cit., p. 9.

Chapter 5

THE STATES AND URBAN WATER

The States and their Role

Local agencies exercise the paramount responsibility for the provision of water and sewer utilities in urban areas. However, they neither supply water nor dispose of wastes in a governmental vacuum. Traditionally the States have played a vital role in the allocation of water and the regulation of its use for urban and other purposes. State agencies also regulate the planning and construction of local water facilities. In addition to these primary roles of allocation and regulation, the States, with varying degrees of success, have undertaken comprehensive water resource planning and development, coordinated water programs at the various levels of government, gathered hydrologic data and engaged in other research activities, facilitated local organizational and financial arrangements for the provision of water and sewer service in urban areas, provided technical assistance and training programs for local water and sewage agencies, aided in planning local water facilities, and provided loans and grants for the construction of local water and sewer utilities. Finally, a few States have developed urban water supplies.

The States occupy a strategic role in the solution of urban water problems. As the creators and overseers of local government, they can grant or withhold the governmental and financial tools necessary for metropolitan problem solving. Policies relating to allocation and regulation are extremely important to the development of urban water supplies, the construction and operation of metropolitan sewage treatment facilities, and the control of unwise individual and small community water and waste systems. The States' greater geographical area, and more diversified water resources often make them a more logical unit than the metropolitan area for comprehensive planning and development on the basis of watersheds, drainage basins, and river basins. The role of the States in urban water resource planning and development undoubtedly will grow more important in the future. Increasingly, the metropolitan areas will reach out for water sources far beyond their boundaries. The metropolitan areas will grow together into vast urban regions. And population concentrations and industrial development will intensify the pollution of water and demands for its reuse. Although the States' jurisdiction is not large enough to provide a base for viable solution in all cases, it offers an attractive alternative in many instances as fewer and fewer water problems can be handled adequately on a purely local basis.

In theory, the States, with their power over resource development, their key role in the authorization of local action, and the many needs and interests represented at the State level have considerable potential for the development of comprehensive water resource plans and programs. Harvey O. Banks, Director of the California Water Resources Department, has stated with vigor the case for a predominant State role in water resource planning and development:

> Federal water agencies are to a considerable extent circumscribed in their planning efforts by legislative authorizations and financial limitations. Most local agencies are interested in only limited aspects of water development, such as municipal use, power production or irrigation. The states, on the other hand, can and must give consideration to all of the manifold problems and interests that are associated with water development. 46/

Banks believes that the States alone have the scope, in terms of geographical area, authority, and interest group representation, to provide the requisite coordination and direction for the planning work undertaken by other public and private agencies. The Council of State Governments has suggested that a State water resources plan contain the following basic elements: collection of hydrologic data, overall water resources planning, allocation authorizations, water pollution control, review of Federal projects, assistance to local governments, and State developmental activities. The Council correctly notes that the emphasis will vary from State to State, depending on the particular problems involved, but that each State should have a minimal program in each of the categories. 47/

In practice, there has been a considerable range in the activities and effectiveness of State governments in the water resource field. This diversity is a product of differing traditions, requirements and demands. Activity in the eastern States has concentrated on water quality and distribution. Emphasis in the arid west has been on water quantity and the regulation of water rights.

46/ Harvey O. Banks, "The Bases of an Adequate State Water Program," State Government, XXXIII (Spring 1960), p. 130.

47/ Council of State Governments, State Administration of Water Resources (Chicago, 1957), p. 72.

California and New Jersey, the only States to embark on large scale urban water supply development programs, have strong State water resource agencies with powers over a wide range of water activities. New York's Water Resources Commission is the central agency in the State for all matters relating to water supply, planning, pollution control and State assistance. However, not all State water resources agencies have such impressive powers. In Kansas, the Water Resources Board, a part-time seven member agency, is responsible for workint out a State plan for water resource development in each watershed, while the Division of Water Resources of the State Board of Agriculture administers the water appropriation law and supervises water development by the local units of government.

Diffusion of responsibility and the resulting lack of policy guidance have been the chief reasons which have impelled the States to create centralized water resource agencies. In North Carolina, uncertainty over the State's future role in water resource development, and duplication and overlap in the administration of its water responsibilities, led a 1956 study commission to recommend the creation of a single State water department. The activities of the newly created Department of Water Resources have improved coordination and overall development. In urban areas, the agency has administered assistance programs designed to aid in the solution of water supply and waste disposal problems. In Oregon, an increase in the number of conflicts with respect to water use resulting from population growth, spiralling demands for water, and the uncoordinated activities of State agencies with narrow water responsibilities led to the establishment in 1955 of the Oregon State Water Resources Board. The Board is the State's central agency, authorized to develop a single State water policy and to resolve conflict over water use.

The creation of a strong State water resource instrumentality normally does not completely centralize urban water responsibilities. State health agencies have water quality functions in every State. The role of the Ohio Department of Health is typical. The Department administers the pollution control law and works with communities in the development of municipal water supply sewage disposal facilities. Ohio's Department of Natural Resources is responsible for overall water resources planning, technical assistance on water resource management, and coordination of Federal programs. In States which have a water resource agency and in which the water pollution control function is divided between a water pollution control agency and the State department of health, there will be three State water bodies effecting local water supply and waste disposal. This is the case in South Dakota

where water pollution control policy is developed by the State Committee on Water Pollution and administered by the Division of Sanitary Engineering of the State Department of Health. The primary water resources agency in South Dakota is the State Water Resources Commission.

Even in those States where responsibility for water quality policy has been lodged in the water resources agency, the State health department retains its technical and investigatory roles. In 1961, New York abolished the State Water Pollution control Board and transferred its planning and policy functions to the Water Resources Commission. However, the administrative aspects of water pollution control, and regulation of municipal water and sanitation systems, will continue to be performed by the Department of Health. Similarly, in North Carolina the Stream Sanitation Committee has been located within the Department of Water Resources; however, the State Board of Health retains its power to approve sources of public water supply, water purification, and distribution facilities. In Connecticut, where the Water Resources Commission is responsible for the administration of a comprehensive water pollution control program, the State Department of Health regulates public water supply and the design of sewage treatment plants, as well as supervising the operation of municipal sewage treatment plants.

Allocation

Water is allocated under two systems of water law: prior appropriation and riparian rights. Under the doctrine of appropriation, used in all the western States and Mississippi, all water, both surface and ground, belongs to the State. In addition, the right to use the State's water is based upon the principle of first in time is first in right as long as the use is beneficial. The doctrine of appropriation governs municipal as well as other water uses in the western States. A municipality applies to the State agency administering the appropriation statute for a permit to use water, with the date of application establishing the priority for use of such water. Generally application by cities for the use of unappropriated water results in the reservation of this water for the city unless it is administratively or judicially determined that the request exceeds the reasonable present and future requirements of the city.

In the East, under the riparian system, the States have a less direct role since the property owners adjacent to water courses have rights to the nonconsumptive use of the water. While

a riparian owner has a property right in the use of the water, he can only use it on his riparian land. In addition, the amount which can be used is limited. Under the reasonable use doctrine, each owner of riparian rights may use water to the extent of his domestic needs and then, subject to the domestic uses of other owners, may use water for such other purposes and in such amounts as is reasonable in the light of all the surrounding circumstances. The reasonableness of a particular use is determined when a court is called upon to weigh and adjudicate conflicting uses.

The riparian doctrine permits the State to exercise control over water resources under its police powers. Under the police power, the State's authority is practically the same as it is under the appropriation doctrine. Eastern States regulate the use of water for municipal purposes. For example, New York's Water Resources Commission has the power to make determinations concerning the equitable allocation of State waters for public water supply purposes. In Massachusetts, State legislation authorizes the development of water supply sources by municipalities, with special legislative permission required for the development of water sources outside the municipal boundaries.

There are advantages and disadvantages under both systems of water law. One recent study noted:

> Under both the riparian and prior appropriation systems, rights in water tend to be fixed in perpetuity so that less economic uses may be continued even where obviously more beneficial uses could be achieved, absent these rights. The prior appropriation system does, however, assure continued right and thereby give certainty to investors. The riparian system does not provide such certainty, but it does provide for some evaluation of the desirabilities of competing uses. The disadvantages of the systems warrant reconsideration of the basic rules governing water rights in view of the critical situations to be expected as demands for water increase during the next generation. 48/

48/ William J. Pierce, Water Resources and the Law (Ann Arbor: University of Michigan Press, 1958), p. vii.

Uncertainty in the riparian system derives from a number of factors. The riparian owner has no way of determining what types of activity he may use the water for, how much he may use, and when he may use it. Even his best estimates of his rights under prevailing and foreseeable conditions may be upset by the unpredictable activities of other riparians who are free to commence new uses. As a result, many water sources remain undeveloped and unused. Furthermore, riparian disputes are settled on a case-by-case basis. Thus since the rights of only two parties can be adjudicated, the riparian system normally does not provide for the mass determination of rights on an extensive watercourse or lake. As a result, the riparian system is less well suited to coping with future demands, particularly from urban areas, that are likely to be made upon water resources. Commenting on the reliance on the courts when questions of water use and water rights arise, Roscoe C. Martin and his colleagues note: "In the coming era of shorter and shorter water supply, the uncertainties of judicial administration through adversary action are bound to have serious effects." 49/

The Model Water Use Act of 1958, prepared by the University of Michigan Legal Research Center for the National Conference of Commissioners on Uniform State Laws and subsequently carried in the Council of State Governments 1959 Program of Suggested State Legislation, attempts to overcome the rigidities of the appropriation system. It establishes the right of the State to regulate

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49/ Roscoe C. Martin, et al., River Basin Administration and the Delaware (Syracuse: Syracuse University Press, 1960), p. 163.

the development and utilization of water resources to protect beneficial use and to assure adequate supplies. The model law provides that a water user will receive a franchise from the State rather than a property right. Under the proposal, regulation is continual and tailored to meet changing needs, as compared with the termination of State activity with the issuance of a permit under the appropriation system as presently administered in most States. Mississippi enacted a water use law prior to 1958 and Iowa and Hawaii have passed legislation dealing with the allocation of water which closely follows the model act. In each of these States, municipal water systems are given the highest priority.

Unquestionably, water law can facilitate or hinder urban water programs. At a minimum, the legal framework determines whether conflicts over the use of water will be resolved administratively or judicially. However, the strengths and weaknesses of the two systems of water law are not central to the water problems of most urban areas in most States. Water law reform will not overcome the inadequacies of investment or the fragmentation of responsibilities so common to urban areas. Nor will it usually affect the investments necessary to secure adequate water supplies to meet projected needs. Changes in water law, however, can increase State power to allocate their water resources so as to promote beneficial use.

Regulation

Primary responsibility for the regulation of water quality rests at the State level. State agencies with water pollution responsibilities set standards, enforce laws and regulations, conduct surveys and carry out a host of allied research and planning activities. The agencies involved vary from State to State. All State health departments have a subdivision which administers water pollution control programs. As the public health factor became relatively less important in water quality regulation and economic, conservation, and recreation considerations grew in significance, State water pollution control boards or commissions were created. More than half the States have such agencies; the remainder place primary responsibility for water pollution control in the State health department or a water resources agency. Water pollution control boards often include members from other State agencies with water responsibilities. Minnesota's Water Pollution Control Commission is composed of the Commissioner of Conservation, the Executive Engineer of the Department of Health, and representatives of the State Board of Health, State Livestock and Sanitation Board, the Commissioner of Agriculture, as well as three members appointed by the governor.

Arkansas' Water Pollution Control Commission has representatives of the Board of Health, Geological and Conservation Commission, Forestry Commission, Oil and Gas Commission, and the Game and Fish Commission, with the chief sanitary engineer of the Health Department serving as technical secretary. Most State water pollution control boards or commissions have public members representing municipalities and industry.

All State health agencies regulate water and sewage facilities in urban areas. The division of sanitation engineering in the State health department normally certifies public water supplies and approves plans and specifications for new water works and extensions. Generally, it also has responsibility for insuring that public health and water pollution standards are met by municipal sewage treatment facilities. The emphasis in these programs is upon public health requirements.

Private water company rates usually are controlled by a State regulatory agency. However, relatively few States extend their jurisdiction to the regulation of the rates and agreements negotiated under the intergovernmental contract system.

In most States, the health agencies also have a role in subdivision control. Most State legislatures require the health department to insure that adequate water and sewage facilities are being provided in new subdivisions. The inadequacies of individual systems for water supply and sewage disposal have produced more stringent regulations in a number of States in recent years. The primary concern of the health departments has been the adequacy of suburban facilities in terms of public health considerations. In most States, the health agencies have paid relatively little attention to the diseconomies involved in the use of individual systems, the conservation of ground water supplies, and overall patterns of regional development.

State regulation of water quality includes a number of activities in addition to health department supervision and regulation of local water supply and waste disposal practices and facilities. Water pollution control agencies in most States have power to establish quality standards and to classify waters according to their best social and economic use. The type of treatment that water users must provide to maintain the quality standard for a particular classification also is prescribed by a number of States. Stream classification is most common in the East, where pollution has already seriously affected water quality. A number of Western States utilize effluent regulations specifying permissible waste which particular water users may discharge. Effluent standards are more easily enforced because it is not necessary to undertake the extensive surveys needed to establish

a stream classification system. However, classification gives greater attention to each of the key variables in quality control: water use, pollution loads and stream flows.

Enforcement is the crucial aspect of water quality regulation by the States. Most States rely on a cooperative approach in dealing with water users who fail to meet the State quality standards. New York State's enforcement procedure is fairly typical. After waters have been classified by the Water Resources Commission, water users are required to prepare and adopt abatement programs. The Water Resources Commission, before issuing administrative orders to secure compliance with the classification of standards, holds informal conferences with each offender to discuss Commission findings, the pollution abatement plan, and the action required of the municipality or industry. As a result of this procedure, relatively few administrative orders have been issued. (See Table IV) Cooperation is undeniably the preferable method of securing compliance. In a few States, it has proved quite successful. However, in too many instances, cooperation has been an excuse for inaction and inadequate enforcement of State water quality regulations.

Cooperation has been more successful with respect to municipal pollution than industrial pollution. This fact reflects the probability that municipalities are more likely to benefit from improved water quality than a particular industry. Furthermore, State and Federal programs of various kinds aid municipalities in meeting State standards, but rarely assist industry. For example, in North Carolina State pollution abatement requirements have placed tremendous financial burdens on municipalities with inadequate facilities. However, the Stream Sanitation Committee of the Department of Water Resources has developed pollution abatement schedules to suit the financial ability of the affected cities. Furthermore, the agency has invoked its enforcement authority only when a municipality absolutely refuses to abate its pollution.

The serious economic and political repercussions which can result from the enforcement of stringent provisions usually means that they are employed relatively rarely. A number of States permit the denial of sewer extensions to force compliance with orders to construct sewage treatment facilities. While this is an effective means of forcing action on the part of the local governing body, the law has been utilized in only the most extreme cases. When the benefits of improved pollution abatement appear slight and the costs excessive, municipalities are likely to oppose the efforts of a State pollution control agency with vigor. In

TABLE IV

STATE ENFORCEMENT OF WATER POLLUTION CONTROL IN 42 STATES[a]

Based on Questionnaire Submitted to States on December 7, 1961
by the Committee on Public Works, U. S. House of Representatives

State	Period Beginning	Number of Administrative Orders Issued	Number of Court Cases	Number of Cases Successfully Concluded (See Cols. 3 & 4)	Number of Cases Pending
Alaska	1955	1	None	None	None
California	1950	11	1	8	3
Colorado	1956	2	1	1	1
Connecticut	1936	21	3	18	3
Delaware	1954	4	1	3	1
Florida	1946	3	None	3	None
Georgia	1957	None	2	2	None
Hawaii	1945	b	None	None	None
Idaho	1957	None[c]	None	None	None
Indiana	1944	170	14	149	16
Iowa	1935	32	None	31	None
Kansas	1945	422	2	419	3
Kentucky	1957	80	188	268	116
Louisiana	1950	114	9		1
Maine	1953	50	None	11	39
Maryland	1958	27	4	26	1
Massachusetts	1946	24	10	21	3
Michigan	1950	332	53	90	28
Minnesota	1945	3	1	4	None
Mississippi	1946	None	300	300	None
Missouri	1959	1	None	1	None
Montana	1957	4	None	3	1
Nebraska	1957	None	None	None	None
Nevada	1949	None[c]	None	None	None
New Hampshire	1947	b	1	1	None
New Mexico	1939	b	None	None	None
New York	1954	54	3	2	1
North Carolina	1951	None	None	None	None
North Dakota	1939	b	None	None	None
Ohio	1953	53	5	43	7
Oregon	1939	58	13	47	3
Pennsylvania	1937	1,766		1,263	477
Rhode Island	1926	4	2	3	None
South Dakota	1955	None	None	None	None
Tennessee	1947	18	2	17	3
Texas	1952	b	3	3	None
Utah	1957	2	None	2	None
Virginia	1948	20	2	18	2
Washington	1955	343	None	244	99
West Virginia	1932	21	5	20	1
Wisconsin	1948	1,138	4	696	442
Wyoming	1957	None	None	None	None

a. Reports not received from Alabama, Arizona, Arkansas, Illinois, New Jersey, Oklahoma, South Carolina, and Vermont. Of these States, all, except Arizona, authorize issuance of administrative orders.

b. No authority to issue.

c. Authority for issuance of administrative orders established under regulations.

Source: U.S. House of Representatives, Committee on Public Works, Federal Water Pollution Control Hearings, 87th Cong., 1st Sess. (Washington, 1961), p. 249.

Colorado, the State's aggressive water quality program has been challenged in the courts by the City of Denver which contends that the State does not have authority to require the city to improve its treatment of waste.

Perhaps the most potent constraint on State pollution control is competition for new industry and the fear of driving existing industries from the State. Industry, fearing the loss of competitive position if required to make up the tremendous backlog of industrial waste treatment, often has threatened to move. Differentials among the States in standards and levels of enforcement make these threats possible. Industrial groups generally favor pollution standards based on public health requirements, liberal dilution of untreated waste, and strict controls only when the wastes have been proved harmful. In many States industrial operators have shown relatively little concern for the recreational, wildlife, and esthetic values of water.

Industrial pollution poses extremely difficult problems although most States potentially have adequate procedures to control it. Generally the procedures require industry to submit plans and specifications for the treatment of waste. If the plans and specifications meet State standards, a permit is issued by the State pollution control agency. However, the fear of losing industry and the desire to obtain new plants have resulted in relatively weak standards and grossly inadequate enforcement in a number of States. Even in States where there is vigorous regulation of industrial waste disposal, efforts are hindered by the lack of adequate information on the potential harmfulness of many new substances and by-products of modern industrial processes.

It is extremely difficult to weigh the cost of improving waste treatment, which can be calculated, against the economic and social benefits to be derived from cleaner water, which at the present time can only be approximated in a crude fasion. And the cost to the community if a factory closes or departs because of pollution abatement requirements is readily available. Furthermore, the investment requirements for the abatement of industrial pollution to minimal levels are huge.

Facilitation

Almost every State has at least one program designed to facilitate the provision of local water and sewer services. State

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facilitation covers a wide range of activities, including training, technical assistance, research, planning, organization and financial aid. Generally, this facilitation has been aimed principally at water quality problems, with less attention to source development, joint use of facilities and adequacy of water supplies from a quantity viewpoint.

The technical assistance programs of State water resources, pollution control and health agencies play a vital role in broadening the capabilities of local agencies to deal with their water supply and waste disposal problems. They include general information programs, development of design criteria and standards, and technical assistance on the planning and development of local facilities. State training programs have increased the number of qualified water and sewage treatment plant personnel. State-sponsored research activities have also facilitated local solution of water and sewer problems. The collection and analysis of hydrologic and related data by State water agencies has been invaluable in the development of local water supply and waste disposal plans and facilities. In addition to collecting, analyzing and making available data on which planning can be based, State water agencies also assist municipalities and water districts in their planning. A few States provide financial assistance for planning. New York makes planning grants to municipalities covering up to one-half the cost of preparing plans, specifications and estimates for sewage treatment works. State public works planning loans in Indiana and Ohio law may be employed for water and sewer planning and design.

State governments have sought to facilitate the provision of water and sewer services in urban areas with general enabling legislation permitting joint exercise of powers. Usually the State laws allow two or more local units of government to create an instrumentality to provide water or sewer service. For example, California permits the formation of sewer districts containing contiguous territory both incorporated or unincorporated. In Colorado, State law makes it possible for two or more local units of government to establish sewage districts. North Carolina's water and sewer act establishes legal machinery by which two or more counties, cities, towns, incorporated villages, sanitary districts or other political subdivisions or public corporations may organize for the operation of water and sewer systems. A few States, including Michigan and Florida, authorize counties to construct and operate water and sewage systems. New York law provides for a wide range of cooperative activities among local governments.

State governments have provided a wide assortment of enabling legislation to permit more flexibility in financing methods, to ease statutory restrictions on local indebtedness, and to provide indirect and direct financial assistance. A number of States, including New Mexico, Oregon, and New Hampshire purchase local water bonds. As the Public Health Service notes, "it is the smaller local governments which benefit the most by this kind of assistance, for they usually encounter the highest interest rates." 50/ California has a water pollution control fund of $1,000,000 available for 2 percent loans to local agencies for the construction of sewage and storm drainage facilities. In 1957, the Texas constitution was amended to permit the State to sell general obligatory bonds for loans to local government for water conservation and development projects. Urban growth was a factor in this development.

Under a program enacted in 1962, New York will match 50 percent of Federal annual allocations to the State for 30 percent grants to municipalities for the construction of sewage treatment works, as well as provide State aid for up to one-third of the annual operating and maintenance costs of new sewage treatment plants. Since 1953, Pennsylvania has paid municipalities which constructed sewage treatment facilities after 1937 over $3,000,000 in the form of annual grants of up to 2 percent of the cost of these facilities. Actual grants have averaged about 1-1/4 percent and are used to help pay operating, maintenance, and capital costs. In addition, New Mexico has a small grant program for its unincorporated areas and a number of States, including Maine, Georgia (never implemented by appropriation), Maryland, New Hampshire, and Vermont supplement federal grants for sewage treatment facilities made under the Water Pollution Control Act of 1956.

Development

Traditionally, the States have played a relatively minor role in the development of water resources, particularly in undertakings designed primarily to meet urban requirements. In recent years two States -- New Jersey and California -- have assumed responsibility for the development of water supply facilities to meet the growing needs of their heavily urban population.

50/ U.S. Department of Health, Education, and Welfare, Public Health Service, Problems in Financing Sewage Treatment Facilities (Washington, D. C., 1962), p. 8.

Other States are likely to follow their path. After surveying the urban water supply situation a few years ago, the Council on State Governments concluded:

> The new demands for water raise questions about the adequacy of the existing divisions of responsibilities for meeting the needs of users. Growing urban populations and the expansion of industry are major causes of the increase in water use. At present urban concentrations and industry are largely dependent upon local government and private action to supply their needs. As their needs expand, local and private resources may be unable to meet the demands and states may find it necessary to undertake water supply programs. 51/

More specifically, the requirements for river basin development, problems of extraterritoriality, the spread of the megalopolis and the urbanization of all or the greater part of a State enhances the probability of increased State activity in the provision of urban water supplies. River basin level planning and development is clearly beyond the capability of almost all metropolitan areas. And when river basins are interstate, the State, not the urban areas, is represented on interstate agencies and is the prime party in negotiations with Federal agencies.

The spread of urban development, the need to go farther afield for urban water supplies, and the increased capital requirements for such development, all reduce the capabilities of individual municipalities and metropolitan areas to secure and develop future sources of water on a unilateral basis. Megalopolitan development has increased the competition among urban areas for a single source of water. In their study of the Delaware River basin, Roscoe Martin and his colleagues note that the problem in the Delaware is "to resolve the intermingled water supply problems of no less than four virtually contiguous metropolitan areas.

The trend in metropolitan growth and spread throughout the country suggests that the Delaware's problem may one day soon become typical of other regions as well." 52/ When an entire

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51/ Council of State Governments, State Administration of Water Resources (Chicago, 1957), p. 65.

52/ Martin, op. cit., p. 22.

State becomes a metropolitan area, as in the case of Rhode Island, or when the vast majority of a State's population live in a single band of megalopolitan development as in New Jersey, the latent capabilities of the State for undertaking urban water supply planning on a broad basis, for the accumulation of capital on a broad basis, and for resolving conflicts among municipal, subregional and metropolitan interests make an active State role increasingly attractive.

The problems of vast urban agglomerations, the requirements of scope and jurisdiction, and the need for a broad financial base were fundamental in impelling both New Jersey and California to desert tradition. As might be expected, the problems of New Jersey's urban areas and the reasons for the State involvement are typical of the water problems of the humid East, while the situation in California reflects the general problem of urban development in the less richly endowed West.

Forty-five inches of rainfall in New Jersey annually would be enough to meet the State's present and projected needs with ease if the facilities for storage and distribution were adequate. However, concentrations of population and industry in the five counties of metropolitan northern New Jersey outstripped local water resources in the postwar period. Storage and distribution facilities to meet the growing needs of the metropolitan sector from sources outside the area were required. The fragmentation of responsibility for water supply among 36 separate systems, both public and private, in metropolitan northern New Jersey greatly hindred local efforts to develop, store and distribute water from distant sources. Few of the existing systems had the capability to tap water resources outside their jurisdiction and almost all lacked sufficient capital to develop water supply facilities on a comprehensive basis. The higher unit costs involved in developing new sources at greater distances made it likely that any substantial developmental program undertaken by an existing water system would not be a profitable investment since only a portion of the increased supply would be purchased immediately. One of the many State studies to examine New Jersey's water problem commented on this situation in 1955:

> Where one system by expansion obtains water in excess of its own needs, it may find it difficult to obtain long-term contracts even from systems in need of water because of the higher unit cost of this water. Although the time may arrive when the need for water is so great that higher unit costs will become a negligible factor to prospective

> purchasers, that time has not yet been reached. Hence, many existing systems, although recognizing the need for substantial additions of supply within the next two decades are reluctant to undertake costly programs that will be unprofitable for at least a substantial period of time. 53/

The inability of any existing public or private system to undertake the acquisition, construction and the financing of the storage and distribution systems required to meet Northern New Jersey's long-term needs led to agitation for a solution utilizing State credit and financial capacity. New Jersey's involvement in urban water supply had begun in 1944 with the rehabilitation of the Delaware and Raritan Canal to provide additional water for the rapidly urbanizing and industrializing lower Raritan Valley. In 1954 the State took another step, purchasing a large tract of land to provide a ground water preserve for the southern portion of the State. Meanwhile in 1953 the State government began a five-year search for a solution to the northern counties' water supply problems. Sectional and partisan interests delayed agreement until late 1957, when a severe drought produced consensus on State development of a storage reservoir in rural northwestern New Jersey.

Under the New Jersey approach, the State's prime responsibility is to develop new sources and distribute the water to existing water utilities. The public and private systems are responsible for delivering water to their customers. The objectives of the State program have been to eliminate competition for future water resources, to develop adequate storage facilities to meet the future requirements of the growing urban portion of the State and the immediate demands of the developed areas in northern New Jersey.

The Water Supply Law of 1958 makes the Department of Conservation and Economic Development responsible for the implementation of the State water program. Under the State program, each reservoir project must be authorized by specific State legislation. The total cost of development and operation for each individual storage facility is borne by the users of the water developed. Reservoir projects are authorized only when the Commissioner of Conservation and Economic Development determines that the net revenues to be derived from the sale of water will be adequate to retire the State bonds at no cost to the State.

53/ New Jersey, Legislative Commission on Water Supply, New Jersey Water Resources Development (August 1, 1955), p. 9.

Thus, the State over the long run commits none of its capital to the development of water storage and distribution facilities in New Jersey. It does provide administrative and technical competence, adequate jurisdiction to plan and develop on a scope which transcends the capabilities of the municipal units in New Jersey, and financial capability both by supplying funds for initial development which are unpaid and by floating bonds backed by the full faith and credit of the State.

California's water development activities have been on a much greater scale than those in New Jersey. Financed by a $1,750,000,000 bond issue, off-shore oil royalties and Federal assistance, the California water program is one of the most ambitious public works developments ever undertaken. The primary objective of this massive effort is to supply water to meet urban needs in the rapidly developing arid southern half of the State.

Although California has sufficient water within the State to meet its foreseeable needs, water and people have been distributed in very different patterns. Almost three-quarters of the streamflow occurs in the northern part of the State, much of it running unused into the ocean, while almost 80 percent of the water use occurs in the central and southern portions of the State. The problem is complicated by the sporadic timing of rainfall, dictating the provision of huge reservoir storage capacity. Furthermore, although California will soon have the greatest urban population of any State in the union, unlike the East, the greater part of its water supply is not used for urban or industrial purposes. At present, 90 percent of all water use is for irrigation. Even with the tremendous projected increase in urban population, irrigation will continue to use about 80 percent of California's water.

Water resources development in California, as in most States, has not been comprehensive. Piecemeal planning and construction resulted in the haphazard development of the most available resources, severe competition for the remaining available water sources, and progressively larger unit investment costs. The requirements of comprehensive development, particularly for the water-short south, have been beyond the jurisdiction and the financial capacity of local units of government, including the Metropolitan Water District of Southern California.

In 1947, work was begun on a comprehensive inventory and evaluation of the basic water resources of the State. From these

efforts came the California Water Plan, which anticipated a series of aqueducts to transport surplus water to the deficiency areas of the State and facilities to ensure adequate storage of water to meet projected needs. The keystone of the California Water Plan is the Feather River project, whose central feature is a 730-foot high, half-billion dollar dam at Oroville.

The Feather River project was approved by the legislature in 1951, and work on the Oroville Dam began six years later. However, full-fledged implementation of the California Water Plan was delayed by antagonism between north and south. Northern interests, seeking to ensure that future development in their portion of the State would not be hindred, demanded the right to recapture surplus water delivered to the south. Northern California also feared that southern Californians would not back future bond issues required to raise funds for projects essential to the north.

The south, with a majority of the State's population and assessed valuation, refused to proceed unless its interests as the major contributor to the project were protected by a constitutional amendment guaranteeing its share of the water to be developed. In mid-1959, newly elected Governor Edmund G. Brown convinced northern interests that they could not fully develop their water resources without southern financial support. By guaranteeing the south that northern water could not be taken away once the south was using it, Brown was able to avoid a fight on the proposed constitutional amendment. The $1.7 billion bond issue authorized building the world's highest electric power and flood control dam at Oroville, building a system of aqueducts to distribute the water in the San Joaquin Valley, and facilities to pump water over the Tehatchapi Mountains for distribution to the Los Angeles and San Diego areas.

What do these developments in New Jersey and California portend for the future role of the State in developing urban water supplies? At the outset it should be noted that the capabilities of both States for positive action were enhanced by the concentration of water resource responsibilities in one agency under the control of a single department head accountable directly to the governor. However, despite this organizational advantage, in both instances, the requirements for securing consensus at the State level produced a long interval between the inception and implementation of an active State water supply program. Since the number of interests to be accommodated in the development of a water program at the State level are greater than those involved in a program at the municipal or even the metropolitan

level, delay is likely to be a common feature of future urban water supply activity on the part of the State. Discussing the New Jersey experience, Robert C. Wood recently wrote:

> /The State government/ is an expedient apparently ill-designed to arrive at a quick decision. Unlike a municipality, the state cannot speak only for water users anxious for a larger supply from whatever source. Unlike a larger regional enterprise it cannot stand aloof from the state electorate-- ...Instead, it had to resolve the conflict of interests between urban water users and rural water suppliers within its own legislature -- and the water problem was only one of a series of issues on the political agenda. For five years, each proposal for a new site ran the gamut of partisan, ideological, and economic interests, not always relevant to the problem at hand, but always important to the question of who controlled the government. In the end, the state adopted with modifications, the same plan with which it began...54/

The State arena offers advantages and disadvantages to the urban areas in their search for adequate future water supplies. Advantages are: the States' greater scope for planning and development, their jurisdiction which can compel action in areas where the authority of urban government does not reach, and, in a number of cases, their greater capital resources.

It is unlikely that the urban areas will secure an active State role unless they possess sufficient political resources to force State action. In New Jersey and California, the strength of urban electorates has been great enough to ensure the support of a succession of State executives and a majority of the lower house of the State legislature, apportioned on the basis of population, for an active State urban water role. The predominance of the urban electorate in New Jersey also ensured passage of a bond referendum after sections of the State and the political parties had reconciled their differences.

54/ Robert C. Wood, 1400 Governments (Cambridge: Harvard University Press, 1961), pp. 149-150.

In California, the populous southern counties, sometimes by a margin of over four to one, provided sufficient votes to predominate in the California water bond referendum. Although 45 of California's 58 counties voted against the proposal, it was approved by a vote of 3,008,328 to 2,834,384. In effect, the populous southern water deficit counties were able to prevail because of their numerical majority over the less heavily populated, but more richly endowed northern counties.

When a State undertakes to provide its urban areas with water, a variety of nonurban interests become directly affected. As a result, solutions must be acceptable to Statewide rather than regional or municipal interests. For example, one possible solution to northern New Jersey's water shortage was diversion of Delaware River water. While the northern New Jersey urban areas saw the Delaware only as a source of water, the State had a dual interest. From the point of view of State officials, the Delaware was an eventual source of water for northern New Jersey, but even more important was the requirement for sufficient Delaware water to maintain stream flows essential to industrial development in the Trenton and Camden areas.

These complexities do not necessarily negate the role of the State in developing future water supplies. As a matter of fact, there is every reason to believe that such activity will increase and, indeed, in such a situation the State is the most appropriate unit of government to make decisions between a number of metropolitan areas and industrial and rural users respecting the same source of water supply. Even a metropolitan water authority embracing, for example, the entire New York City-New Jersey metropolitan area could not take a full and objective account of Trenton and Camden area needs. The point is simply that urban interests must pay in lessened control over their own utility development for the increased capabilities for more economical and comprehensive development which some State governments can offer. The primary factors which are likely to affect decisions to embark State governments upon more positive water supply roles concern capabilities and political strengths.

In those areas where strong local water agencies have been able to secure adequate resources, as in New York, Chicago, Boston and Seattle, it seems unlikely that the State role will be considerably augmented. In those States where present capabilities for providing coordinated planning and development are absent, there is little reason for urban areas to turn to the State for a solution of their water supply problem. In those States in which the urban electorate makes up a relatively small part of the total population or where urban population, even

though a majority, are currently underrepresented in the State legislature, it is not likely that urbanites will be able to secure a fully effective State role in urban water supply, particularly in the commitment of capital to be raised on the basis of Statewide bond issues.

Interstate Water Problems

Problems of water resource development and water quality overrun State as well as local boundaries. When the requirements of effective water administration for allocation, quality regulation, or development, extend beyond the geographical limits of the States, interstate instrumentalities have been created, usually by interstate compact.

Four major interstate compact agencies presently attempt to control water pollution on interstate waterways. The oldest of these is the Interstate Sanitation Commission, created by the Tri-State Compact between Connecticut, New Jersey and New York in 1936. Four years later the Interstate Commission on the Potomac River Basin, composed of representatives from Maryland, Pennsylvania, Virginia, West Virginia and the District of Columbia, and the Ohio River Valley Water Sanitation Commission, whose members are Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia, began operations. In 1947 the New England Water Pollution Control Commission was created by the six New England States and New York. The Potomac River and Ohio River Commissions both have Federal representation. The various Federal water pollution control acts have encouraged the States to create interstate compact agencies to deal with pollution on interstate waterways.

Only two of these agencies, the Interstate Sanitation Commission and the Ohio River Valley Water Sanitation Commission, have enforcement powers. The Interstate Sanitation Commission is empowered to coordinate State programs in the New York harbor, investigate pollution, conduct hearings, and issue orders to stop pollution. The Ohio River agency has similar powers.

Both have chosen to rely on persuasion, cooperation with State pollution control agencies, and public education rather than court action. The Interstate Sanitation Commission is proud that they have "put their badges in their pocket." During its first 20 years, ISC required only 10 court cases. In each of the court cases the orders of the ISC were upheld and undoubtedly its resultant reputation as an enforcing agency has contributed

significantly toward securing more voluntary compliance than would otherwise have been the case. The program of sewage treatment facilities construction in which the City of New York is currently engaged amounting to a quarter of a billion dollars in cost and involving the construction of 10 secondary sewage treatment plants serving a population of 5-1/2 million is pursuant to a consent order taken by the ISC against the City. The Commission has once again gone in the courts and at the present time is involved in two court cases to enforce its administrative orders. Such action is used as a supplement and last resort to the use of persuasion and voluntary compliance.

The Ohio River Valley Sanitation Commission takes pride in its promotional, coordinating and persuasional roles. Only twice has ORSANCO found it necessary to utilize its enforcement powers. In both cases, the action resulted from the inability of States to secure compliance by municipalities which were failing to provide adequate sewage treatment. The Ohio River agency has carried its educational activities quite far, conducting, at the invitation of the Illinois Sanitary Water Board, campaigns for adoption of bond issues to provide sewage treatment facilities for Danville and Charleston, Illinois. In both cases, ORSANCO's promotional efforts helped secure passage where citizens previously had rejected bond issues.

Cooperation has been successful primarily with respect to municipal pollution. In 1936, during its first year of operation, the Interstate Sanitation Commission found less than 200,000,000 gallons of sewage under treatment with only 25,000,000 gallons being treated adequately. Within 20 years, almost 900,000,000 gallons were being treated and 400,000,000 of these were being treated adequately. In 1948, only 31 percent of the population served by sewers in the Ohio Valley were also served by sewage treatment facilities. Ten years later 79 percent of those served by sewers in the Valley also had treatment facilities or construction had been begun. Although the total of increased sewage treatment in each case cannot be attributed wholly to the activities of the interstate agencies, they have served a useful role in spurring investment and in protecting communities which have undertaken adequate investment in sewage treatment facilities from the actions of those who have had less inclination to undertake such programs. As with the State water pollution control agencies, efforts to secure industrial pollution abatement by the interstate compact agencies have met with much less success. Over 200 major industrial establishments have failed to meet the basic control requirements of the Ohio River Valley Water Sanitation Commission.

The New England Interstate Water Pollution Control Commission, which does not have enforcement powers, is authorized to investigate pollution problems, develop plans and proposals for pollution abatement, and coordinate plans which the States have agreed upon. The principal function of the commission is the approval of classifications for interstate and tidal waters in the compact area. The classifications are prepared by the States, which, through their water pollution control agencies, establish programs for the treatment of sewage and industrial wastes. The New England agency has served primarily to coordinate classification among the various States.

The Interstate Commission on the Potomac River Basin also depends exclusively on publicity, education and cooperation in its efforts to secure uniform State water quality laws. Another agency, the Interstate Commission on the Delaware River Basin (INCODEL), has based its pollution control program on cooperation by the four Delaware Valley States. Created by parallel State legislation, INCODEL has no formal enforcement or rule-making power. Like the other interstate pollution bodies, it has concentrated on municipal pollution.

Considering urban water supply needs in interstate river basins the U.S. Public Health Service, in a report to the Senate Select Committee on National Water Resources, concluded: "What is needed in most situations is a river basin planning mechanism which can effectively coordinate such planning in order to assure optimum utilization of the rivers' resources on an equitable basis." 55/

It is unlikely, however, that planning alone, regardless of its comprehensiveness or the degree of coordination, can solve all disputes between different urban areas or between urban and other users with respect to the use of water on interstate waterways. There are vastly differing views in differing communities and among different users on what constitutes "optimum utilization" and "an equitable basis." For example, the Delaware River and its waters mean different things to different people, both urban and nonurban:

55/ U. S. Congress, Senate, Select Committee on National Water Resources, Water Resources Activities in the United States: Future Water Requirements for Municipal Use, 86th Cong., 2d sess., 1960, Committee Print No. 7, p. 19.

> To the residents of metropolitan New York, there are not many things more important than an adequate supply of good water. The maintenance of such supply has sent the City to the Delaware River of recent years for what shortly will be a good half of its water requirements. To Margaretville, on the East Branch of the Delaware high in the Catskills, water means trout fishing and tourism, and its people are wary of any actions that might change the character of their mountain streams. To Easton, the problem of too much water is a recurrent one; a basic concern there is to control the river and so to avoid its excesses. Trenton has a primary interest in the maintenance of low flow at a reasonable minimum, lest its industries languish for want of water. To Philadelphia, the main problem is one of water quality; enough water flows past that city to serve its needs, but in the past it has sometimes been water of unsatisfactory quality and could become so again. Wilmington's interest in water arises principally from the fact that its present source of supply threatens soon to become inadequate in the face of its rapidly growing needs, though its concern for quality control is scarcely less insistent. 56/

The natural conflicts which arise from such differing interests cannot be solved through improved planning. Planners will win the support of those who are benefited by their plans; but no planner is so skilled that he can satisfy all competing interest, particularly when a natural resource is not equally available to all. Water resource planning can only be effective if closely tied to a political decision-making process which can make authoritative allocations of a scarce resource among competing demands. For those streams that are intrastate, this is a responsibility of the State executive and legislature. On a number of interstate waterways including the Arkansas Frying Pan area, the Missouri Basin, Colorado Basin and the Snake River-Hell's Canyon area, Congress and the Executive Branch have undertaken the task of authoritative allocation in the field of water resource development.

There is relatively little experience in the United States for multipurpose river basin development by means of interstate agreement. The 1961 Delaware River Basin Compact is the most

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56/ Martin, op. cit., pp. 4-5.

significant interstate water resource agreement. The compact, executed by Delaware, New Jersey, New York and Pennsylvania, and ratified by Congress in November 1961, created the Delaware River Basin Commission. The commission is authorized to develop and adopt a comprehensive plan for the water resources of the 12,765 square mile basin and to implement a program for water supply, pollution control, flood protection and recreation based on the plan. Its initial budget is $330,000, with the Federal Government, New York, New Jersey and Pennsylvania contributing 24 percent each, and Delaware 4 percent.

Since the Federal Government will contribute a major share of all flood control developments, the Phase I project will focus on flood control. The overall 15-year program is expected to cost $591 million. Each State is represented on the commission by its governor; the Federal Government, as a full partner in the compact, has a representative appointed by the President.

It is too early to evaluate the ability of the Delaware River Basin Commission to provide both planning and the allocation of resources in the Delaware. Past cooperative efforts on the Delaware have been hindred by a number of factors. First, the Delaware Basin has created few common interests. Although the valley has a hydrologic unity, the people living in the basin do not have much attachment to the river and its environs. As a result, there is not likely to be a great deal of general public interest in the activities of the commission. A second factor in considering the potentialities of the Delaware River Basin Commission is the fact that its most important task will be the allocation of water, particularly for urban uses. Court allocations of water, the common method to date of dividing the Delaware's water, is favored by those parties preferring a status quo with respect to the use of the river's water. A third problem concerns the equitable representation of urban interests. The most effective manner of ensuring that all interests are adequately considered in the development of a river basin is to represent all affected interests at the policy level.

In the Delaware Valley, where each of the participant States is highly urban with a chief executive closely attuned to urban interests, the water requirements of the metropolitan areas of the four States are not likely to be slighted. However, adequate urban representation is likely to be a more serious problem in other areas of the country where State water resource agencies, which are likely to represent the State on interstate water resource development bodies, are much less attuned to urban needs and demands.

Chapter 6

THE ROLE OF THE FEDERAL GOVERNMENTS

Introduction

Federal water resource activities affect urban water supply and waste disposal both directly and indirectly. Federal research, planning and assistance programs in the fields of water pollution control, sewage treatment, and water supply have a direct impact on utility service in urban areas. The major Federal water resource activities--navigation, flood control, irrigation and multipurpose river basin development--have important indirect effects on urban water users. Navigation and flood control projects reduce the amount of water available for other uses, including urban water supply and waste dilution. Federal irrigation policy is extremely important to western urban interests since irrigation, because of its consumptive use of water, can seriously affect the quantity of water available for urban uses. Cities and suburbs also derive indirect benefits from Federal river basin projects. Flood protection, navigation improvements, and inexpensive hydroelectric power are extremely important to metropolitan areas located in the river basin where Federal water agencies have been active.

Sewage Treatment Grants

The most important Federal urban water activity is financial aid for local sewage treatment plant construction. During the 1930's, Federal public works programs played a key role in maintaining an adequate rate of sewage treatment facility construction. A Federal Water Pollution Control Act was placed on the books in 1948 providing for, among other things, a Federal program of research, technical assistance and program grants to the States for industrial waste control and low interest construction loans. Although authority for sewage treatment works construction loans was authorized at that time, no funds were appropriated by Congress. However, in 1956, after a number of years of effort, the tremendous lag in sewage treatment investment led Congress to enact the Water Pollution Control Act of 1956. Fifty million dollars a year in grants for 10 years were authorized to assist cities in the construction of sewage treatment plants. Half the authorization was reserved for communities with a population not in excess of 125,000.

775-756 O - 65 - 7

Minimum Federal participation in any project was limited to $250,000 or 30 percent of construction costs, whichever was smaller. Federal funds are allocated through the States. Generally the State's share has been allocated to the local units by its water pollution control agency or State health department on the basis of a formula reflecting both financial needs and the severity of the local pollution situation.

Unquestionably, Federal grant appropriations under the 1956 law provided incentives for communities to overcome the sewage treatment facility investment lag. During the five years preceding the passage of the bill, the contract awards for sewage treatment plant construction averaged $222 million. In the four years following enactment, sewage treatment plant construction contract awards have shown an average increase of 62 percent, amounting to almost $360 million per year. Thirty-five States experienced their highest treatment plant construction levels in the first two years of the program. 57/ By mid-1961, 2,700 sewage treatment projects costing a total of $1.3 billion and serving 27,000,000 people had received Federal assistance. The total Federal contribution was $225 million; thus each Federal dollar has been matched by $4.80 in local funds. 58/

While a part of this total investment would have been made regardless of the availability of Federal assistance, there is little question but that an important segment of it is a direct result of this Federal incentive. The judgment of J. T. Bell, executive director of the Colorado Municipal League, on the impact of the Water Pollution Control Act grants on local investment decisions is typical:

> ...My frank opinion is that were it not for the federal aid program of the construction of sewage treatment facilities, much less would have been done in recent years to solve the sewage disposal problem. The state would not have supplied any significant financial assistance and without the assistance of

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57/ U.S. Congress, House of Representatives, Committee on Public Works, Federal Water Pollution Control Hearings, 87th Cong., 1st Sess., 1961, pp. 12-13.

58/ Cohen and Sonosky, "Federal Water Pollution Control Act Amendments of 1961," Public Health Report, LXXVII (February 1962), p. 109.

> the federal government many of our local programs would have died for lack of funds and public refusal to support bond issues. 59/

Experience to date with the grant program refutes the contention that Federal assistance would stifle local and State initiative. The evidence is clear that Federal grants have spurred local activity. There is little indication that the States as a whole had the willingness or the resources to provide similar inducement. Moreover, the vast majority of State health and water pollution control agencies vigorously support this Federal activity. Finally, rather than serving to stifle State initiative, the Federal grant program has led to the enactment of supplemental State programs for sewage treatment in a number of States, including New York, Maine, Georgia, Maryland, New Hampshire and Vermont.

Within the framework of the objectives of the 1956 legislation, the Federal sewage treatment plant assistance program was a success. However, the Federal grants, in common with most State incentive and assistance programs, did not effectively attack the problem of fragmented approaches to the sewage problem in metropolitan areas. The 1956 Act did not provide assistance for the construction of sewage collection systems.

The limitations on the total amount of an individual Federal grant and the favored position of smaller municipalities also provided incentives for individual community or small subregional development instead of for extensive subregional or metropolitan undertakings. Finally, the 1956 Act offered no financial incentives for joint projects in metropolitan areas.

In 1961, Congress authorized substantial increases in the sewage treatment program. Grants of $80 million for 1962, $90 million for 1963 and $100 million for each of the following four years were authorized. The restrictions on the construction of larger facilities were somewhat reduced with an increase in the

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59/ Letter to George H. Deming from J. T. Bell, Executive Director, Colorado Municipal League, March 22, 1962.

maximum individual grant from $250,000 to $600,000 or 30 percent of the cost of construction, whichever is the lesser. In addition, the 1961 amendments encouraged communities to join together in constructing joint projects to serve their common needs. Thus, the Federal Water Pollution Control Act now provides that:

> ...in the case of a project which will serve more than one municipality the Secretary shall... allocate to each municipality to be served by such project its share of the estimated reasonable cost of such project, and shall then apply the limitations...to each share as if it were a separate project to determine the maximum amount of any grant which could be made under this section with respect to each share, and the total of all amounts so determined or $2,400,000, whichever is smaller, shall be the maximum amount of the grant which may be made...on account of such project.

Prior to this amendment, maximum grant provisions applied to the total project cost regardless of the number of participating communities. Now, by applying the limitation to each community's share, the individual communities are encouraged to join together for the total metropolitan area solution to their problem in two ways:

1) Multimunicipal projects cost each community less than "going it alone," and

2) Participating communities receive the same level of Federal aid as for a single community project.

Thus, the communities are not penalized by receiving less Federal Federal aid and are rewarded by a lower project cost. But no direct financial inducements for areawide or comprehensive approaches such as in the Federal Open Space Land Program are provided.

Water Quality Control

The Federal Government's water quality activities extend beyond the granting of Federal aid for the construction of treatment plants. The Public Health Service conducts research and investigations,

and also provides technical assistance to State and local governments. These important activities, which play an increasingly vital role in State and local water quality activity, will be enhanced as a result of the increased appropriations authorized in the Water Pollution Control Act amendments of 1961.

The Department of Health, Education, and Welfare carries out the enforcement provisions of the Federal water pollution control legislation. The Federal interest in water quality dates back to the River and Harbors Act of 1899. Since the passage of the Public Health Service Act of 1912, PHS has been authorized to investigate pollution caused by sewage and other sources. The first comprehensive Federal legislation on water pollution was passed in 1948.

The Water Pollution Control Act of 1948 was principally a research and planning measure. It expanded PHS's research program, created the Sanitary Engineering Center in Cincinnati, and established the Water Pollution Advisory Board. The principle objective of the legislation was to insure that every State had an effective pollution program. The 1948 legislation permitted the Federal Government to bring suit against polluters of interstate streams. However, Federal enforcement power was quite restricted since the law permitted the State in which the pollution originated to block Federal suits merely by withholding consent.

Unhappiness with growing pollution and the failure of the 1948 legislation to induce major changes in the pollution control programs of a majority of the States led to the passage of the Water Pollution Control Act of 1956. While Congress declared that its policy was "to recognize, preserve, and protect the primary responsibilities and rights of the State in controlling water pollution," Federal enforcement powers over the pollution of interstate streams was strengthened. The requirement of State consent was dropped. However, as in the 1948 legislation, Federal enforcement was limited to the pollution of interstate water--a category included approximately 4,000 of a total of 26,000 water bodies in the U.S.--when such pollution endangered the health or welfare of persons in a State other than that in which the discharge originated.

The 1961 amendments greatly expanded the jurisdiction of the Federal Government. All navigable water bodies of the United States, including coastal waters, are now subject to Federal pollution control jurisdiction. The 1961 law also extended Federal enforcement action to the abatement of intrastate pollution. Action to abate intrastate pollution can be initiated only at the request of the Governor of the State. A request for Federal action to abate intersate pollution may also be initiated by a municipality if such request has the concurrence of the Governor and the State water pollution control body. Finally, the Secretary of the Department of Health, Education and Welfare, on his own motion rather than waiting for State request, may call conferences which is a preliminary step in the Federal enforcement procedure "whenever, on the basis of reports, surveys, or studies, he has reason to believe that any pollution...endangering the health or welfare of persons in the State other than that in which the discharge or discharges originate is occurring." (33 USC, Sec. 466 (c)(1)).

The underlying objective of Federal water pollution control policy is to strengthen State water quality programs so that problems can be resolved at the State level without Federal action.

Federal enforcement procedure has three stages. First, there is a conference with all affected interests, public and private. For example, at a recent conference on pollution in Puget Sound, the Washington Pollution Control Commission invited representatives of pulp and paper mills, other industries utilizing Puget Sound for waste disposal, mayors, county health officers, sportsmen's councils, Federal agencies, fisheries groups, State legislators, members of the University of Washington faculty, and officials of the Association of Washington Cities, the Seattle Harbor Advisory Committee, the Municipality of Metropolitan Seattle and the Northwest Pulp and Paper Association.

If the problem cannot be worked out at the conference, a public hearing is held before a board appointed by the Secretary of Health, Education and Welfare.

The final step, when necessary, is Federal court action. As of March 1962 only one case has gone to court.

The Public Health Service has estimated that conferences and hearings will have resulted in construction of about $500 million of waste treatment facilities. Since 1956, 18 enforcement actions have been undertaken, involving 26 States, the District of Columbia, 250 municipalities and about the same number of industrial plants; 4,000 miles of 12 major waterways were affected by these actions.

In general, the cooperative approach of the Public Health Service has been successful. Relationships with State and local agencies have been harmonious in most instances. A great deal has been achieved through the use of cooperative techniques and by pressure exerted on water polluters. In most instances, State health departments and water pollution control agencies have welcomed Federal assistance in securing enforcement of State water pollution control statutes. The use of Federal assistance grants under the 1956 act in conjunction with conferences and hearings has often been successful in securing municipal sewage treatment facility construction.

Federal enforcement action may prove to be especially significant with respect to industrial pollution, since Federal action can remove incentives for industry to penalize States with strong water pollution control programs. The recent Puget Sound Water Pollution Control Conference grew out of the inability of the State of Washington to control pollution by seven pulp and paper mills bordering Puget Sound, resulting in the discharge of organic wastes equivalent in volume to the wastes produced by a population of 8,000,000. Under the provisions of the 1961 amendments, Washington's governor and State pollution control agency requested the Department of Health, Education, and Welfare to hold a conference as a first step in enforcing pollution control measures against the mills.

Because of the technical nature of the subject, the desire to achieve voluntary compliance and the need to safeguard defendants' rights, Federal water quality control enforcement tends to be extremely time consuming. The Public Health Service must make stream studies, collect and analyze water samples, and prepare its evidence prior to the holding of a conference. Conferences and hearings consume more time. When a solution has been agreed upon, a municipality must undertake engineering and financial studies, secure approval of bond issues, obtain bids and let contracts. In St. Louis, for example, a conference on Federal enforcement procedure concerning the Mississippi River was held in March 1958; pollution abatement measures will not be put into operation until 1967. When there is local opposition to Federal enforcement activity, the delays are apt to be even greater. In

1958, as a result of Public Health Service pressures, St. Joseph, Missouri, held a referendum on a bond issue to raise funds to construct a sewage treatment plant. The bond issue was defeated. Two years later, after the Public Health Service issued a notice requiring a five year improvement program, another bond referendum was defeated even more decisively. Finally, after Federal court action in 1961, St. Joseph commenced requisite remedial measures.

On the whole, however, the Federal enforcement program has been a successful example of intergovernmental cooperation to secure higher standards. The basic Federal procedure is sound since it offers opportunities for Federal, State, private and local interests to work out satisfactory solutions. The 1961 amendments to the Water Pollution Control Act strengthen both Federal and State enforcement procedures. Time delays are a price which must be paid for a process which ensures against Federal action which might be unmindful of local situations. However, the principle of cooperation and consultation should not serve to permit interminable delays by communities and industries which are not treating wastes adequately.

Section 9 of the Federal Water Pollution Control Act contemplates cooperation by all Federal departments and agencies with the Secretary of Health, Education and Welfare in preventing and controlling water pollution by Federal installations.

On May 11, 1960, the President sent a memorandum to the Secretary of Health, Education and Welfare with copies to the heads of all Federal departments and agencies directing the Federal establishment take every possible actions to make certain that its own house is in order with reference to the problems of controlling and preventing water pollution. To this end he requested the Secretary to take the lead in making an inventory of the pollution situation at Federal installations as an essential first step towards the initiation of corrective action.

Thereafter at its meeting in San Francisco in September, 1960, the Presidentially appointed Water Pollution Control Advisory Board, after a review of the pollution situation in San Francisco Bay, including that contributed by several Federal installations, recommended that the Public Health Service be charged with the

responsibility for determining and keeping up-to-date the status of all Federal installations in controlling water pollution; that it be charged with making recommendations for corrective action to Federal agencies responsible for water pollution and take all appropriate means to see that remedial action is taken; and, that the inventory of Federal installations relative to their contributing to pollution of the nation's waters be continued and expedited as much as possible.

The inventory was undertaken under authority of the Federal Act and it is expected to be distributed during late 1962. Preliminary estimates based on about three-fourths of the expected reports indicate that over 80 percent of the volume of sanitary sewage for which the Federal Government has accepted treatment responsibility receives some type of treatment. Approximately two-thirds of the volume of industrial waste, exclusive of cooling water and fish hatcheries, receives some type of treatment. Thus, it is already clear that much follow-through and work on eliminating instances of pollution sources by Federal institutions remains to be done.

Research activities constitute a vital aspect of Federal water quality activity. Under the 1961 Water Pollution Control Act amendments, $5 million a year is authorized for research through 1966. These funds will be used for research on the treatment of municipal sewage and other wastes, improved methods and procedures to identify the effects of pollutants upon water uses, and methods and procedures for evaluating the effects on water quality and water uses of augmented stream flows to control water pollution not susceptible of abatement by other means. All these activities are extremely important to local, State and Federal investment and enforcement programs. The development of more economical and efficient means of obtaining sanitary sewage and industrial waste treatment could provide even greater incentives for reducing the amount of inadequate or untreated wastes than does the Federal grant program. Accurate data on the costs of water pollution and the specific benefits to be derived from improved water quality promise to improve water quality programs at all levels of government.

It seems fair to conclude that the Federal Government is doing a great deal about water pollution control of the nation's streams. The Federal activities and the incentives they have provided for greater investment and more adequate water pollution control enforcement and the promise they hold for more economical investment and more precise enforcement are in the best traditions of cooperative federalism.

Federal Water Supply Activities

Urban water quantity has received less direct attention from the Federal Government than urban water quality. Nonetheless, Federal river basin programs have an important impact on the provision of water for urban uses. Congress permits the development of urban water supply storage facilities in conjunction with Federal multipurpose projects. However, the development of these facilities is secondary to other Federal purposes in river basin development. Recently, increased importance has been placed on urban water storage facilities. The limitation that municipal and industrial water supply storage can be provided only if it does not interfere with other recognized Federal project purposes has been eased in recent legislation.

In 1958, Congress enacted the Water Supply Act of 1958 as Title 3 of Public Law 500. This Act was a major step forward in recognizing a new Federal responsibility to help meet municipal and industrial water supply requirements. The Act provided for greater utilization of waters stored in Federal multipurpose reservoirs. While the Act clarified some of the previous policies with respect to repayments for municipal and industrial water supply contracts, its major contribution was a provision allowing Federal agencies to plan and store water for anticipated future requirements of cities and industries based on provision of reasonable assurances from local or State authorities.

Because of the untried character of the new Water Supply Act of 1958, questions were raised as to the extent of reasonable assurances and what would be accepted as reasonable assurances. Because of these questions, the Congress, is an amendment to the Water Pollution Control Act of 1961 (P.L. 87-88) clarified the Water Supply Act of 1958 with respect to the amount that could be allocated for anticipated future water supply requirements and the matter of reasonable assurances. The Committee report on the Water Pollution Act amendments (later enacted by Congress) commenting on the matter of assurances stated that:

> The present law provides authority for the Corps of Engineers and the Bureau of Reclamation to include municipal and industrial water supply capacity in reservoirs under their jurisdiction. The present law, among other things, provides that not to exceed

> 30 percent of the total cost of any project may be allocated to anticipated future demands where State or local interest give reasonable assurances that they contract for the use of storage for anticipated future demands within a period of time which will permit paying out the costs allocated to water supply within the life of the project. The latter provision in many cases places an undue and undesirable restriction on the inclusion of capacity for future use, because of the inability of many communities, and perhaps even States, to assume the contractual obligations implied. Therefore, in order to permit optimum utilization of the limited number of good dam and reservoir sites remaining, the requirement for the communities or States, with respect to contractual arrangements, should be liberalized. Accordingly, the amendment, although still requiring reasonable assurances of the use of storage for future water supply, would permit the Federal agency concerned to make its own determination of future water supply needs and, on the basis of such determination, may include capacity without definite contractual commitments from State or local interests. 60/

The program of Advances for Public Works Planning under Section 702 of the Housing Act of 1954 administered by the Housing and Home Finance Agency, provides interest-free advances (to be repaid when construction commences) to aid in financing the cost of engineering and architectural surveys, designs, plans, working drawings, specifications, and other eligible work items necessary in pre-planning the construction of public works, including water and sewer systems. A primary purpose of this program is to encourage authorized public agencies to maintain at all times a current and adequate reserve of planned public works. One of the requirements of approval of specific proposals is that no advance shall be made with respect to any individual project, including a regional or metropolitan or other areawide

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60/ U.S. Congress, Senate, Committee on Public Works, Federal Water Pollution Control Act Amendments of 1961, 87th Cong., 1st Sess., June 7, 1961, S. Report No. 353, to accompany S. 120.

project, unless it conforms to an overall State, local, or regional plan approved by a competent State, local, or regional authority. As administered, if no general plan exists, the conforming requirement is dropped.

The widespread need for planning water and sewage facility projects appears to be indicated from the use made of the Planning Advance Program. Although these planning advances may be made for any public work which communities have the legal authority to plan, finance, and construct, including regional or areawide projects, 60 percent of all applications approved since the inception of the Program have been water and sewer projects.

The Public Facility Loans Program, also administered by HHFA, provides financial assistance to municipalities and other local public bodies for constructing essential public works where such financing is not otherwise available on reasonable terms and conditions. The Housing Act of 1961 lifted previous restrictions on the program so that eligibility is extended to public bodies having authority to plan, finance, construct, and operate public works whose area population is less than 50,000 population, or less than 150,000 population in designated redevelopment areas. It is noteworthy that during Fiscal Year 1962, 90 percent of all projects approved for loan were sewer and water projects.

The major Federal Water Resources Agencies--Corps of Engineers and the Bureau of Reclamation--have not generally undertaken to provide delivery facilities for municipal water systems. However, cooperative arrangements are being developed between the Corps of Engineers and the Community Facilities Administration in carrying out the Public Facility Loans Program.

On May 15, 1962, the President approved a statement of Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources, prepared under the direction of the President's Water Resources Council (and issued as Senate Document No. 97 of the 87th Congress). The statement provides a number of specific standards designed to bring about coordination between Federal and State, local and private interests in the carrying out of Federal water resource activities, including those affecting supply and sewage disposal in metropolitan areas. Thus it provides that: (a) "When any Federal agency initiates an investigation or survey, it shall arrange for appropriate coordination and consideration of problems of mutual concern with other Federal agencies

and with interested regional, State, and local public agencies and interests," (b) "Before a report is submitted to the President and the Congress, each department or independent agency interested in the project and the concerned States shall be provided with copies of the proposed report, and given an opportunity to furnish a statement concerning the project proposal from the viewpoint of its interest and responsibility. Such statements shall be included in the reports submitted by a sponsoring agency. If such statements propose variations from the policies and standards specified herein, the reasons for each variation shall be stated," and (c) "Planning by Federal agencies shall also be carried out in close cooperation with appropriate regional, State, or local planning and development and conservation agencies, to the end that regional, State, and local objectives may be accomplished to the greatest extent consistent with national objectives."

Federal planning, water and related land resources development and management are to provide, among other purposes, for "Adequate supplies of surface and ground waters of suitable quality for domestic, municipal, agricultural, and industrial uses--including grazing, forestry, and mineral development uses."

Planning and investment activities of Federal agencies are crucial to the success of the Feather River Project and the entire California water plan, as well as to the future of the Delaware River Basin and a number of others. In each of these instances, urban water needs have played a much larger role in water planning and development than was the case in past Federal activity.

In addition, Federal planning assistance under the Housing and Home Finance Agency's 701 grant program is available for urban water resources planning. The Northeastern Illinois Metropolitan Area Planning Commission recently obtained a "701" urban planning grant of $202,000 to help finance an 18-month study which will measure the northeast Illinois area's water resources, project future demands, estimate cost and benefit, analyze water uses, assess the effects of technological change, study the possible integration of regional water uses. and develop guides for water resource management.

In addition there is need for stronger and more effective planning for municipal and industrial water supply requirements if situations involving water shortages in urban areas are not to

create important hazards to public health and the economy. Senator Maurine Neuberger, in her statement 61/ to the Senate Select Committee on National Water Resources included the following:

> One of the urgent and critical problems confronting us is the need to assure for the future an adequate supply of water, safe for human consumption and sufficiently clean to support industrial development. The problem is essentially one of planning the best use of our water resources to meet these requirements. In the past, communities and industries, and even rural dwellers were able to plan individually to meet their requirements. Today and in the future, we must plan cooperatively to make joint use of our water supplies; to plan cooperatively to satisfy broad regional, interstate, metropolitan, and multicity and multi-industrial needs.

61/ U.S. Congress, Senate, Select Committee on National Water Resources, Hearings Part 22, 86th Cong., 2nd Sess., (May 24, 25, 26, 1960), pp. 3488-3489.

Chapter 7

RECOMMENDATIONS

Pursuant to its statutory responsibility for furthering intergovernmental cooperation, the Advisory Commission on Intergovernmental Relations herewith submits for the consideration of the President and the Congress of the United States, the Governors and legislatures of the several States and the governing bodies and administrative officials of counties, cities and other local units of government, a number of recommendations. These recommendations are designed to further intergovernmental cooperation and governmental action at the Federal, State and local levels in order to better meet the Nation's needs for urban water supply and distribution, sewage disposal and treatment, and pollution abatement, and also provide for the more orderly development and growth of our expanding urban areas.

The Commission believes that responsibility for the planning and provision of public water and sewage service should remain in the metropolitan area, provided local governments can achieve satisfactory and effective service areas based on watersheds or drainage basins, and where appropriate relate such service to State, regional and Federal planning. Effective performance of these responsibilities requires comprehensive planning, including the incorporation of water supply and sewage system plans into overall regional plans. In addition, considerable assistance and facilitation from State and Federal governments, will be required particularly with respect to the development of future sources and the financing and operation of sewage disposal systems.

The primary problems in the provision of urban water and sewer utilities are governmental rather than technical. Local governments are increasingly unable to handle water and sewer problems unilaterally. More comprehensive endeavors in metropolitan areas are required. It may be expected that the State and Federal role, particularly in allocation of water to urban areas, development of urban water supply sources, and in financing sewage treatment facilities, will grow.

A number of approaches are usually employed within a single metropolitan area to provide both water and sewer services. In relatively few areas does a single agency serve an entire area.

As a result fragmentation and uncoordinated development are common in the provision of urban water and sewage disposal facilities. In part, fragmentation is a product of the subdividing of most metropolitan areas into relatively small incorporated areas. It also results from the penchant of urban Americans, particularly in the suburbs, for creating special districts to provide water and sewage services, often to avoid constitutional or statutory debt limits. Urban water and sewerage districts are generally single purpose.

Fragmentation is also caused by the desire of urban residents to maintain control over their local tax rates. Communities that have provided adequate water and sewer service seldom are enthusiastic about the creation of larger units or other schemes which could lead to their financing utility developments in other parts of the metropolitan area. In particular, suburbanites wish to avoid generally higher central city taxes. Fragmentation also permits a particular local unit to utilize water and sewer service extension to control development within its boundaries. Nor should the vested interest of engineers, consultants, legal advisers, and suppliers in preserving fragmentation be forgotten. Of course, some fragmentation is a natural product of watershed and drainage basin configuration.

The general objections to fragmentation in urban areas of water supply and waste disposal, and a host of other functions are well known. They include lack of coordination, inadequate planning, uneconomical development, and overlapping jurisdictions. Fragmentation, however, should be considered in the context of its actual effects on the performances of a particular function, rather than as a general malady. After all, local self-government is a form of fragmentation which is highly valued in the American political culture. The problem is that of achieving comprehensive planning and development and of retaining a significant degree of local control and direction. In the case of urban water and sewer services, however, it is clear that fragmentation has a number of unhappy consequences for public health, service levels and costs, sound planning, and economical development of utilities along watershed and drainage basin frameworks.

Geographical scope and jurisdiction for comprehensive planning, programming and operation are best achieved through the development of metropolitan water and sewer utilities; or, the assignment of water and sewage disposal functions to a general metropolitan instrumentality. A major weakness, however, of existing metropolitan water and sewage agencies is their inadequate scope, a product primarily of a failure to expand jurisdiction to keep pace with regional growth.

Unquestionably, the best method of providing water and sewage service in metropolitan areas is to anticipate future needs on the basis of watersheds, drainage basins, the metropolitan area or major segments of it, or some combination of these. Such an approach requires initial investments which exceed those required to handle only the problems of the present.

1. Increased local investments for sewage treatment facilities

The Commission recommends that public officials in urban areas make greater efforts to increase public investments in urban water utilities, particularly for sewage treatment. The goal should be a financial system for unified and integrated development of water supply and sewage treatment facilities which is accepted by the local governments affected as being equitable and economically efficient in terms of development on the basis of optimal service levels.

Broad gauge, long-range approaches do not offer profitable investments in their early stages because some of the future capacity will lie idle for a period of time. However, there are long-range benefits in terms of lower unit costs of service, more orderly development of utility services, and less replacement of piecemeal installations. The small units of the fragmented systems, with their limited financial and area capacities cannot plan and develop on a sufficiently broad basis. Nor can they normally afford, or find it politically feasible, to build for any substantial excess capacity to handle anticipated growth. Their natural tendency is to meet the service needs of today, in terms of small urban concentrations, or even subdevelopments, at minimum initial investment levels. More inclusive approaches clearly involve organizational changes. These alternatives are discussed in Chapter 4 of this report.

The consequences of not increasing the level of investment in sewage treatment facilities was demonstrated in a report to the Senate's Select Committee on National Water Resources.. Projecting to 1980 the results of sewage investments on the basis of the 1954 per capita outlay of $4.25, the study concluded that:

> The residual pollution load for municipalities in 1980 will, on the average, still be about 2.5 times the amount which can be allowed for streams and rivers, at their present stage of flow regulation, (if they) are also to serve other uses. Specific areas will, of course, be much worse. 62/

62/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Pollution Abatement, 86th Cong., 1st Sess., 1960, Committee print No. 9, p. 5.

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Sewage treatment and water quality are more pressing problems than water supply and distribution. This situation exists because the failure of a community or industry to treat wastes usually burdens others while an inadequate water supply directly affects the welfare of the particular community or industry.

What are the causes of this investment lag? The provision of adequate water and sewerage service is not unduly expensive. Average annual per capita cost for an adequate urban water system is about $10, with collection and treatment costs averaging about twice this. Thus for less than 10 cents per day, most urban dwellers can obtain and properly dispose of all the water they need. A number of sources of revenue are available to supply funds to construct needed facilities -- user charges, special assessments, special service charges, and general taxation.

In some areas constitutional and statutory restrictions hinder local financial efforts. Communities which have reached their maximum legal indebtedness level cannot float general obligation bonds for water and sewerage improvements although many could finance their needs with revenue bonds. In general, smaller communities have greater financial problems than larger cities and districts. A number of States have undertaken to overcome barriers to local financing through a variety of devices. These include State purchase or guarantee of local bonds, the waiving of debt restrictions to permit issuance of general obligation bonds to finance water and sewerage improvements ordered by a State agency, and authorization for local units to float bond issues to finance water and sewerage improvements without submitting the question to a referendum.

The approval of bond issues by simple action of the governing body of a local government is consistent with the practice recommended by the Advisory Commission on Intergovernmental Relations in its report, State Constitutional and Statutory Restrictions on Local Government Debt, published in September 1961.

These forms of intergovernmental cooperation have helped some communities, but their overall effect on the investment lag has been comparatively slight. These measures have not spurred investment markedly because in most instances the failure to invest in water and sewer utilities, particularly sewage treatment facilities, is not caused by legal restrictions on the community's ability to float bonds or increase taxes. Instead it is a product of the unwillingness of the localities to spend money. This unwillingness is a product of apathy, dislike of new taxes, and competing demands on the public and private dollar.

2. Central cities' responsibility for comprehensive areawide utility planning

Where central cities, counties and other jurisdictions provide water or sewer service to other units of government on a contract basis they should assume the responsibility for comprehensive areawide facility planning. In addition, these jurisdictions should encourage the most economical development of service lines to the contracting areas. Furthermore, supplier-buyer relationship between municipality and suburb in specific instances might be eased through provision for suburban representation on water and sewer policy agencies.

The record of the contract system, whereby suburbs contract with the central city for water and sewer service, is mixed. More often than not, the domination of the contract relationship by the central city has produced rate and service differentials, inadequate planning, uneconomic development, and antagonistic intergovernmental relations.

Contracting, in theoretical terms, may be economically sound because it prices water or sewer service at cost to a particular community or household. Yet electric and gas utilities in urban areas normally are priced at a uniform rate for a wide service area. Furthermore, central city residents pay a uniform rate for water and sewer service regardless of their location in the city. Under these conditions, suburban resistance to prices determined by distance from a central facility are understandable. As a result of the higher unit costs under the contract system, suburban communities often choose a lower cost alternative which is much less satisfactory from a public health or optimal service area point of view than connection to an existing central facility.

An even more serious weakness of the contract system is its normal failure to provide for planning and development of utilities on a comprehensive metropolitan basis. The supplier-customer relationship generally is not conducive to a wise or equitable employment of a metropolitan area's resources in terms of its future pattern of development. Central cities extend service because of the promise of profits with little capital investment, especially when excess capacity is being sold. Sound metropolitan development is a secondary consideration in most instances. The cities have been reluctant to increase their bonded indebtedness to finance extensions and new facilities once contracts are let for the excess capacity.

Although centralized systems, particularly for waste disposal, benefit the entire metropolitan area, under the contract system those communities which happen to be distant from the central facilities are penalized in contracts which represent true cost to the particular community. Furthermore, the contract system often involves subsidization by one suburb of development in adjacent areas. For example, in Seattle, an outlying community agreed to pay Seattle 50 percent more than other water districts have been charged in order to amortize the water line installed by Seattle. Value on vacant property in adjacent areas which would not bear the surcharge, quadrupled after a water supply was assured.

The contract system also promotes uneconomic utility development in the suburbs. The supplier-customer relationship does not spur cooperation among customers; it provides no incentives for the suburbs to cooperative in the construction of economic connections with the city systems. A 1955 water supply study illustrated some of the difficulties that have been encountered with the contract systems in the Chicago metropolitan area:

> This means of supply to the suburbs as a whole is inadequate to meet the requirements because many of the towns in need of additional water supply are outside the Sanitary District (and thus not served by contract with Chicago); it also becomes uneconomical and sometimes impracticable for each town to build a separate pipe line to the Chicago city limits. Although where towns are close together one town can, and does, sell purchased water to another, this system breaks down ultimately as the towns grow. Most individual communities have not practiced advance planning and in periods of rapid growth..., suburban water service has frequently been inadequate. 63/

The contract system provides neither the incentives nor the machinery for planning the development of utilities on a metropolitan basis. Nor is the development of water and sewer service usually considered in conjunction with other developmental activities in the area. When a suburb wants to connect and is willing to pay the central city's price, and if capacity is available, service is extended.

63/ Alvord, Burdick, & Howson, Report Upon Adequate Water Supply for the Chicago Metropolitan Area, 1955 to 1960 (Chicago, 1955), pp. 1-2.

Only occasionally does the central city value regional over economic considerations. Fear over the worsening of the Lake Erie pollution problem caused by inadequate sewage development in the suburbs led Cleveland to ban extending water services to suburban development not also served by sewage disposal systems, with beneficial effects on utility development in the metropolitan area. A few central cities, like Nashville and Seattle, which provide water for nearly the entire metropolitan area, have engaged in long-range planning on an areal basis and avoided many of the shortcomings found in other areas where contracting is prevalent.

The contract system develops strong forces dedicated to its perpetuation. It is profitable to the central cities, and permits them to control development in the metropolitan area to their advantage. It offers many suburbs a lower cost alternative than individual community systems and a freedom of choice likely to be absent under a metropolitan framework. Minneapolis and St. Paul, both of which profitably contract for water and sewer service, have resisted efforts to establish representative metropolitan institutions for the water-sewage utilities. In the Seattle area, the entreprenurial role of the central city makes even annexation unprofitable since the net return to the city from its wholesale water sales to the outlying areas is substantially greater than it would be if the areas were part of the city and entitled to the same rates as other city residents.

However, the Commission would emphasize that the contract system can overcome many of the handicaps detailed above. One of the Nation's best metropolitan water supply systems is provided by Detroit on the basis of contracts with its suburbs. The semi-autonomous Detroit Water Department has prepared plans for future expansion over the next 30 to 40 years for a service area containing 7,000,000 people. Coordination between water and sewer services has been achieved since the Water Department operates the city sewage disposal plants which handle sewage from Detroit and almost 40 suburban communities. In 1960, Detroit voters approved a city charter amendment increasing the Board of Water Commissioners from four to seven members, requiring only four to be city residents. This permitted suburban representation on the Board for the first time. Financed by revenue bonds, the system presently has a class "AA" investment rating, which is higher than that of Detroit. In spite of suburban representation, the system still belongs to the city of Detroit, whose taxpayers receive the benefits of past investments in the form of a 10 percent rate differential and free water worth approximately $2,150,000 annually for municipal purposes. The latter feature is a considerable bonus to the city since it represents 10 percent of the water system's annual revenues.

Despite the potential that some areas have demonstrated with respect to the contract system and the fact that a good number of central city-suburban contract relationships are fairly placid, the majority of study reports and other recommendations designed to produce changes in the provision of water and sewage service in metropolitan areas, have favored an areawide approach in preference to the development or improvement of the contract system.

Metropolitan approaches to the provision of water utility service and sewage disposal facilities offer economies of scale, protection against unwise investment, equalization of rates, and an adequate base for long-range developmental programs with capacity for growth. However, these goals often can be reached through reform of the contract system or through the use of subregional approaches, particularly in the larger metropolitan areas and those with more than one watershed or drainage basin.

3. Comprehensive planning for integrating water and sewer service plans with other metropolitan functions and coordinated policy making by elected officials in meeting area water and sewer needs

The Commission recommends that comprehensive water utility planning, on a metropolitan area as well as watershed and drainage basin basis, should be undertaken in each metropolitan area. Such planning should integrate the provision of water and sewer services with other metropolitan functions, insure economies of scale, and promote sound overall patterns of metropolitan development. Full use should be made of water and sewage planning and development as a basic tool for directing overall urban development along desirable and orderly lines. Primary responsibility for this function is best lodged in an areawide comprehensive planning agency. The planning agency should tie together at the local level the technical planning efforts of the various local, regional, State and Federal agencies whose activities affect urban water supply and waste disposal. The Commission further recommends that local units of government coordinate utility policy making on a regional basis, regardless of the number of operating agencies in the metropolitan area.

Comprehensive planning and coordinated policy making for water and sewage development on a metropolitan basis will become increasingly essential as urban water and sewer problems become more difficult to resolve. The key factors enhancing the need for greater comprehensiveness and coordination are population growth, competition for distant water supplies among metropolitan areas, and the need for increased reuse of water.

Ideally, planning should culminate in the preparation of a master regional water supply and sewage disposal plan which is a part of a regional land use and development plan. Planning of this sort has as its goal the conscious shaping of regional development within a framework of democratically expressed policy preferences. Even in the minority of metropolitan areas where attention is given to regional considerations, water and sewage planning tends to be "utility"-oriented rather than development-oriented. "Utility"-oriented water and sewer planning takes little account of the other planning values involved in the configuration which water sewage planning may produce. The potential of water and waste disposal facilities as a tool for shaping communities has been ignored in most urban communities. The "utility" approach to most water and sewer planning is a product of the profit orientation of the contract system, the constraints imposed by the normal methods of financing water and sewer facilities and the narrow perspectives of the technicians with water and sewer planning responsibilities. Even in those areas where regional planning is undertaken, extension of water and sewer services tends to follow rather than shape or guide development. In many areas, control of water and sewage facilities can be the key to shaping the development of the metropolitan community. Controls that could be employed include the extended use of such accepted State and local functions as police power, planning and zoning, public health controls and ground water control. Of course, the potential of utility planning for shaping development varies from one metropolitan area to another. In the Denver metropolitan area where water is not readily available, water lines have been a key element influencing suburban development and industrial location. However, in the Minneapolis-St. Paul area, water and sewer utilities have had a much less important effect since ground water is readily available to the individual consumer throughout the region.

The creation of an operating metropolitan utility does not of itself guarantee broad gauge planning. Metropolitan water and sewer agencies staffed solely by engineers, as many are, are likely to concentrate on utility-oriented planning and to ignore broader questions of urban development. Moreover, usually it is not possible for a single function metropolitan water or sewer agency to undertake comprehensive planning. Nor should it be necessary. In those areas where metropolitan planning agencies have been created, primary responsibility for developmental planning should be located in the metropolitan planning agency. The metropolitan planning agency should also have responsibility for relating utility plans, developed by the technical staff of the metropolitan or subregional water agency, to overall planning for community and metropolitan development.

In accordance with the Commission's recommendation contained in its report Governmental Structure, Organization, and Planning in Metropolitan Areas, additional local, State and Federal action is needed to authorize, stimulate and support effective metropolitan planning operations. Where effective metropolitan planning does not exist and comprehensive water and sewer plans and development are underway, every effort should be made to broaden the context of such planning to include consideration of, and consistency with, other area development needs and goals.

Formidable barriers to the development of metropolitan water supply and sewer systems exist in most urban areas. Crises or severe problems in health, service or financing have been required generally to overcome the manifest obstacles and to secure the creation of a metropolitan water or sewer utility. The impact of a water or sewage problem varies greatly within a metropolitan area. Economies of scale in regional development are not equally shared by all participating communities. Municipalities and districts with adequate facilities already in being normally take a negative view of assisting communities with substandard service levels or the newly developing suburb. Central cities with profitable contract systems have a strong interest in preserving the status quo. Distrust of the central city and a desire to preserve local autonomy leads many suburbanites to prefer higher cost alternatives to regional development. The long delays generally experienced in securing consensus and creating a metropolitan agency are another key obtacle. Finally, the attractiveness of regional approaches is decreased by the existence of viable alternatives--the contract system, county-wide systems, or subregional development--which can also offer economies of scale and adequate service.

Metropolitan programs will vary both in form and content from area to area. No single method of achieving the needed intergovernmental cooperation to plan, program, and provide water and sewer services on a metropolitan basis is applicable in all areas. Operating water agencies with a regional jurisdiction are not required in every area. In those areas where topography, geography, political structure, present water service patterns, and political conditions do not block creation of an operating agency with regional jurisdiction, sewage disposal is more likely to be undertaken on a metropolitan basis than water supply and distribution. Coordinated policy making, by means of a single or multipurpose district responsible to the elected officials of the governmental jurisdictions concerned, a voluntary metropolitan regional council, county or metropolitan government, or an ad hoc or informal device all would permit the evaluation of water and sewer needs and the assignment of priorities on an areal basis.

The multipurpose special district, or other areawide general purpose government, offers the best long-range strategy for meeting the demands of metropolitan life. However, if the primary goal is the solution of a water supply or sewage disposal problem, a single function approach is more feasible politically, less time consuming to effect, and not as likely to produce conflict as the creation of a multipurpose district. This approach inevitably has the disadvantages of piecemeal approach, increased complexity of governmental structure, and at least potentially unresponsiveness to elected officials or the area population. An alternative offering some of the advantages of both the single-purpose agency and the multifunctional approach is provided by the provisions of the draft "Model State Metropolitan Services Law" recommended by the Commission in its report, Governmental Structure, Organization, and Planning in Metropolitan Areas.

Improvements in policy making and planning are additional major anticipated benefits of comprehensive approaches of urban water services. As compared with the present fragmented system in most metropolitan areas, an areawide approach can provide the framework for the evaluation of water and sewer needs and the assignment of priorities on an areal basis. Unlike the contract system as it operates in most urban areas, a regional approach offers the opportunity to evaluate needs and set priorities in terms of the benefits of the entire area rather than on the basis of the economic and developmental advantages of the central city. With all segments of the metropolitan area represented on the regional agency, a democratic policy system replaces the unequal bargaining common to contract negotiations. Comprehensive or coordinated approaches also enhance the bargaining position of the metropolitan area in its dealing with State and Federal agencies, relationships which are destined to become more important over time. Finally, improved policy making on a regional basis will take on increasing importance as water problems grow more difficult to resolve. Future sources of water will be more distant from the metropolitan area, more expensive to develop, and involve a growing circle of contending interests.

4. Establishment of a unit of State government for overall State water resource planning and policy making

The Commission recommends that States enact legislation vesting responsibility for overall State water resource planning, policy making and program coordination in a single agency, as has been proposed by The Council of State Governments. State water resource planning and policy development should give urgent consideration to the requirements and problems of urban areas. Each State also should insure that the interests of its urban areas are provided for in the State's representation on interstate water agencies. 63a/

63a/ See Appendix A for suggested State statute.

Few States have realized their potential in water resource development. One recent study found that State programs have been hindered by a lack of leadership, an inadequate organizational base for conceiving, planning, or managing broad gauge water or natural resource programs, an inability to provide resources for the development and management of comprehensive programs, and a jurisdictional inability to cope with interstate streams. The study concluded that "the record of the States in meeting their water problems with effective action through use of their own resources is far from outstanding."64/

Weak leadership and structural shortcomings are a product in part of historical development and interest group patterns. Traditions, common needs, common demands, and priorities have varied from State to State; but they generally have produced a diffusion of responsibility. Assignment of water functions has reflected the focus of interest when a new activity was undertaken. Thus water pollution, originally exclusively a public health problem, went to the State health department. Regulation of other aspects of pollution was assigned to agencies responsible for fish and game, mines and minerals, and other activities which affect or are affected by water quality. Group demands for access and insulation have bolstered the natural tendency toward multiplication of agencies and diffusion of responsibility. Once established, these clientele relationships have resisted changes designed to unify or coordinate responsibilities for water planning, policy making or administration. As a result, most States have a number of agencies with responsibilities for developing and implementing programs affecting water quantity and quality. The drive for insulation on the part of interest groups often has resulted in the creation of water agencies with independent status, frequently organized as a board or commission. Cooperative techniques and devices, such as ex officio board representation, dual appointments, and interagency committees, provide some coordination among agencies with water responsibilities. However, in most States, the diffusion of responsibility has not been overcome. As a result there is no clearcut policy for dealing with water problems on a comprehensive basis. In addition, funds for comprehensive planning are usually quite limited. In most instances, efforts to secure comprehensive planning and greater coordination of water resource activity have resulted in the creation of a new agency superimposed on the existing structure.

Studies of State water resource activity generally underscore the lack of a central agency for planning, policy making and coordination with appropriate jurisdiction and authority as the State's central weakness. Most studies have recommended the creation of a single agency

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64/ Roscoe C. Martin, et al, River Basin Administration and the Delaware (Syracuse: Syracuse University Press, 1960), p. 330.

responsible for the coordination of State water research, policy and development activities. A growing number of States have established such agencies, which are unquestionably the most promising method of overcoming diffused responsibility for water resources planning and policy development.

The arrangements developed in recent years in New York, North Carolina, and Connecticut, with a State water resources agency primarily responsible for planning and policy making for all phases of water development and with the State health department retaining its traditional role in those areas where it possesses technical capabilities, offer the best opportunity for improving the administration of State water functions. Because the interrelationships between water quantity and water quality will become more important in the future to a growing number of increasingly urban States, overall water quality control policies are best lodged in a general State water resources agency. It appears neither wise nor necessary to concentrate all operating responsibilities in a single agency, particularly the technical activities undertaken by the health agencies. Few States can afford to duplicate scarce technical skills merely for the sake of functional comprehension. Nor would transfer be worth the probable political strife it would provide in most States.

Concentration of State water resource responsibilities will fall far short of potential accomplishment unless attention is given to urban requirements. Urban interests with long-nurtured clientele relationships with State health agencies may well resist the development of a central State agency with overall policy responsibilities if such an instrumentality is primarily representative of or response to nonurban interests. And as Francis A. Pitkin has noted:

> Mayors, city managers, and municipal water works commissioners must insist that the state government give them a full and free opportunity to be heard in matters concerning the formulation of river basin programs, the determination of changes in water rights policy, and the equitable sharing of any water resources that may be developed through state or federal projects executed under the terms of intergovernmental agreements. 65/

The Commission specifically endorses the proposals presented by the Council of State Governments in its report, State Administration

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65/ Francis A. Pitkin, "Water, Water Everywhere?" Public Management XLIX (October 1957), p. 225.

of Water Resources calling for a comprehensive State water resources program. The basic elements of this program would include collection of hydrologic data, overall water resources planning, allocation authorizations, water pollution control, review of Federal projects, assistance to local governments and State developmental activities. The Council properly recognized that needs will vary from State to State but that each State should have a minimum operating program in each of these categories. The number and complexity of these functions underscores the need for sound organization and coordination in State water resource administration.

California and New Jersey, which have developed strong water resource agencies with powers over a wide range of water activities and New York's Water Resource Commission which is the central agency in the State for matters relating to water supply, planning, pollution control and State assistance, may serve as appropriate models for other States in developing legislation vesting leadership and coordination of State water resources planning and policy making in a single agency.

5. Enforcement of water pollution and public health legislation by the States

The Commission recommends as a general policy that the States enforce water pollution legislation and regulations affecting public health and recreation, municipal, industrial and other uses with greater vigor and thoroughness. Specifically, it is recommended that (a) strengthened legislation be enacted to permit States, singly and jointly, to control and abate pollution of rivers and streams, (b) States undertake more vigorous administration of their water pollution control programs, including adequate financial support, and (c) legislation be enacted endowing the appropriate State and local agencies with regulatory authority over individual wells and septic tank installations, with a view to minimizing and limiting their use to exceptional situations consistent with comprehensive land use goals. To insure that cooperative techniques in enforcement of water pollution control programs do not become facades for delay and inaction, the State legislatures should provide time limits for each step in the pollution abatement enforcement procedures. 65a/

In the future, the Nation will depend much more heavily on the reuse of water. As a result, controls over pollution must be materially increased. The prime weakness of State public health regulation and water pollution control is the failure to enforce existing water quality regulations. Undue reliance on cooperation too often has resulted in inaction and inadequate enforcement,

65a/ See Appendix B for suggested State statute.

particularly with respect to industrial pollution. Interstate water quality control agencies, which rely heavily on cooperation and State enforcement, display similar weaknesses, despite considerable successes in cleaning up a few of the Nation's major interstate waterways.

Water problems are most critical in the suburbs. A large part of the difficulty arises from reliance on individual water supply and waste disposal systems. The indiscriminate use of wells and septic tanks encourages urban sprawl, often endangers public health, and rarely provides a permanent solution to the problem of obtaining and disposing of water. With few exceptions, connection to or initial provision of public or community water and sewage systems are preferable to the installation of individual systems.

The serious water quality deficiencies and the tremendous lag in investments for municipal and industrial waste treatment facilities testify to the inadequacies of State water pollution control problems. Karl M. Mason, Director of the Bureau of Environmental Health of the Pennsylvania State Department of Health told the recent National Conference on Water Pollution:

> State water pollution control agencies are not doing the job expected of them. Regardless of recent surveys which indicate that 96% of the program administrators believe that reasonably good progress has been made in pollution abatement, statements before congressional committees, the trend toward increased enforcement powers of the Federal Government, and the statistics available on the subject tend to substantiate this castigation. 66/

The principal deficiency lies in the failure to enforce existing laws and regulations. In a recent report prepared for the Select Committee on National Water Resources of the U. S. Senate, Public Health Service concluded:

> Although areas for improvement in the enforcement provision of some State water pollution control laws exists, enforcement powers provided in most States are generally adequate. The principal need in the State water pollution control agencies is for adequate funding,

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66/ U.S. Department of Health, Education, and Welfare, Public Health Service, Proceedings: The National Conference on Water Pollution, December 12-14, 1960 (Washington, 1961), p. 277.

> staffing, and, above all, more use of the powers that are presently available to them after methods of persuasion have been demonstrated to be ineffective. The States need to keep up-to-date information on the quality of their waters. Finally, where dilatory or recalcitrant polluters are encountered, forceful and effective methods of enforcement must be used. 67/ /Italics added./

Substandard enforcement can be explained in part by the failure of the State legislatures to appropriate adequate funds, the lack of trained personnel to enforce water quality regulations in many of the States and follow-through in the supervision, operation and maintenance of waste treatment plants after construction, and insufficient data on the costs and benefits of pollution abatement.

Much more important, however, in most States are political factors. The politics of pollution control involve high stakes, particularly for the municipal and industrial users who must bear the brunt of providing adequate treatment facilities. The State water pollution control agencies are faced with the difficult task of balancing these interests, which normally possess considerable political influence at the State capital, against the interests of those who favor or are likely to be benefited from improved water quality. The lack of precise economic guidelines as to the cost of pollution and the economic benefits resulting from an improvement in water quality increase the possibilities of determinations made largely on the basis of relative influence. The obvious general benefits to health, recreation, conservation, property values, and general development usually do not generate concerted political activity. Furthermore, these benefits offer few incentives to those directly responsible for pollution, particularly industrial water users, since the benefits do not accrue primarily to those who must make the requisite investments to secure higher levels of water quality. A model statute was prepared in 1950 by the Public Health Service, Department of Health, Education, and Welfare, for establishing a State water pollution control enforcement program. The model statute was included in the Council of State Government's Suggested State Legislation; Program for 1951. This model is currently under revision and a new draft statute is expected to be available for general distribution early in 1963.

67/ U.S. Congress, Senate, Select Committee on National Water Resources, Water Resource Activities in the United States: Water Quality Management, 86th Cong., 3rd Sess., 1960, Committee Print No. 24, p. 12.

Interstate water pollution control agencies can also contribute to the abatement of pollution of interstate waters serving highly industrialized and urbanized areas. Such water pollution control agencies should have enforcement powers, including the provision of time limits for the various enforcement steps to prevent undue delay. In conjunction with State and Federal enforcement authorities, the interstate agencies can intensify efforts to reduce industrial pollution. It should be recognized, however, that the interstate water pollution control compact approach has certain limitations. The agencies are unifunctional; they have little or no direct responsibility for, or relationship with, other water resource activities carried on by the State, other interstate, or Federal agencies on interstate waterways. Second, since the interstate pollution control agencies are dependent upon State regulation and enforcement powers, their work reflects the weaknesses of State water quality control. This is particularly true with respect to excessive time delays resulting from too great reliance on the techniques of cooperation and persuasion and a rather general failure to bring large industrial polluters under effective control.

Interstate agreements have had a much less direct effect on water quantity in urban areas. Interstate compacts dealing with quantity have been concerned primarily with the allocation of water, primarily in the Western States. Typical are the compacts on the Canadian, Sabine, Klamath and Bear Rivers, which specify the amount of water each State may store or divert. These compacts also provide a framework for the settling of disputes and authorize the collection of hydrologic data. However, none are directly concerned with urban water supply. Nor do any of them provide a framework for comprehensive multipurpose water resource development. The Federal Water Pollution Control Act establishes a national policy of supporting the creation of interstate compact agencies to deal with pollution on interstate waterways by providing advance Congressional consent for the negotiation of such compacts. The Act does require that such compacts then be submitted to the Congress for its consent prior to their becoming operative.

The interstate compacts establishing the Interstate Sanitary Commission with jurisdiction over New York Harbor, the Ohio River Valley Water Sanitation Commission and the Tennessee River Basin Water Pollution Control Commission, empower these interstate agencies to coordinate State programs, investigate pollution, conduct hearings and issue orders to stop pollution. These compacts may serve as an appropriate model for other States having major interstate waterways serving highly urbanized areas desiring to cooperate in pollution abatement control.

6. State's financial and technical assistance and incentives for comprehensive development of facilities planning and construction

The Commission recommends that the States enact legislation to (a) provide grants for capital development and assistance improvements designed to supplement Federal aid under the Water Pollution Control Act of 1956, (b) provide incentives for comprehensive development and appropriate organization on watershed, drainage basin or metropolitan area bases with sufficient discretionary authority vested in the State administrators to discourage uneconomical investment in water and sewer utilities, (c) expand their technical assistance programs for waste disposal planning and construction, (d) liberalize debt limits and referenda requirements for water and sewage facility financing, (e) permit joint action by units of local government in meeting area water and sewage needs.

Public investment in water and sewer facilities is inadequate. The problem is particularly severe in the case of sewage treatment. The principal causes of this lag are political, a product of the unwillingness of the local governments to spend the requisite funds. Voters at the local level prefer sub-optimal solutions because they are cheaper in the short run. Pollution control measures are resisted because the direct benefits to the community often are subtle, with downstream water users receiving the major benefits.

The most fruitful approaches to the problem of inadequate investment are the provision of incentives in the form of matching grants from the State and Federal governments, more rigorous State and Federal enforcement of public health and pollution control requirements, and improved service area organizations offering economies of scale.

Compared with investment requirements and Federal aid, State financial assistance overall has been modest. Moreover, less than one-fifth of the States provide direct financial assistance. The existing State aid programs, while providing incentives for investment on an individual community basis, do not offer inducements for more comprehensive development. As in the case of organization facilitation, the States have provided tools, but given little thought to the kind of job that needs to be done. Quite understandably, the States have reacted to inadequate investment and the shortcomings of individual systems with the most readily available devices. But they must refine their approach.

In addition to its traditional role of supervising quality of urban water supplies (generally administered through the State

health departments), the States should undertake a more active role with respect to water source development and water supply availability to urban areas. Such activity might include review and guidance with respect to development of water sources and of urban water supplies from a quantity viewpoint. States should have sufficient authority to make recommendations and seek compliance to assure minimum reasonable water service.

Other State activities that might be undertaken to insure adequate long term urban water supplies should include use of State fiscal ability and credit, including consideration of loans or grants, to insure adequate, reasonable and timely financing of urban water projects to support, or to stimulate and encourage, efforts aimed at solving urban water problems in a comprehensive and coordinated manner; provision of improved and expanded water supply technical consultative services by the State to urban areas; State support or stimulation of planning and research including economic and demographic studies and governmental and financial research with adequate dissemination of findings to urban officials, citizen leaders, organizations and the general public; the extension or development of State technical engineering services for the development of regional, basinwide or statewide surveys, to establish future water needs and to provide a broad framework for cooperative development of the limited remaining water sources including transmission facilities to urban centers. State participation and assistance in the solution of particular metropolitan water problems is justified when the local jurisdictions involved cannot reach agreed upon solutions for water services. The Governor, utilizing his technical water supply agencies responsible for review and guidance of urban water quantity programs where appropriate, should employ his discretionary authority to resolve those disputes among local units of government with respect to water supply and water pollution control which cannot be resolved at the local level by mutual agreement or do not warrant special legislative action but which, however, are of such importance as to impede the effective performance of governmental functions in the area. Such action would be in accordance with the Commission's previous recommendation on resolution of disputes among local units of government in local areas (contained in the Governmental Structure report). State programs should provide incentives for comprehensive development of waste treatment facilities and to insure against uneconomical investment in small community facilities. New York's recently enacted State sewage treatment program is one of the few that recognizes comprehension as a criteria in the administration of sewage treatment grants. Consideration should be given to utilizing the entire range of facilitative programs to induce, at a minimum, comprehensive planning on a watershed, drainage basin, and metropolitan basis. Finally, in spite of beneficial developments in a number of States, there is a continuing need for more liberal debt limits and referenda

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requirements if effective local action on water and waste problems is not to be discouraged. To be sure, State facilitation has provided a means whereby a water or waste problem can be solved more satisfactorily than would be possible without such enabling legislation. However in many areas, State facilitation has served only to promote proliferation and unwise investment in small facilities. The situation is compounded when States permit the creation of small districts and help finance uneconomic development with State assistance programs which favor small or financially marginal communities or utility districts.

The State role in urban water resource development and the abatement of pollution will grow in importance. Potentially, the most important areas of State activity are comprehensive planning and the actual development of urban water sources. To date, the States have not fulfilled their potential because of diffused responsibility and inadequate funding.

State development of urban water sources is best illustrated, and largely limited to the efforts of New Jersey and California. Other States are likely to expand their water resource activities into this sphere because of scarcity of supply, population growth, megalopolitan development, competition for types of use, and the urbanization of all or large parts of States. The experience in New Jersey and California suggests that when the State develops water supplies, the urban areas are willing to relinquish considerable control over their individual water supplies in return for the benefits from State's greater capability for planning and financing a comprehensive program beyond the abilities of the local community or the metropolitan area.

7. Promotion of metropolitan-wide planning and development of sewage treatment facilities

The Commission recommends that Federal grants for sewage treatment plant construction be consistent with comprehensive drainage basin and metropolitan area planning, and that the existing program be amended to provide an additional matching incentive for the development of sewage disposal systems on a regional or major subregional basis. Federal construction grants for sewage treatment should be adjusted to provide for increased dollar ceilings in grants-in-aid to larger cities.

The Commission sees no present need for the establishment of any new general program of Federal grants-in-aid for local water supply and distribution facilities comparable to the Federal grant program for municipal sewage treatment construction.

Federal grants for sewage treatment construction have provided a significant incentive for increased investment at the local level. The Federal program has spurred rather than stifled State and local initiative. However, the Federal aid program does not provide adequate incentive for more economical and comprehensive sewage treatment facilities in metropolitan areas. Nor has the Federal program had a significant effect upon the problems of industrial pollution.

Undoubtedly, the 1961 amendments to the Water Pollution Control Act, by increasing the total grant funds available and permitting joint projects, will increase the incentives for local investment in sewage treatment facilities. Federal aid cannot be expected, in and of itself, to make up the capital shortcomings in waste disposal systems. Increasing the percentage of project costs eligible for Federal aid is not likely to strengthen markedly the Federal incentive programs. The present ratio maintains a good balance between a Federal spur to investment initiative and State or local participation.

Federal sewage treatment grants can, moreover, be a tool for shaping a better metropolitan community. However, the Federal aid program does not provide sufficient incentives for more economical and comprehensive waste disposal development in metropolitan areas. Federal policy should actively promote the development of sewage treatment systems on a scale consistent with sound investment and planning practices. State agencies and Federal officials responsible for the implementation of the assistance program should take steps to insure that Federal grants are denied to crisis-oriented, short-sighted, and uneconomical solutions. To the degree possible under the present legislation, Federal assistance should be used to promote sewage treatment plant construction based on comprehensive drainage basin and metropolitan area planning. Further, Congress should consider providing financial incentives (e.g., an extra 10 percent Federal matching) and exceptions to the present limiations on the size of grants for the development and implementation of sewage disposal systems in metropolitan areas which are planned or developed on a regional or major subregional scale.

The Senate Committee Report 68/ on the 1961 Amendments to the Federal Water Pollution Control Act noted that while "...we are experiencing an explosive population growth..."

68/ U.S. Congress, Senate, Committee on Public Works, Federal Water Pollution Control Act Amendments of 1961, 87th Cong., 1st Sess., Senate Report No. 353, June 7, 1961, to accompany S. 120.

> Most of the population increase will be in metropolitan areas. It is conservatively estimated that the larger metropolitan areas will contain 70 percent of the total population by 1980 and 80 percent by year 2000, when 95 percent of the total population are expected to reside in urban places... /The magnitude of the problem of disposing of municipal sewage will grow in direct proportion to this increase in urban populations. Municipal sewage includes those wastes from domestic, commercial, public, and industrial establishments discharging through municipal sewer systems./ Perhaps 80 percent (by number, rather than by volume or value of products) of the industrial establishments in the United States are connected to such systems /in these areas/, and it is estimated that about one-third of the organic wastes treated by municipalities are industrial in origin.

The existing dollar limitation of the Federal program (not to exceed $600,000 per community project) discriminates against the larger communities and discourages construction on an optimum scale. The record of the construction grant program since its inception in 1956 indicates that while communities of 125,000 and over represent 46 percent of the total population aided by this program, they received only 9 percent of the grant offers made by the Federal Government to communities ($25.5 million out of a total Federal expenditure of $290 million). Likewise, communities of under 5,000 representing 10 percent of the population served, received 37 percent of the grant offers. Table V indicates the distribution of grants by population grouping.

Realistically, raising the current dollar limitations on individual grants will require that consideration be given either to revising the amount of appropriation allocated to the smaller communities or increasing presently authorized appropriations.

Without the guarantee of an adequate water supply both the health and future development of a city could be impaired, perhaps permanently. Inadequate investment has been a basic problem in providing sewer utilities in our urban areas. However, there is considerably less resistance to the investment of local funds in water supply and water supply facilities. Most cities still tend to invest in sewage disposal facilities only after insuring their current and foreseeable future water supply needs. Investment lag in water storage and distribution facilities has been more a product of rapid population growth and not anticipating sufficiently their future needs rather than local governmental resistance to

Table V - SEWAGE TREATMENT
CONSTRUCTION GRANT PROJECTS BY POPULATION GROUPS SERVED BY PROJECTS
1956-62

Population	Population Served		Projects		Estimated Eligible Project Cost		Federal Grant Offers Made	
	Number in Thousands	Percent of Total	Number	Percent of Total	Millions of Dollars	Percent of Total	Millions of Dollars	Percent of Total
Less than 2,500	1,732	5%	1,688	48%	$ 205.1	15%	$ 59.5	21%
2,500 to 5,000	1,787	5	552	16	164.4	13	47.1	16
5,001 to 10,000	3,261	9	495	14	213.2	16	57.3	20
10,001 to 25,000	5,145	15	359	10	219.8	16	52.3	18
25,001 to 50,000	4,690	13	174	5	158.6	12	30.6	10
50,001 to 125,000	2,422	7	96	3	133.2	10	17.2	6
125,001 to 250,000	3,665	11	66	2	60.4	5	9.7	4
250,001 to 500,000	4,305	12	35	1	47.0	3	6.7	2
500,001 and Over	8,072	23	35	1	129.2	10	9.1	3
Totals	35,079	100	3,500	100	1,331.1	100	289.5	100

Source: Public Health Service, Department of Health, Education, and Welfare, June 30, 1962

expenditure. The Commission, therefore, recommends against the establishment by Congress of any new general program of general grants-in-aid for water supply and distribution comparable to the Federal grant program for sewage treatment plant construction.

8. Discourage fragmentation and short-term anticipation of needs in community water supply systems and use of individual water and sewage systems

The Commission recommends that the Congress amend the statutory authority for the Public Facility Loans Program of the Housing and Home Finance Agency to permit (a) communities of 50,000 population or more to qualify for sewer and water project loans, and (b) the joining together of communities with an aggregate population exceeding 50,000 for purposes of such loan assistance. 69/

The Commission further recommends that the Housing and Home Finance Agency make full use of its authority to defer principal payments on public facility loans for projects planned to meet future growth needs and that the present law be amended to more effectively permit deferral of interest payment in such situations. 69/

It is also recommended that Federal action be taken to support the previous recommendation (Recommendation 5) that septic tanks and private wells be limited to exceptional situations consistent with comprehensive land use goals. The National Housing Act under which the Federal Housing Administration's Mortgage Insurance Program is administered and the law covering the Veterans Administration Home Loan Program should be amended (a) to provide that individual or subdivision development projects utilizing individual wells and septic tanks be ineligible for the FHA or VA insurance or loans in areas where the installation of public or community water and sewage systems are economically feasible, 69/ and (b) to provide insurance for site preparation and development including costs of water and sewer lines and systems.

Under the current legislative requirements of the Housing Amendments of 1955, the Public Facility Loans Program administered by HHFA, requires that the population of the applicant community must be under 50,000. In redevelopment areas, which have been so designated by the Area Redevelopment Administration, the population must be below 150,000 and projects shown to contribute toward a reduction of unemployment. There is no minimum population requirement. This Federal program was authorized to help meet needs of communities for some major public works, such as sewer or water systems by means of long-term construction loans. The law requires that private

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69/ Secretary Dillon believes that while these proposals appear to have merit, he prefers to abstain from a position on them pending further study by the Executive Branch agencies concerned.

investors be given a chance first, to provide the needed credit. The Community Facilities Administration purchases the community bonds only when private investors are unable to take them on reasonable terms. The Program, when first initiated, had relatively limited funds available and its primary aim was to help small communities to secure needed public services. In recent years, the Program has been greatly expanded to a point where loans are now made at a rate of $100 million a year.

The present 50,000 population limitation of the Public Facilities Act has several major disadvantages with respect to meeting governmental responsibilities for water supply and sewage disposal in metropolitan areas. First, it directly discriminates against communities of 50,000 population or more by not permitting them to receive public facility loans. Second, it encourages fragmentation, duplication, and inadequate long-term facilities by prohibiting bond action by a number of communities within a metropolitan area to meet water and sewer needs. For example, several communities each having a population of less than 50,000 may desire to join together to provide a needed public utility such as a water or sewerage disposal system, or connecting facility. Individually, each of the communities would be eligible for loan assistance under the Public Facility Loans Program, but when acting jointly (through the establishment of an instrumentality serving the entire area) they would be ineligible for Federal loan assistance because their aggregate population exceeded 50,000. The proposed amendment would make such cooperating governments eligible for such public facility loans.

This population limitation operates directly counter to many of the existing program objectives of the Housing and Home Finance Agency and other Federal agencies in meeting metropolitan problems. Section 310(b) of the Housing Act of 1961 stresses the desirability of cooperative action among municipalities and other political subdivisions in preparing comprehensive planning under the Section 701 Program. The open space land provisions of the 1961 Housing Act authorize 30 percent grants, in lieu of the regular 20 percent grants, for projects involving joint participation by several political subdivisions.

The Commission therefore recommends that legislation be enacted which would remove the current population limitation, and which would permit Federal loan assistance to public agencies or instrumentalities serving a number of jurisdictions irrespective of the aggregate total population. Such legislation would overcome the incongruity of communities under 50,000 population eligible for Federal loan assistance when acting separately but ineligible when acting jointly, and would thereby

further the Commission's often stated objective of encouraging joint and cooperative efforts by local governments in coping with problems of metropolitan growth. Enactment of such legislation would complement the action of the 86th Congress in amending the Water Pollution Control Act to permit communities to pool their Federal grants in constructing joint sewage treatment projects to serve their common needs.

Under the present public facilities loans program the Housing and Home Finance Administrator can purchase obligations and loans financing public facilities with maturity dates up to 40 years. The Administrator under this authority can accept term bonds. Repayments are made from a sinking fund when sufficient net revenues are generated. The law thus permits the deferral of principal payments. Communities planning for anticipated growth are faced with the problem that service charges to pay principal and interest on water and sewer facilities are not likely to be sufficient until the population reaches planned levels. Community practice in such situations has too often been to meet only short term needs and construct uneconomical and fragmented systems. The agency should use this deferral of principal authority to the maximum possible extent to postpone principal payments on water and sewage facility loans where such loans are to be used to finance construction of facilities large enough to meet the needs resulting from future growth of the communities.

The present public facilities loan legislation should be amended to eliminate certain restrictions on the deferment of interest payments in financing public facilities adequate for future growth of communities. The Administrator can under existing law defer interest payments on 50 percent of a public facility loan for a period of up to 10 years where the loan does not exceed 50 percent of the development cost of the project financed by the loan, and it is determined that the borrower will experience above average population growth and the project will contribute to the orderly community development, economy, and efficiency. Any amounts of interest postponed are payable with interest in annual installments during the remaining maturity of the loan.

The provision that deferment of interest can be allowed only where the loan does not exceed 50 percent of the development cost of the project is too restrictive and should be changed to permit deferment where more than 50 percent of the cost is covered by the loan. This provision was intended to encourage combined private or other non-Federal and Federal financing. However, the law provides elsewhere that no financial assistance shall be provided under the program unless the assistance applied for is not otherwise available on reasonable terms. This was designed to assure maximum non-Federal

participation in the financing of public works under the program. Removal or decreasing the 50 percent non-Federal contribution requirement would give more local governments the assurance that they could finance larger projects to meet anticipated needs, because the privilege of interest deferment would not be limited, as it is now, to those borrowers who have financed at least 50 percent of the cost of their projects with non-Federal financing. This requirement has, by and large, made the deferred interest provision of the public facilities loan legislation inoperative.

The requirement in the law that it must be determined that the borrower will experience above average population growth before being granted an interest deferral should also be changed to require substantial population growth or some other less difficult requirement. Given the current rate of urban growth and water consumption, the need for facilities large enough to serve future needs is not confined to communities experiencing above average population growth. Neither is it possible to foresee many years in advance when above average population growth may develop. The present restriction creates an articifical discrimination against many communities and has likewise contributed to making the deferred interest provision ineffective in encouraging communities to provide for future needs.

Septic tank failure, well pollution, and ground water depletion in numerous urban areas are testimony to the shortcomings of present subdivision regulation by the State health departments. Regulatory efforts have beenhindered by inadequate data, insufficient funds, a lack of trained personnel, weak laws and regulations, and complaisant enforcement. An important factor has been the pressures from subdevelopers and well diggers for minimal standards and weak enforcement. A recent New York State report noted that the Department of Health efforts to secure community sewage collection and treatment have often been unsuccessful because of local pressures for continued land subdivision on the basis of individual systems. 70/

The present record involving use of individual septic tanks and wells in metropolitan areas leads to the conclusion that a major effort must be made by the States and local governments in limiting sharply the use of these individual systems to those situations which can be fully justified. Even under these circumstances, major efforts should be made to explore fully every opportunity for the utilization of public or community water and sewage facilities.

70/ New York, Executive Department, Office for Local Government, Study of Needs for Sewage Works (Albany, February 16, 1962), p. 1-26.

Federal housing programs of assistance to housing and community development are designed to aid communities and stimulate local action to assure families the opportunity to secure a decent home in a suitable living environment. The Federal Housing Administration's program of mortgage insurance for housing construction can play an effective role in combatting septic tank failure, well pollution and ground water depletion in urban areas.

Federal objectives in providing decent and safe housing and sound urban area development can accomplish their purpose only if the State and the communities are willing to enact and actively carry out such reasonable health and housing regulations. Precedents for requiring that FHA mortgage insurance be approved only in communities that have adopted and are enforcing adequate health and sanitary codes to give protection against ground water pollution are already found in the Housing and Home Finance Agency's workable program for community development. Adequate building, plumbing, electrical and housing codes are currently required for such Federal Housing Administration programs as mortgage insurance for housing construction or improvement in urban renewal project areas, in the FHA mortgage insurance program to provide rental housing for families of low and moderate income and those displaced by governmental action.

Federal housing programs as presently administered go far toward encouraging provision of service from public or community water and sewerage systems, wherever such systems are available or feasible. The record of the FHA is especially good in obtaining use of sewers for waste disposal rather than individual sewerage disposal systems. The U.S. Public Health Service has reported that in 1960 more than 50 percent of the new residents of metropolitan areas are using septic tanks instead of sewers for domestic waste disposal. For the same period, the FHA reported that of all new single family homes accepted for mortgage insurance, 82 percent were served by central sewers. Individual sewerage disposal systems throughout the country served only 17.9 percent of FHA insured homes as opposed to a national average of 50 percent in metropolitan areas.

A major loophole, however, still exists in the administration of the Federal housing programs in that in some States, local ordinances do not require construction and maintenance of public or community water and sewerage systems even where they are economically feasible. In many local jurisdictions, officials refuse to approve establishment and operation of such public or community systems to avoid additional taxes or public expenditure, or other reasons.

When such a situation exists, FHA and VA waive their strict requirements respecting the use of public and community systems where they are available or feasible and acquiesce to local ordinances or practices. To close this loophole, authority should be given to these Federal agencies to refuse to insure mortgages or make loans for subdivisions or individual homes where State or local law or ordinances or other official action prevents the installation of public and community water and sewerage systems that would otherwise be feasible.

To help stimulate private financial investment in proper land development and reduce use of private wells and septic tanks, Congress should give further consideration to providing FHA insurance for development of water and sewer lines or community water and sewerage systems. Last year, the House Committee on Banking and Currency in their report on the proposed Housing Act of 1961 (House Report No. 447, 87th Congress, 1st Session) concluded that a new program of mortgage insurance for preparation and development is needed to make it possible for smaller builders and developers to undertake land development activities on a more competitive basis with those larger developers who are more readily able to do so.

> By making major capital improvement items, such as pavement, water and sewer lines, and utility plants, eligible for FHA insurance along with the individual houses, your committee feels that much needed stimulus will be given to the development of communities on a well-planned and sound basis. The soundness of financial investment in residential land development has been demonstrated by the authorization given to Federal savings and loan associations for this purpose in the Housing Act of 1959. This program of insurance for land development should assist these and other lenders to make credit available for this purpose.
>
> Your committee believes that this program is an important addition to the forward-looking steps which have been enacted by the Congress to promote sound use of our land for health residential development....

Enactment of such legislation along with amendments to the Federal Housing Act (and in comparable VA legislation) would go far toward reducing the future uneconomical and unsatisfactory investment in private water and sewerage systems in our growing urban areas.

9. Use of Federal enforcement and Federal incentives for industrial pollution abatement

Federal action is needed through use of strong enforcement powers and financial incentives, or both, for industrial pollution abatement. The Commission recommends that the President direct the appropriate Federal departments and agencies to evaluate present enforcement powers and financial incentives in order to determine how their effectiveness may be improved through changes in procedures, policy or statutory revision, and the roles of State and local governments in such a program.

At present, State and Federal aid programs provide little assistance or incentives for industrial pollution abatement. Even with an investment of $100,000,000 in waste control during the past 10 years, there has been no appreciable decline in water pollution by the paper industry. 71/

In some instances industrial waste problems can be alleviated through the use of public sewage systems, and this is the practice in many places. This approach is particularly helpful to in-city and smaller industries. But in view of the overall shortcomings of municipal sewage treatment, it does not offer a viable alternative in a great many urban areas. Nor can municipal treatment handle the heavy volume of wastes produced by huge industrial complexes, adjacent to urban areas, which reduce water quality in one or more metropolitan areas. However, because of the economies of scale involved, municipal, subregional, and metropolitan sewer and sewage treatment facilities should be designed to accommodate industrial wastes which can be handled without damage to the system.

More effective enforcement by the States, an increased municipal treatment of industrial wastes, cannot provide a complete solution to the problem of industrial pollution. The capabilities of individual communities, metropolitan areas and States are inherently limited in the fight against industrial pollution. Therefore, effective industrial pollution abatement must be of sufficient scope to avoid penalizing the particular community or State which undertakes an effective control program. The indisposition of the State to control industries, lest the industries flee to other States, is a compelling argument for Federal control. Similar circumstances have produced Federal participation in a national unemployment insurance program, minimum wage standards, and other controls on industries in interstate commerce.

71/ Earl Finbar Murphy, Water Purity (Madison: University of Wisconsin Press, 1961), p. 10.

Federal water quality control activities are extremely important to the continued effectiveness of State and local pollution abatement programs. The underlying objectives of Federal research and enforcement efforts--to strengthen State water programs so that problems can be resolved without Federal intervention--is sound. The Federal role is vital if States and localities are not to be penalized, particularly by industry, for development and enforcing effective water quality programs.

The 1961 amendments to the Water Pollution Control Act of 1956, which extended Federal water pollution control jurisdiction to all navigable water bodies and authorized Federal enforcement action on intrastate pollution if the State requests aid, are consistent with this overall objective. Delay, in water quality control enforcement, as in other areas, is a price that must be paid for a functioning cooperative effort by the different levels of government. However, the cooperative and consultative character of Federal pollution control enforcement will break down if it permits interminable delays by communities and industries which refuse to provide adequate waste treatment.

Federal assistance grants for sewage treatment plants have had relatively little impact on the problem of industrial pollution, except in those municipalities where the Federally assisted facility has treated industrial waste. A number of possible approaches to the industrial pollution problem at the Federal level have been suggested, including rapid tax amortization, industrial waste treatment development, and Federal income tax credits.

It may be fruitful also to explore the possibility of a Federal tax based on water use, more particularly on the quantity of pollution it carries into the rivers and streams with the proceeds of such a tax used to finance part of the cost of water pollution control. Closely related is the question whether special provisions governing the tax treatment of business investment in pollution control facilities under the Federal corporate income tax offer a potentially effective incentive for stimulating the program objectives. A number of States (Arkansas, Maine, Massachusetts, New Hampshire, North Carolina, Vermont, Virginia, Wisconsin) currently provide tax benefits for industrial pollution control. A somewhat different approach for use of Federal taxes to foster investment in waste treatment facilities has been offered by Marion Clawson and Irving K. Fox, who recommend a Federal tax on all municipal and industrial water with tax rebates commensurate with city or industry funds expended on pollution abatement or control. 72/

72/ Marion Clawson and Irving K. Fox, Your Investment in Land and Water (Washington: Resources for the Future, 1961), p. 20.

The success that the present Federal grant program to public agencies has had in providing incentives for new investments and the seriousness of the industrial pollution problem make it imperative that these and other proposals (although they raise a number of problems of policy and administration) for providing Federal incentives for industrial investments in water quality control be given consideration.

10. Recognition of water supply requirements in Federal water programs

The Commission recommends that in future Federal water resources planning and development activities urban needs be given attention equivalent to that given the water requirements of navigation, power production, industry, agricultural uses, recreation and conservation and that existing gaps in Federal technical assistance activities to States in the field of water quality and quantity for urban areas be filled.

National policies for urban water supply and pollution control must change to meet the impact of population, increased per capita consumption and industrial use. Today there is a responsibility for individuals, local governments and industry in using water to return these waters to the streams as clean as is technically possible. There is a need to develop a comprehensive and well understood National goal for urban water supply and sewage disposal within which general gaps in programs can be filled and individual activities related and coordinated. Such a National policy should be established by the President and the Congress with respect to the provision of adequate water supply and pollution control in a framework of fostering and promoting sound development of the Nation's urban areas, including assisting State and local governments to accomplish this purpose.

An important Federal responsibility in the area of urban water supply is the development in cooperation with the States of comprehensive river basin policies which will give full consideration to urban needs in the planning and development of Federal water resource programs. Federal activity has been crucial to comprehensive multipurpose river basin development in the past; it is likely to remain so in the future. The Federal Government should insure that water resource planning and development by each of its water agencies, and on each river basin in which the Federal Government has an immediate interest, take into account the needs of urban areas as well as the needs for agriculture, power production, industry, recreation, fish and wildlife.

To accomplish these objectives, (1) full use should be made by the States and local governments as well as by the Federal Government of the provisions of the Water Supply Act of 1958 (Title III, P.L. 500)

as amended (P.L. 87-88, 1961 Amendments to the Water Pollution Control Act of 1956) authorizing use of Federal reservoirs to provide for future anticipated urban water requirements; (2) the Federal Government should exercise increased leadership in relation to water pollution control planning through the development of comprehensive programs as authorized by section 2(a) of the Federal Water Pollution Control Act; that effective scheduling by geographic areas of such programs be made considering the matters of timing and the availability of appropriations in relation to other Federal and State river basin development programs and that such comprehensive programs be developed in cooperation with Federal, State and interstate agencies, with municipalities, industries and other interested parties, and after review and approval by the Executive branch, submitted to the Congress for its consideration.

In carrying out this planning program the Commission takes cognizance of the widespread effect of the language of section 2(a) of the Federal Water Pollution Control Act which requires that "in the development of such comprehensive programs due regard shall be given to the improvements which are necessary to conserve--waters for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes, and agricultural, industrial, and other legitimate uses." This responsibility will require extensive coordination between the Department of Health, Education, and Welfare and other Federal agencies to make this aspect of the program most effective; (1) full use should be made of the provisions of section 2(b) of the Federal Water Pollution Control Act authorizing inclusion of storage in Federal reservoirs for stream flow regulation to safeguard and enhance the quality of streams used by urban centers for water supply sources and to facilitate the disposal of treated municipal and industrial wastes; (2) there should be improved coordination of Federal-State river basin planning.

Another important Federal responsibility is a strengthened program of assistance to States in carrying out their responsibilities for assuring adequate long term urban water supplies. This program of technical assistance is in accordance with the traditional long standing Federal-State relationships that already exist with respect to water quality programs. To accomplish this objective the appropriate Federal departments and agencies should fill a neglected area of technical consultation by assisting States and interstate agencies in their planning for the development and use of water resources for domestic, municipal and industrial purposes. The States should have fully available to them the extensive facilities, technical knowledge and trained personnel of the various Federal agencies concerned with water resource development in assisting them to develop new methods, improved technology and economic research to meet their problems

of water quantity and quality for urban areas. Such activities should include (a) development of model State legislation concerned with urban water problems and (b) support of State urban water programs through technical assistance, regional or basin-wide water supply planning methodology, research and technological development on water quantity problems (comparable to presently authorized and ongoing programs in water quality) and interstate cooperation.

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APPENDIX A

STATE WATER RESOURCES PLANNING AND COORDINATION ACT

Traditionally, water pollution control, water allocation, water resource development, and other phases of the overall water resource problem have been administered independently by different agencies and independent boards within the state governments, thus providing inadequate attention to long range planning and policy coordination. In addition, the regulation and development of water resources have often been complicated by the fact that political boundaries often have not followed the natural boundaries of watersheds which are the logical water resource planning units. Now, with the rapidly expanding and often competing needs of agriculture, industry, recreation, and urban areas for more clean water, there is an urgent need to assure that these demands are met in a coordinated way. Recognizing these problems in 1957, the Council of State Governments' report on State Administration of Water Resources, 1957, called for the establishment of comprehensive water resources programs in each of the states.

Many of the difficulties and needs set forth in the Council's report have been further documented in a report of the Advisory Commission on Intergovernmental Relations, entitled Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas. In that report the Commission recommended establishment of a unit of state government for overall state water resources planning and policymaking. The following draft legislation would implement that recommendation and would be completely consistent with the earlier recommendation of the Council.

Under this draft legislation, authorization would be provided for the placing of overall water resource planning, policymaking and coordination responsibility in a single unit of state government. This unit of state government would be directed to give consideration to the water resource requirements and problems of all water interests in the state and means by which these interests can be assured of representation on interstate water agencies to which the state may be a party.

As the level of government with basic responsibility for resource development, the states have an excellent opportunity to establish water resource policies, planning procedures and coordination that is comprehensive enough to balance multiple uses with one another and overcome jurisdictional problems.

Some states already have agencies combining water resources programs as well as coordinating functions in a single water resources agency. This agency may be a separate Department of Water Resources as in North Carolina, or a Division of Water Policy and Supply in the Department of Conservation and Economic

Development as in New Jersey. Other examples of state water resources organizations which combine operating programs as well as policy coordinating activities in a single agency may be found in the states of California and Connecticut.

Some states, however, prefer to establish a staff level agency, responsible to the Governor for studying and developing policies spanning the programs of the many state agencies concerned rather than to reorganize their water resources agencies by transferring individual bureaus and units to a new consolidated water resources organization.

If the staff agency approach is followed, leaving operating functions in their present locations, the following draft legislation, based largely on an Oregon law, may be used as a guide. Other states which have followed this general approach include Missouri, Kansas, Ohio and Rhode Island.

The draft legislation would effectively provide the Governor and the legislature with technical assistance in directing the coordinated use, development, and regulation of the water resources of the state and in establishing uniform policies to minimize conflicts between the various operating agencies and water interests of the state. It would (1) vest the planning and coordinating function in a single executive agency responsible to the Governor, (2) allow for participation in the development of recommended water policies by affected or interested state agencies and others, (3) give the Governor authority to adopt comprehensive and coordinated water resource plans and policies in accordance with the provisions of this act as a guide for executive agencies and to propose desirable legislative modifications, and (4) leave the operating programs, such as water pollution control, development of new water supplies, and allocation of water rights, to be administered by the agencies now charged with those responsibilities in accordance with existing legislation.

Suggested Legislation

/Title should conform to state requirements. The following is a suggestion: "An act providing for the vesting of responsibility for overall state water resource planning, policy formulation and program coordination in a single agency."/

(Be it enacted, etc.)

Section 1. Short Title. This act may be cited as the (name of state) Water Resource Planning and Coordination Act.

Section 2. Declaration of Policy. (a) The legislature recognizes that: (1) the maintenance of the present level of economic and general welfare of the people of this state and the future growth and development of this state for the increased economic and general welfare of the people thereof are in large part dependent upon a proper utilization and control of the water resources of this state, and such use and control is therefore a matter of greatest concern and highest priority; (2) the proper utilization and control of the water resources of this state can be best achieved through a coordinated, integrated state water resources policy, through plans and programs for the development of such water resources and through other activities designed to encourage, promote and secure the maximum beneficial use and control of such water resources, all coordinated by a single state agency; and (3) the economic and general welfare of the people of this state is impaired by the exercise of uncoordinated single-purpose power or influence over the water resources of this state or portions thereof by diverse public agencies and diverse statutory declarations of water resource policies resulting in friction and duplication of activity among public agencies and confusion as to what is primary and what secondary benefical use or control of such water resources and in a consequent failure to utilize and control such water resources for multiple purposes for the maximum beneficial use and control possible and necessary.

(b) The legislature, therefore, finds that it is in the interest of the public welfare that a coordinated, integrated state water resources policy be formulated and means provided for its enforcement, that plans and programs for the development and enlargement of the water resources of this state be devised and promoted and that other activities designed to encourage, promote and secure the maximum benefical use and control of such water resources be coordinated by a single state agency which, in carrying out its functions, shall give proper and adequate consideration to the multiple aspects of the beneficial use and control of such water resources with an impartiality of interest except that designed to best protect and promote the public welfare generally.

Section 3. Planning and Coordination Staff. The Director of the Office of State Water Resources /or the head of such other agency or unit of the state government as the Governor may designate/ [1] (hereinafter referred to as the Director) shall have the responsibility for leadership and direction of a program to implement the legislative policy declared by this act, and may employ such additional staff and other resources as may be available to him and necessary to the exercise and performance of duties and responsibilities conferred by this act.

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1 The suggested office is a staff organization to aid the Governor rather than an operating agency. Alternatively the office could be placed in an existing department of administration or department of planning already exercising coordinative functions for the Governor, and in any case should have close contact with such departments.

Section 4. Duties and Responsibilities. (a) Assistance to Governor. The Director shall advise and assist the Governor in: (1) formulating and establishing a comprehensive water resources policy for the state; including coordination of policies and activities among the state departments and agencies; (2) developing and establishing policies and proposals designed to help meet and resolve special problems of water resource use and control within or affecting the state, including consideration of the water resource requirements and problems of urban areas; (3) reviewing the actions and policies of state agencies with water resource responsibilities to determine the consistency of such actions and policies with the comprehensive water policy of the state; (4) reviewing any project, plan or program of Federal aid affecting the use or control of any waters within the state; (5) developing policies and recommendations to assure that the interests of its urban and other areas are provided for in the State's representation on interstate water agencies; (6) recommending to the legislature any changes of law required to implement the legislative policy declared in this act; and (7) such other water resources planning, policy formulation and coordinating functions as the Governor may designate.

(b) Studies and Surveys. The Director is authorized to carry out such studies, inquiries, surveys or analyses as may be relevant to his duties in assisting the Governor and in helping to implement the legislative policy declared in this

act, and in developing recommendations for the legislature. For these purposes, the Director shall have full access to the relevant records of other state departments and agencies and political subdivisions of the state, and may hold public hearings, and may cooperate with or contract with any public or private agencies, including educational, civic and research organizations. Such studies, inquiries, surveys or analyses shall incorporate and integrate, to the maximum extent feasible, plans, programs, reports, research and studies of federal, state, interstate, regional, metropolitan and local units, agencies and departments of government.

(c) Consultations. In developing recommendations for the Governor relating to the use and control of the water resources of the state, the Director shall: (1) consult with representatives of any federal, state, interstate, or local units of government which would be affected by such recommendations; and (2) be authorized to appoint such interdepartmental and public advisory boards as necessary to advise him in developing policies for recommendation to the Governor.

(d) Local Assistance. The Director shall encourage, assist and advise regional, metropolitan, and local governmental agencies, officials or bodies responsible for planning in relation to water aspects of their programs, and shall assist in coordinating local water resources activities, programs and plans.

(e) Reports. The Director may publish reports, including

the results of such studies, inquiries, surveys and analyses as may be of general interest, and shall make an annual report of his activities under this act to the Governor and the legislature.

Section 5. Planning Objectives. In exercising his responsibilities under this act, the Director shall take into consideration the need for:

(a) Adequate supplies of surface and ground waters of suitable quality for domestic, municipal, agricultural, and industrial uses.

(b) Water quality facilities and controls to assure water of suitable quality for all purposes.

(c) Water navigation facilities.

(d) Hydroelectric power.

(e) Flood damage control or prevention measures, including flood plain zoning, to protect people, property, and productive lands from flood losses.

(f) Land stabilization measures.

(g) Drainage measures, including salinity control.

(h) Watershed protection and management measures.

(i) Outdoor recreational and fish and wildlife opportunities.

(j) Any other means by which development of water and related land resources can contribute to economic growth and development, the long-term preservation of water resources,

and the general well-being of all the people of the state.

Section 6. Separability. /Insert separability clause./

Section 7. Effective Date. /Insert effective date./

APPENDIX B

CONTROL OF URBAN WATER SUPPLY AND SEWERAGE SYSTEMS

With increasing concentrations of population in urban areas, there is a growing need for planning and provision of reliable domestic water supply and waste disposal systems. Water problems are especially critical on the fringes of urban areas where improper or indiscriminate reliance on individual wells or waste disposal systems can create future problems. Sound planning and development of water supply and sewerage facilities is essential to assure the availability of an adequate supply of safe water, prevent pollution, eliminate health nuisances and hazards, and conserve ground water. It is also important for encouragement of economical and orderly development of land for residential, industrial, and other purposes, since the type and location of water and sewerage facilities is a critical determinant of land use.

From the standpoint of adequate planning and provision of water supply and sanitation, the various parts of an urban or metropolitan area are likely to require different kinds of water supply and sewerage facilities. Variations depend on such conditions as population density, lot size, land contour, soil porosity, and ground water conditions. Thus in some portions of urban communities, community water supply and sewerage systems are essential. In others, individual water supply and sewerage systems (private wells and septic tanks) may be permissible temporarily if provision is made for connection to a community system. In such cases it is important that these individual facilities be adequate and safe, and that they be discontinued once the community system becomes available. In still other parts of the urban area conditions are amenable to installation of individual water supply and sewerage systems for an indefinite period, provided there is proper assurance as to their safety and adequacy by the State health department. The proper selection of, or balance among, public systems and individual water wells and septic tanks can best be achieved if an appropriate State statutory framework for making the decisions exists.

In view of the need for adequate water supply and sewerage system planning and control and the varying requirements of different parts of urban areas, the Advisory Commission on Intergovernmental Relations in its report, Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas, has recommended that "legislation be enacted endowing the appropriate State and local agencies with regulatory authority over individual wells and septic tank installations, with a view to minimizing and limiting their use to exceptional situations consistent with comprehensive land use goals." Model State legislation to meet these needs has been developed by a special advisory committee to the U. S. Public Health Service on the basis of a draft prepared by the Commission and staff of the Public Health Service. The

special committee included representatives from the Public Health Service, the Commission, the Housing and Home Finance Agency, the American Municipal Association, American Society of Planning Officials, National Association of Counties, National Association of Home Builders, Water Systems Council, Conference of State Sanitary Engineers, and the Septic Tank Industry.

In December, 1964 the Interstate Conference on Water Problems, an organization of State officials associated with the Council of State Governments, endorsed the draft legislation's principle of "combined planning and control for the balanced use of community and individual water supply and waste disposal systems."

The statute provides for the development of an official community plan for water and sewerage systems consistent with the needs of the area. Such plans for each community would delineate the areas within which community systems must be provided, the areas where individual systems may be used on an interim basis, and the areas where individual systems would be generally permissible.

Under the statute, each municipality in designated urban areas is required to submit to the State Department of Health, usually within one year, a "community plan" for water supply and sewerage systems. The plan must assign each portion of the area covered to one of three categories of water and sewerage service:

(1) Portions where community water supply and sewerage systems must be provided to protect public health. The systems must be designed to permit connection to a larger system when the latter becomes available.

(2) Portions where individual water supply and sewerage systems may be installed during an interim period pending availability of programmed community water supply and sewerage systems. The interim individual systems must be adequate and safe, and provision must be made for discontinuing them when the community systems become available.

(3) Portions where individual water supply and sewerage systems may be installed, if the State Health Department judges their use to be adequate and safe.

Criteria for determining under which category each of the protions of the urban area shall be classified include: present and future density of population, lot size, land contour porosity and absorbency of soil, ground water conditions, type of construction of water supply and sewerage systems, and size of the proposed development.

The community plan must also: (1) provide for orderly extension and expansion of community water supply and sewerage systems; (2) assure adequate sewage treatment facilities for safe and sanitary treatment of sewage and other liquid waste; (3) delineate portions of the urban areas which community systems may be expected to serve within five years, ten years, after ten years, and of any portions in which provision of such services is not reasonably foreseeable; (4) establish procedures for delineating and acquiring necessary rights-of-way or easements for community systems; and (5) set forth a time schedule and propose methods of financing construction and operation of each programmed community system and the estimated cost.

The community plan must be submitted for review to official planning agencies having jurisdiction, including any areawide planning bodies, for consistency with programs of planning for the urban area, and the reviews must be transmitted to the State Health Department with the proposed plan.

The statute authorizes the State Health Department to adopt regulations to: (1) control, limit, or prohibit installation and use of individual and community water supply systems and sewerage systems; (2) establish procedures for preparation, submission, revision, review, and approval or disapproval of community plans; (3) prescribe the minimum contents of the plan; and (4) describe the criteria on which approval of the plans shall be based.

The State Health Department has authority to approve or disapprove community plans; and all its actions, including disapprovals, are subject to judicial review.

The Health Department is also empowered by the act to provide technical assistance to municipalities in preparing and coordinating community plans; to administer State grants to municipalities for preparing community plans; and to accept and administer Federal grants.

The act makes installation of water supply and sewerage systems dependent on existence of an official plan. It provides that within a specified time after submission of the community plan, no individual or community water supply or sewerage system may be installed in the areas covered by the community plan unless an official plan is in effect in such areas, and the systems and installations are consistent with the official plan. Further, no State or local agencies may grant building permits or approve subdivision plans, maps, or plats unless individual or community water supply and sewerage systems covered by such permits, plans, maps, or plats are found to conform with the official plan.

Such State legislation would go a long way toward properly meeting the critical water needs of urban areas, assure sound and orderly urban development, protect public health, and provide a reasonably economic and long term solution to the problems of obtaining and disposing of water.

Suggested Legislation

/Title should conform to State requirements/

(Be it enacted, etc.)

Section 1. Short Title. This Act shall be known and may be cited as the (State) Urban Water Supply and Sewerage Systems Act.

Section 2. Findings and Policy. (a) The (State) legislature finds that properly planned and installed individual and community water supply systems and sewerage systems in and near urban areas (1) assure the availability of adequate and safe water for various purposes, including drinking and culinary use, (2) promote the health and welfare of citizens of this State by preventing the pollution of ground and surface water, (3) eliminate nuisances and hazards to the public health, (4) contribute to proper conservation and use of ground water, (5) encourage economical and orderly development of land for residential, industrial, and other purposes, and are essential to the orderly processes of urban growth.

(b) It is, therefore, declared to be the public policy of this State to eliminate and prevent health and safety hazards and to promote the economical and orderly development and utilization of water and land resources of this State by encouraging planning and provision for adequate individual and community water supply systems and sewerage systems and by providing for the standards and regulations necessary to accomplish these purposes.

Section 3. Definitions. As used in this Act:

(a) "Community plan" means a comprehensive plan and all revisions thereto for the provision to a municipality or municipalities of both adequate water supply systems and sewerage systems, adopted by a municipality or municipalities having authority to provide or having jurisdiction over the provision of such systems.

(b) "Community sewerage system" means any system, whether publicly or privately owned, serving two or more individual lots, for the collection and disposal of sewage or industrial wastes of a liquid nature, including various devices for the treatment of such sewage or industrial wastes.

(c) "Community water supply system" means a source of water and a distribution system including treatment facilities, whether publicly or privately owned, serving two or more individual lots.

(d) "Department" means the _____ State Department of Health or its authorized representative. 1/

(e) "Individual sewerage system" means a single system of sewers and piping, treatment tanks, or other facilities serving only a single lot and disposing of sewage or industrial wastes of a liquid nature, in whole or in part, on or in the soil of the property, into any waters of this State, or by other methods.

(f) "Individual water supply system" means a single system of piping, pumps, tanks or other facilities utilizing a source of

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1/ The designated agency should be the one presently having authority to regulate sanitary practices within the State.

ground or surface water to supply only a single lot.

(g) "Lot" 2/ means a part of a subdivision or a parcel of land used as a building site or intended to be used for building purposes, whether immediate or future, which would not be further subdivided.

(h) "Municipality" means a city, town, borough, county, parish, district, or other public body created by or pursuant to State law, or any combination thereof acting cooperatively or jointly.

(i) "Official plan" means a community plan which has been approved by the Department.

(j) "Potable water" means water free from impurities in amounts sufficient to cause disease or harmful physiological effects with the bacteriological and chemical quality conforming to applicable standards of the Department. 3/

(k) "Subdivision" 4/ means the division of a single tract or other parcel of land, or a part thereof, into two or more lots, for the purpose, whether immediate or future, of sale or of building development, and shall also include changes in street lines or lot lines, provided, however, that divisions of land for agriculture

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2/ The definitions should be consistent with any definitions of the same terms established in the State's planning, subdivision control, and zoning enabling acts.

3/ In the absence of available State standards, PHS Drinking Water Standards (PHS Publication 956) are recommended.

4/ See footnote 2/.

purposes into parcels of more than ____ acres not involving any new street or easement of access, shall not be included within the meaning of "subdivision."

(l) "Urban area" means any area designated by the Department in accordance with Section 5 (e).

Section 4. Community Plans. (a) Each municipalitity in any urban area designated under Section 5 (e) of this Act shall, after reasonable opportunity for public hearing thereon, submit to the Department a community plan within the time prescribed by the Department pursuant to Section 6 (a) of this Act, and shall from time to time submit revisions of such plan as it deems necessary or as may be required by the Department.

(b) When more than one municipality has authority within a single urban area, the required community plan or any revision thereof may be submitted jointly by the municipalities concerned, or jointly by one or more of the municipalities with the concurrence of the others.

(c) Every community plan shall delineate, in accordance with applicable regulations adopted by the Department pursuant to Section 5 of this Act, those portions of the designated urban areas:

1. (i) where community water supply systems must be provided;

(ii) where individual water supply systems may be installed during an interim period pending the availability of a programmed community water

775-756 O - 65 - 11

supply system;

(iii) where individual water supply systems may be installed.

2. (i) where community sewerage systems must be provided;

(ii) where individual sewerage systems may be installed during an interim period pending availability of a programmed community sewerage system;

(iii) where individual sewerage systems may be installed.

(d) In addition every required community plan shall:

(1) provide for the orderly expansion and extension of community water supply systems and community sewerage systems in a manner consistent with the needs and plans of the area;

(2) provide for adequate sewage treatment facilities which will prevent the discharge of untreated or inadequately treated sewage or other waste of a liquid nature into any waters, or otherwise provide for the safe and sanitary treatment of sewage and other liquid waste;

(3) delineate with all practicable precision those portions of the urban areas which community systems may reasonably be expected to serve within five years, ten years, after ten years, and any portions in which the provision of such services is not reasonably foreseeable, taking into consideration (i) all related aspects of planning, zoning, population estimates, engineering, and

economics, and (ii) any existing State plan affecting the development, use, and protection of water resources;

(4) establish procedures for delineating and acquiring on a time schedule consistent with that established in Subsection (d) (3) of this Section necessary rights-of-way or easements for community systems;

(5) set forth a time schedule and proposed methods of financing the construction and operation of each programmed community system together with the estimated cost thereof;

(6) be submitted for review to official planning agencies having jurisdiction, including a planning agency with areawide jurisdiction if one exists, for consistency with programs of planning for the urban area, and such reviews shall be transmitted to the Department with the proposed plans; and

(7) include provision for periodic revision of the plan.

Section 5. Administration--Department Powers and Functions.

(a) The Department shall adopt and from time to time amend rules and regulations which provide for: (1) the control, limitation or prohibition of installing, and use of individual and community water supply systems and sewerage systems in accordance with the provisions of this Act; (2) the procedures in connection with the preparation, submission, revision, review, and approval or disapproval of community plans; (3) the minimum contents of such plans, and (4) the criteria upon which approval of such plans shall be based.

(b) Such regulations in providing criteria for the delineation in community plans of areas pursuant to Section 4 (c)

of this Act, and for the approval of community plans, shall be related to the present and future density of population, size of the lots, contour of the land, porosity and absorbency of the soil, ground water conditions and variations therein from time to time and place to place, including availability of water from unpolluted aquifers or portions thereof, type of construction of water supply systems and sewerage systems, size of the proposed development, and other factors reasonably necessary to implement the public policy as stated in Section 2 (b) of this Act.

(c) Such regulations shall:

(1) Require the installation of community water supply systems and sewerage systems and the connection of all premises thereto, if such systems are reasonably necessary to protect the public health, giving due consideration to such factors as are set out in Section 5 (b) of this Act. Such systems shall be designed so as to permit connection to a larger system at such time as the larger system becomes available, and

(2) Permit in areas where community water supply systems or sewerage systems are not available nor required to be installed under Section 5 (c) (1) of this Act, but are programmed to become available within a reasonable period of time not to exceed _____ years, 5/ individual water supply systems or sewerage systems or both, provided tnat: (i) such individual water supply systems or

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5/ Five years is suggested as a reasonable period of time. The time period should be determined on the basis of experience in the State where this legislation is enacted.

sewerage systems are adjudged by the Department to be adequate and safe for use during the period before a community water supply system or a sewerage system as the case may be are scheduled to become available and (ii) adequate provisions are made prior to or at the time of the installation of such individual systems to permit the discontinuance of their use and the connection of the premises served thereby to the community water supply system and the community sewerage system, respectively, in as economical and convenient a way as can be foreseen. Such provision for any subdivision shall include either the posting of a bond, with satisfactory surety, to secure to the municipality the actual construction and installation of such systems at a time fixed by the municipality not in excess of ____ years 6/ and in accordance with the regulations issued hereunder and with all other State and municipal requirements, or such other arrangements as may be deemed necessary and adequate to accomplish the purposes of this Section, and

(3) Permit in areas where community water supply systems or community sewerage systems are not available nor required to be installed under Section 5 (c) (1) of this Act, nor programmed to become available within a reasonable period of time not in excess of ____ years, 7/ individual water supply systems or sewerage systems, or both as the case may be, provided that such

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6/ This period should be the same as that fixed in Section 5 (c) (2). See footnote 5/.

7/ See footnote 6/.

individual systems are adjudged by the Department to be adequate and safe.

(d) The Department is authorized to issue such additional regulations as may be necessary to carry out the provisions of this Act.

(e) The Department shall designate those areas for which municipalities are required to submit community plans and revisions thereto in which applicable regulations shall apply. The designation shall take into consideration such factors as present and future population trends and densities, patterns of urban growth, geographic features and political boundaries, the location and plans for location of utility systems, and the distribution of industrial, commercial, residential, governmental, institutional, and other activities.

(f) After public hearing upon not less than 60 days prior notice published in one or more newspapers as may be necessary to assure general circulation throughout the State 8/ such regulations shall be adopted, amended, or revised.

(g) The Department is hereby authorized to approve or disapprove community plans submitted in accordance with Section 4. The Department may approve a community plan in part provided that the part approved includes all the required elements for such plan and applies to at least ninety percent (90%) of that geographic

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8/ This requirement should be consistent with the general practice for publication requirements in the State and with any State administrative procedure act which may apply.

area of the municipality for which a plan is required. That part of the plan which is approved shall constitute the Official Plan for the area to which it is applicable. When the plan is disapproved, in whole or in part, the Department shall notify the municipality in writing setting forth the reasons for such disapproval. Any such disapprovals and any other actions of the Department under this law are subject to judicial review as to whether they are arbitrary, capricious or unreasonable, and otherwise as provided for under the laws of the State. 9/

(h) The Department, upon request, shall provide technical assistance and consultation to municipalities in preparing and coordinating community plans required in Section 4 of this Act, including revisions of such plans. Such assistance may include studies, surveys, investigations, research and analyses on its own initiative.

(i) The Department is authorized to administer grants to municipalities to assist them in preparing community plans required by Section 4 of this Act and for carrying out related studies, surveys, investigations, research, and analyses. Such grants shall be made from funds appropriated by the legislature for these purposes. For purposes of this Section, costs shall be exclusive of those reimbursed or paid by grants from the Federal Government. 10/

9/ If administrative hearings on appeals from actions of the Department are not provided for under other State laws, a section on appeals and judicial review should be added.

10/ Any State not wishing to establish such a grant program may simply omit this paragraph.

(j) For purposes of this Act, the Department is authorized to accept and administer Federal grants and to comply with any conditions imposed by Federal law or regulation in connection with such grants.

(k) For purposes of this Act, the Department shall cooperate with all appropriate Federal, State, interstate, and local units of government, and with appropriate private organizations.

(l) There is appropriated $_____ to provide grants to municipalities as authorized under Subparagraph (i) of this Section and to cover necessary expenses of the Department in administering this Act.

Section 6. Conformance to Official Plan.

(a) The Department shall prescribe the time within which each municipality within areas designated under Section 5 of this Act shall submit a community plan or revision thereto. Such time for the initial submission of a community plan shall not be greater than one year from the date of designation of such area, except that the Department may extend such time for good cause shown.

(b) Within six months after the submission of a community plan or revision thereof, or six months after the time prescribed in Subsection (a) of this Section for the submission of a community plan or revision thereof, whichever is earlier, the Department shall approve or disapprove the community plan or revision thereof. Any community plan or revision thereof which has been submitted in accordance with this Section and which has not been disapproved by the Department within the time required by this Section shall be

deemed to be approved.

(c) After nine months following the submission of a community plan, or revision thereto, or nine months following the time within which a community plan or revision thereto is required to be submitted under Subsection (a) of this Section, whichever is earlier, or after such later date as may be established by the Department for good cause shown, no community water supply system or sewerage system, or individual water supply system or sewerage system may be installed in those geographic areas to which such community plan or revision thereto relates unless an official plan and any required revisions are in effect in such areas, and such system and installation are consistent with the official plan and any required revision thereto and with applicable rules and regulations.

(d) No State or local authority empowered to grant building permits or to approve subdivision plans, maps, or plats shall grant any such permit or approve any such plan, map, or plat which provides for individual or community water supply or sewerage systems unless such systems are found to be in conformance with the Official Plan and applicable rules and regulations. 11/ As a condition of such approval, the transfer of community systems to a municipality may be required in accordance with applicable provisions of State law as to compensation.

(e) Applicants for building permits and subdivision approvals,

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11/ See footnote 9/.

and water supply systems and sewerage systems construction approval, shall submit to the approving authority such information, in such form as may be reasonably necessary and required to show compliance with Subsection (c) of this Section.

(f) Any violation of Subsection (c) of this Section shall be punishable by a fine not to exceed $ _____. 12/ This shall be in addition to all other remedies and sanctions provided by law.

Section 7. Nothing in this Act shall be construed to prohibit the installation or operation of water supply systems used solely for purposes not requiring potable water.

Section 8. Conflict with Other Laws. The provisions of any zoning ordinance, subdivision regulation, building code, or other law or regulation of any municipality of the State establishing standards designed to afford greater protection to the public health, safety, and welfare of the community shall prevail over regulations adopted pursuant to this Act within the area over which the municipality has jurisdiction.

Section 9. Severability. /Insert severability clause./

Section 10. Effective Date. /Insert effective date./

12/ Penalty under this Act should be consistent with penalties under subdivision regulations and building codes within the State. A commonly used penalty is $100 with any persistent condition constituting a new violation each day it continues.

PUBLISHED REPORTS OF THE ADVISORY COMMISSION
ON INTERGOVERNMENTAL RELATIONS 1/

Coordination of State and Federal Inheritance, Estate and Gift Taxes. Report A-1. January 1961. 134 pp., printed.
Modification of Federal Grants-in-Aid for Public Health Services. Report A-2. January 1961. 46 pp., offset. (Out of print; summary available)
Investment of Idle Cash Balances by State and Local Governments. Report A-3. January 1961. 61 pp., printed.
Investment of Idle Cash Balances by State and Local Governments--A Supplement to Report A-3. January 1965. 16 pp., offset.
Interest Bearing U. S. Government Securities Available for Investment of Short-Term Cash Balances of Local and State Governments. September 1963. 5 pp., printed. (Prepared by U. S. Treasury Dept.)
Intergovernmental Responsibilities for Mass Transportation Facilities and Services. Report A-4. April 1961. 54 pp., offset. (Out of print; summary available)
Governmental Structure, Organization, and Planning in Metropolitan Areas. Report A-5. July 1961. 83 pp., U. S. House of Representatives, Committee on Government Operations, Committee Print, 87th Congress, 1st Session.
State and Local Taxation of Privately Owned Property Located on Federal Areas: Proposed Amendment to the Buck Act. Report A-6. June 1961. 34 pp., offset. (Out of print)
Intergovernmental Cooperation in Tax Administration. Report A-7. June 1961. 20 pp., offset.
Periodic Congressional Reassessment of Federal Grants-in-Aid to State and Local Governments. Report A-8. June 1961. 67 pp., offset. (Reproduced in Hearings on S.2114 before U. S. Senate, Subcommittee on Intergovernmental Relations of the Committee on Government Operations, January 14, 15, and 16, 1964, 88th Congress, 2d Session.)
Local Nonproperty Taxes and the Coordinating Role of the State. Report A-9. September 1961. 68 pp., offset.
State Constitutional and Statutory Restrictions on Local Government Debt. Report A-10. September 1961. 97 pp., printed.
Alternative Approaches to Governmental Reorganization in Metropolitan Areas. Report A-11. June 1962. 88 pp., offset.
State Constitutional and Statutory Restrictions Upon the Structural, Functional, and Personnel Powers of Local Governments. Report A-12. October 1962. 79 pp., printed.
Intergovernmental Responsibilities for Water Supply and Sewage Disposal in Metropolitan Areas. Report A-13. October 1962. 135 pp., offset.
State Constitutional and Statutory Restrictions on Local Taxing Powers. Report A-14. October 1962. 122 pp., offset.
Apportionment of State Legislatures. Report A-15. December 1962. 78 pp., offset.
Transferability of Public Employee Retirement Credits Among Units of Government. Report A-16. March 1963. 92 pp., offset.
*The Role of the States in Strengthening the Property Tax. Report A-17. June 1963. (2 volumes), printed. ($1.25 each)
Industrial Development Bond Financing. Report A-18. June 1963. 96 pp., offset.
The Role of Equalization in Federal Grants. Report A-19. January 1964. 258 pp., offset.
Grant-in-Aid Programs Enacted by the 2nd Session of the 88th Congress--A Supplement to Report A-19. March 1965. 22 pp., offset.
Impact of Federal Urban Development Programs on Local Government Organization and Planning. Report A-20. January 1964. 198 pp., U. S. Senate, Committee on Government Operations, Committee Print. 88th Congress, 2d Session.
Statutory and Administrative Controls Associated with Federal Grants for Public Assistance. Report A-21. May 1964. 108 pp., printed.
The Problem of Special Districts in American Government. Report A-22. May 1964. 112 pp., printed.
The Intergovernmental Aspects of Documentary Taxes. Report A-23. September 1964. 29 pp., offset.
State-Federal Overlapping in Cigarette Taxes. Report A-24. September 1964. 62 pp., offset.
*Metropolitan Social and Economic Disparities: Implications for Intergovernmental Relations in Central Cities and Suburbs. Report A-25. January 1965. 253 pp., offset. ($1.25)
Relocation: Unequal Treatment of People and Businesses Displaced by Governments. Report A-26. January 1965. 141 pp., offset.
Factors Affecting Voter Reactions to Governmental Reorganization in Metropolitan Areas. Report M-15. May 1962. 80 pp., offset.
*Measures of State and Local Fiscal Capacity and Tax Effort. Report M-16. October 1962. 150 pp., printed. ($1.00)
*Directory of Federal Statistics for Metropolitan Areas. Report M-18. June 1962. 118 pp., printed. ($1.00)
*Performance of Urban Functions: Local and Areawide. Report M-21. September 1963. 283 pp., offset. ($1.50)
*Tax Overlapping in the United States, 1964. Report M-23. July 1964. 235 pp., printed. ($1.50)
1965 State Legislative Program of the Advisory Commission on Intergovernmental Relations. Report M-24. October 1964. 298 pp., offset.
State Technical Assistance to Local Debt Management. Report M-26. January 1965. 80 pp., offset.

1/ Single copies of reports may be obtained without charge from the Advisory Commission on Intergovernmental Relations, Washington, D. C., 20575. Multiple copies of items marked with asterisk (*) may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., 20402.